

Chapter 7

Conclusions and Suggestions

7.1 Conclusions

Nowadays, people are living in a very dynamic world, where they are sharing huge knowledge and information. Under the associations of information technology and internet, the politic, socio-economic and environmental situations happening over the world can be updated quickly and conveniently. This has created the dynamics for rapid economic development in different regions for recent decades. Issues on the global economics have drawn attention of many economic and financial analysts, especially when abnormal movements arose in financial markets. The main interests of this dissertation are not outside the border of this issue. In the whole, the dissertation targets on the interested markets such as international gold market and ASEAN emerging stock markets for the number of critical issues, relating to the market interdependencies. These issues have been explored in Chapters 3-6, using daily time series data.

The possibilities of linkages and cointegrations among the interested market have been investigated by looking at the market price indexes. Further analyses of the volatility issues have been explored, using the return series of the sample markets in order to examine characteristics and behaviors of volatility in each market, effects of gold market volatility on the volatility in ASEAN emerging stock markets, and

volatility spillover effects across the selected markets as well as conditional correlations among them.

Various methods for time series data analysis have been adopted in this study. For instance, in order to see how the selected market price indexes are interlinked, the methods involved in the study consist of unit root test, Granger causality test and Johansen cointegration procedure. Regarding the volatility issues in the interested markets, we examined symmetric and asymmetric behaviors of volatility, persistence of shocks and volatility in each market, and effects of exogenous factor on volatility, using univariate volatility model *i.e.*, GARCH, GJR and exogenous GARCH (GARCH-X) models. Additionally, to observe volatility spillover effects and conditional correlations across the sample markets, we estimated multivariate GARCH (MGARCH) models such as CCC-GARCH, VARMA-GARCH, VARMA-AGARCH and DCC-GARCH.

Results of ADF and PP tests for unit root indicate that at the level series all the six selected market price indexes are nonstationary, while taking their first difference all the time series data of the six markets are stationary. Hence, the six price index series are integrated of order 1, $I(1)$. The Granger causality test indicates that the short-run associations appear in almost all the market pairs formed from the five ASEAN emerging stock markets. However, few evidences of the short-run associations are observed from the gold market to the stock markets as well as from the stock markets to gold market. Results of the Johansen cointegration test for long-run relationships between the selected markets show that the six selected market price indexes are low cointegrated to each other (only four over fifteen market pairs show the presence of cointegrating relations), but not cointegrated all together. As a result,

it is feasible for portfolio diversification strategy when investing in ASEAN emerging stock markets, in which gold should be an item included in the portfolio.

In examining characteristics and behaviors of returns and volatility, and effects of exogenous factor on volatility in each market, the estimates of GARCH(1,1) and GJR(1,1), using AR(1) process in the mean equations, indicate that the short-run ARCH and the long-run GARCH effects in the conditional variance equations are statistically significant. Therefore, volatility in the selected markets is characterized by a heteroscedastic process. The estimates of asymmetric effects reveal that the GJR(1,1) model is preferred to the GARCH(1,1) in ASEAN emerging stock markets, except in Vietnam. However, under the effects of the exogenous factor (X) from the international gold market *i.e.*, the 1 day lagged returns and the 1 day lagged volatility of gold, we found that the GARCH(1,1)-X model captures better volatility behavior in these stock markets than the GJR(1,1)-X, except in Indonesia. Our findings suggest that gold could be a substitute commodity for stocks in Vietnam and the Philippines, while it could be a supplement item for stocks in Indonesia, Thailand and Malaysia.

The estimates of the VARMA-GARCH and VARMA-AGARCH models showed that the VARMA-AGARCH specification dominates its counterpart, VARMA-GARCH, in the Indonesia, Malaysia, Philippines and Thailand stock markets, while the reverse exists in the Vietnam stock market. The findings showed that shock and volatility spillovers are evident between the gold and each selected stock markets, while shock and volatility spillovers are found extensively among ASEAN emerging stock markets. Of which, Thailand and Philippines stock markets play a major role in terms of volatility spillovers to all other stock markets, while the least volatility spillover to other ASEAN stock markets is observed in the Vietnam

stock market. On the other hand, in terms of shock transmission, Malaysia, Thailand and Vietnam are major sources that affect almost all other selected stock markets, whereas shocks to Indonesia have no impact on other markets. The empirical results, through the size and the sign effects in the volatility spillover equations, also imply the differences in immunization and absorbability of shocks and volatility transmitted to each of ASEAN emerging stock markets from the other markets.

The estimates of the multivariate CCC-GARCH and DCC-GARCH models showed that the conditional correlations in the CCC and DCC models for the sample markets, on average, exhibit low to medium levels, varying in the [0.0208, 0.3846] range for the CCC model and in the wider range, [-0.0093, 0.4224] for the DCC model. In which, the gold and Vietnam stock markets are especially low correlated with each other and with the remaining stock markets as well. This implies that, in terms of hedging market risks, foreign investors invest in ASEAN emerging markets should take gold and assets in the Vietnam stock market together with assets in one of the remaining stock markets in to account of their portfolio. Moreover, the estimates of the DCC model show that the correlations between the sample market pairs are time varying and effects of shocks on the conditional correlations among the sample markets are long persistent.

7.2 Suggestions for Further Study

This study targets on the general market price indexes and returns. Through it, we take a broad view beyond the ASEAN region, where effects of international gold market are found significant on its emerging stock markets and the interdependencies among them are explored. Although, ASEAN is not representing for the world

economy, the case of ASEAN in this dissertation reveals the fact that the world economy is containing risks and uncertainties, its movement is very difficult to predict. Therefore, authorities in ASEAN emerging markets should cooperate together to identify prudent economic policies to help regional markets absorb potential shocks and spillovers from one economy to another.

The findings in this study show a new trend in investment. For which, the demands for gold in storing the value have been increasing when US economy is slowing down, the US Federal budget deficit is in the red warning, leading to the US dollar depreciation, and new emerging economies *i.e.*, China, India and Brazil are contributing a substantial part to the world economy. May those things be good or not good for ASEAN emerging stock markets and ASEAN economy? The answer is unknown. This could be an interested area for further study.

Actually, ASEAN emerging economies have high potentials of growth, and opportunities for investment in their stock markets are huge and less risky for foreign investors. The findings from this dissertation are very helpful information and guidelines for foreign investors when shifting their investments within the region.

However, when constructing their portfolios, they should follow the top-down approach by looking at the interested market groups then decide which assets or sectors in the selected group to invest, so that they can reduce total portfolio risk without affecting portfolio return. Therefore, a further study should be done on the specific sectors in each market.