

## CHAPTER 5

### SUMMARY AND CONCLUSION

The Malaysian economy has achieved a growth rate of over 8 per cent in GDP during the recent periods. The rapid economic growth and development saw significant impact in the securities industry. With the impressive performance in the economy, stock market, as one of the financial intermediaries in the economy, has its commitment in attracting local and foreign capital so that it will be effectively channelled into the most productive use in the economy.

The study of intraday volatility, either from the aspect of the return or the volume, gives insights into the financial market structure. Furthermore, the relationship of the price-volume has implications in the futures market research. The main objectives of this study are, therefore, focussed on the market volatility in the KLSE, in terms of price index and volume, comparing periods before and after the extended trading hours and full automation; to observe changes in the speed of the price adjustment arising from the above two events; and finally, to

determine the contemporaneous price-volume relationship and the Granger-causality between them.

The analysis of the market volatility reveals that returns for the three subperiods share a common trend where the returns form a U-shape with a peak in the first 15-minute interval of trading and another peak at the last 15-minute interval before closing. However, it is found that the peak achieved during the first 15-minute interval in subperiod 3 is higher than that of subperiod 1 but lower than that in subperiod 2 while the other peak saw subperiod 3 registering the highest mean among the three subperiods. Unlike subperiods 1 and 3, the overnight return in subperiod 2 is negative. Lunch break return which approaches one is observed in subperiods 1 and 2. In subperiod 2, the return is more volatile and generally mixed, with positive and negative values, during the day.

The return distributions in all three subperiods tend to be left skewed especially around lunch break. However, the distributions for all three subperiods are generally leptokurtic. The skewness and kurtosis in the KLSE are found to be larger compared to other markets, such as Taiwan.

In terms of standard deviation, there is no difference in the pattern for all three subperiods; it is a rough U-shape curve. Similar to the average return, the highest standard deviation is also recorded in the first 15 minutes of trading and the last 15-minute interval before the close of the trading for the day. Variance for the morning session is higher than that of afternoon trading across the three subperiods. Variance for the overnight non-trading return is larger after the extended trading hours but smaller after full automation. This shows that market information is released more efficiently after full automation.

In the variation of returns, the day-of-the-week effect may not exist in the first and second subperiods. However, there are some intraday variations which are significant for Monday and Wednesday for subperiod 1 and Tuesday for subperiod 2. Similar results are obtained even when the non-trading hours is excluded. The day-of-the-week effects are only observed in subperiod 3 during the morning session, specifically at 1115-1130 and 1215-1230 intervals. At 1115-1130 interval, the return is highly significant for Friday and moderate for Tuesday and Wednesday. During the 1215-1230 trading session, the return is only significant for Thursday. The returns at 1115-1130 are negative for all the three days mentioned above. At 1215-1230 interval, the

return is positive. Time-of-the-day effects (intraday variations) are also noted for all the weekdays in subperiod 3.

On the trading behaviour, the patterns for all the three subperiods show inconsistency. Over the week, the volume ratio increases, declines and fluctuates in subperiods 1, 2 and 3, respectively. Heavy transactions are captured at the closing across the three subperiods. The higher day-end volume is a few times higher than that of other sessions. The increase in the volume ratio across the subperiods for all the weekdays would probably imply that these two events have successfully increased the trading volume of the KLSE, even though the patterns over the week during the period are inconsistent.

On the volume variation, the day-of-the-week effect is only significant at time 1530-1545 for subperiod 1 while inconclusive for other subperiods. However, the intraday variation is pronounced for all the weekdays in subperiods 1, 2 and 3.

The overall increasing trend reveals that the trading activities increase substantially after the extended trading hours but decrease after full automation, although the decrease is not statistically proved. In the speed of the price adjustment, informed

traders incorporated approximately 82 per cent of private information which they received on day  $t-1$  into the stock prices by the close of day  $t$ . The speed declines to 73 per cent after the extended trading hours but increases substantially to 91 per cent after full automation. It should be noted that even though there are some changes in the speed of price adjustment, but statistically, these are not significantly different for the periods before and after the extended trading hours as well as full automation.

Analysis of the contemporaneous relationship between return and volume reveals that there is a positive relationship between the absolute return and volume. The slope for the positive returns appears to be greater than that when the returns are nonpositive. It is also found that the KLSE's asymmetrical response is stronger than the Hong Kong market but not as strong as the US market. The seasonal effect seems to affect not only the intercept but also the slope of the return-volume equation. The time-of-the-day effect tends to demonstrate greater influence on the intercept and slope coefficients rather than the day-of-the-week effect.

On the return-volume causal relation, there exists feedback or bilateral causality in the KLSE trading for the period under review. Volume seems to contain useful information in predicting

returns and vice versa. However, the memory or historical information of the KLSE may not be absorbed within a day as is evident in the large lag lengths used in the analysis. Generally, the results seem to imply that smaller markets like Finland and Malaysia tend to show feedback causality while the more developed markets, for instance, New York and Hong Kong tend to exhibit unidirectional causality.

It should be noted that the KLSE started computing its minute by minute indices from 18 April 1995. It would be interesting to observe the stock trading behaviour in a more frequent manner. The results would have an impact on the investor's decision especially when trading on the KLSE CI futures.

There are few areas for further investigation. Even though the KLSE CI is a widely followed barometer for the local stock market, however, it may not be a good indicator in measuring the overall market performance. Sometimes the market transactions were dominated by the non-CI component stocks. As such, the EMAS index and the respective volume could be a better yardstick for the market performance measure.

Due to data limitation, the study could not cover the recent

period. After the study period, the Ministry of Finance formulated a few guidelines to liberalise the capital market. Such liberalisation may have some impact on the market volatility.