

CHAPTER 2

LITERATURE REVIEW

2.1 United States And Canada

In the United States (U.S.), two volatility patterns have been documented. One is a U-shaped volatility against the active trading time of the day, i.e., return variability is high near the open and close of the trading day. [See Wood, McInish and Ord (1985), McInish and Wood (1990), and Lockwood and Linn (1990).] Another special feature reported is that intraday (open to close), volatility is significantly greater when the New York Stock Exchange (NYSE) is opened than that of overnight (close to open), when the exchange is closed. [See French and Roll (1986), and Lockwood and Linn (1990).] Amihud and Mendelson (1987) also find that return volatility is greater during open-to-open versus close-to-close periods in the NYSE. They relate these variations in variance to the difference in the trading mechanism at the opening (call market) and at the closing (dealer market). Miller (1989) argues that it is in the interest of specialists to set a relatively high price at the last trade so as to defend their position when the market opens on the next day.

Such a U-shaped variance pattern is not unique to the U.S. market. To see if the special intraday pattern still holds in another stock exchange, McInish and Wood (1990) also observe a U-shaped return pattern and a day-end effect in the Toronto Stock Exchange (TSE) and seem to imply that the anomaly does not result from the trading mechanism or market regulations. However, on the TSE the bulk of trading is

conducted by registered traders who perform duties quite similar to those of the NYSE specialists. To clarify it, the stocks traded in the Computer Assisted Trading System (CATS), which are thinner than the floor stocks, are analyzed separately. McNish and Wood (1990) show that a larger proportion of trade stands at the bid rather than the ask on the last trade for stocks traded on the TSE's CATS. The above results are in contrast to those findings using the whole samples in the TSE. So, whether these different results come from differences in the trading arrangements or in the types of stocks traded still remains unresolved.

2.2 Japan

Chang et al. (1993), in their study of the price behavior of the Japanese stocks, find a differences between the sum of TOPIX index return variances during two intraday intervals (i.e., overnight non-trading period and daytime period from morning open to afternoon close) and the 24-hour interday index return variance. They observe the same results when the sum of return variances for any number of the partitioned time intervals is compared with the return variances for the whole period, which is shorter than the 24-hour period. These results based on the TOPIX index returns are different from Amihud and Mendelson's (1991) findings based on 50 Japanese stocks that show positive differences. Chang et al. suggest that their contradictory results are influenced by positive cross-covariances across securities which Lo and MacKinlay (1990) first identify for contrarian profits in the absence of negative autocorrelations of index return series. They further report that correlations between the adjacent index return series are consistently positive for the TOPIX portfolio returns,

whereas Amihud and Mendelson (1991) again show different results, reporting negative correlations using individual common stock return series.

2.3 Hong Kong

Ho and Cheung's (1991) work is probably the first intraday study of the Hong Kong Market. Ho and Cheung find that there seems to be more intraweek and intraday variations in the post-October-1987-Crash than in the pre-crash period. They find that the intraday market return volatility of the Hong Kong stock market when plotted against the time of day follows a double U-shaped pattern with one larger U-shaped curve in the morning session and a smaller U-shaped curve in the afternoon session. This pattern is different from that of U.S. because of the existence of a session when the market is closed for two hours for the lunch break.

Another feature of the Hong Kong market that is different from that of the U.S. is that the open-to-close return variance and the close-to-open return variance is not significantly different from each other. This may be due to the fact that, the close-to-open period is not actually a non-trading session as some of the major Hong Kong stocks are being traded in the London market. They also find that the open-to-open return variance and the close-to close return variance is not different from each other. Analysis of individual stocks shows that the Hong Kong stocks traded on the London Stock Exchange (LSE) after the trading hours of the Stock Exchange of Hong Kong (SEHK) exhibit a lower open-to-open return variance (versus the close-to-close return

variance) and a larger open-to-open return autocorrelation than those that are not traded on the LSE.

Cheung (1993), in another paper refutes Miller's (1989) explanation for the SEHK because it operates without a specialist trading system. In the study, the day-end returns are further found to be negatively correlated with the opening (the first 15-minute) returns of the following day. This evidence suggests that the large and positive day-end returns are due to the presence of manipulation which is corrected by the market at the opening transaction of the next trading day. It also points out that empirical research using the daily closing prices for the SEHK may include some measurement error which over-estimates the actual prices.

2.4 Taiwan

The trading system of the Taiwan Stock Market (TSM) is quite similar to that of the CATS, which is a non-floor and non-specialist system. Since speculative trading over intraday intervals prevails in the TSM, the intraday pattern is worth noticing. Liu, Liu and Chen (1993) conduct a study covering May and June of 1991, the period had few incidents of news affecting or shocking the market. Furthermore, stocks that paid cash dividends and bonus issues were omitted, as such only 125 stocks were chosen. The results showed a U-shaped pattern, which was similar to previous findings. The trading volume also follows the U-shaped pattern, and interestingly the closing trades contribute most to the day's trading volume. Between the opening and closing period, there is much variance in the returns, which implies that there is much intraday volatility on the TSM.

The interday returns are negative values, while overnight returns are all positive values no matter what portfolio size is measured. Thus, the main sources of positive daily returns come from overnight returns. The study also finds that the intraday pattern is little affected by the various auction mechanisms, the U-shaped pattern still exists in a market without a specialist system. The study also explains that the intraday pattern is induced by speculation activities, where the stock market is composed of large numbers of small traders with limited capital (speculators) and a few traders whose actions have impact on market price (arbitraders). In the TSM all trades are executed two days later, it encourages small traders to play the market at round trip during one trading day. Besides, a buy-and-sell strategy is easier than a short-sell strategy for speculators, they will be induced to buy stocks at the open and sell them at the close to clear accounts. At the end of the trade, the selling pressure exists, yet the transaction price increase. The price rises may result from price makers with capital huge enough to manipulate the market, the significantly positive overnight returns may further support the explanation.

2.5 Malaysia

Chang, Kang and Rhee (1993) examine the return and risk behavior of Malaysian stocks using the KLSE 15-minute COMPOSITE Index and its component stocks for the study period from February 3, 1990 to December 31, 1991. Consistent with the index return behavior observed for the U.S. and Japanese stock markets, intraday COMPOSITE Index returns tend to be large at the beginning and at the end of each of the two trading sessions of a trading day. Also, the

standard deviations of intraday returns show roughly a U-shaped curve during the morning trading session. However, the afternoon session does not follow the similar pattern.

At the individual firm level, stock trading stabilizes over time within a trading day. Although the overall behavior of intraday return and risk of the COMPOSITE Index component stocks is similar to those of the of the COMPOSITE Index portfolio, some differences are observed:

First, intraday returns measured by the COMPOSITE Index component tend to be greater than the COMPOSITE Index return during the trading periods, while the opposite is true during the non-trading periods. This can be explained by the fact that there is a dominance of a few large capitalization stocks over the COMPOSITE Index periods.

Second, the differences in market volatility measured for individual stocks in the trading and non-trading periods are not as great as those observed for the index returns. The results from the study suggest that the call market system does not reduce market volatility. It concludes that trading volume and firm size are important factors which explain autocorrelations, price reversals, and the behavior of intraday and interday returns.