

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

There were many studies conducted by researchers regarding the stock market anomalies in the developed countries such as United States of America (US), United Kingdom (UK), Japan, etc. These are the countries which have very open, developed and matured stock markets. Nevertheless, researchers have started to also focus their interests in the stock markets of developing countries, especially those in Asia, such as Taiwan, Korea, Singapore, Malaysia, Thailand, etc. in the recent years to establish the presence of similar findings in these markets.

The existence of stock market returns anomalies such as calendar anomaly, firm-size effect, dividend-yield effect, earning/profit ratios effect, book-to-market value ratios effect, etc., have long been recognised in the finance literature. Among these, calendar anomalies, which study the presence of the day-of-the-week effect, time-in-a-month effect, month effect, turn-of-the-year effect, holiday effect, etc., is one of the most commonly investigated anomalies in the stock markets.

Although numerous studies have focussed the attention on the seasonal pattern in mean returns, there is only a handful of studies investigating the seasonal variations in the risk or volatility of returns. In fact, most of these

studies focus on the microstructure of different mechanisms and examine only the trading and non-trading hours volatility pattern and the intra-daily variations in volatility. There are very few attempts to examine the existence of any day-of-the-week variations in stock volatility.

2.2 Empirical Evidence on Seasonal Variations in Volatility

The empirical studies on seasonal variations in stock return volatility are very limited.

Ho and Cheung (1994) studied the daily stock indices, covering mostly period 1975 to 1989, of the eight Asian markets, namely the Hong Kong (Hang Seng Index), Japan (Nikkei Stock Index), Korea (Composite Stock Index), Malaysia (KLSE CI), the Philippines (Manila Mining Index), Singapore (Strait Times Index), Taiwan (Weighted Index) and Thailand (Bangkok Book Club Index). The indices of the UK (Financial Times) and US (Dow Jones Industrial Index) were also included by Ho and Cheung (1994) in their study as a comparison. In this study, the Levene test was used to test the equality of the standard deviations across day-of-the-week. Ho and Cheung (1994) found that the day-of-the-week variation in volatility, measured in terms of standard deviations, is most pronounced for most of the emerging Asian markets, including Hong Kong, Korea, Malaysia, Singapore and Taiwan. The study also discovered that, generally, the Monday returns have the highest volatility for all the emerging Asian markets, except Korea (in Tuesday).

The majority of the studies on the volatility patterns, including the study by Ho and Cheung (1994), have concentrated upon the unconditional measures of volatility such as the standard deviation of returns. Clare et al. (1997) examined the seasonal patterns of conditional return volatility using the Autoregressive Conditional Heteroscedasticity (ARCH) models, in addition to the modified Levene test, which uses the unconditional measures of volatility. In the study, Clare et al. (1997) use the daily return data of Hong Kong, Malaysia, the Philippines and Singapore as well Australia stock markets from January 1986 to June 1994. The results of the Levene test indicate that the null hypothesis of homoscedasticity across weekday returns was rejected for all the markets at 5% significance level, whereas the rejection of Australian market was at 10% significance level. These results were consistent with the findings of Ho and Cheung (1994). The ARCH model or methodology used in the study also confirmed the existence of significant Monday and Thursday volatility effects in all the markets except the Philippines which exhibits a Monday effect.

Choudhry (2000) investigated the day-of-the-week effect on seven emerging Asian stock markets returns and conditional variance (volatility) using the Generalised Autoregressive Conditional Heteroscedasticity (GARCH) model. The daily returns from India, Indonesia, Malaysia, the Philippines, South Korea, Taiwan and Thailand from January 1990 to June 1995 were used in the study. The results obtained indicate the significant presence of the day-of-the-week effect in volatility, although the results are not identical in all seven markets. Significant positive Monday effect on volatility, which implies

increased stock return volatility on Monday, is found in all markets, except India. In this study, Choudhry (2000) also found that significant negative effect on Friday is detected in the Malaysia market. The study also revealed that volatility from the Indonesia market is affected by all five days while volatility of India market is affected by only a single day. Thus, Choudhry (2000)'s study provided ample evidence on the week effect on stock market volatility.

2.3 Empirical Evidence on Day-Of-The-Week Effect of Returns

There is significant evidence from empirical studies which documented the persistent presence of the day-of-the-week effect of stock returns in various markets. This anomaly was first observed in the US stock market, which is characterised by a significant negative mean return on Monday and a high positive mean return on Friday. Since then, studies in many other developed and developing markets have also detected the presence of a similar weekend effect

In recent years, similar studies have been conducted on the emerging and small-sized stock markets such as Korea, Hong Kong, Taiwan, Singapore, Malaysia and Thailand. Wong et al. (1992) studied the day-of-the-week effect of the stock markets of Singapore, Malaysia, Hong Kong, Thailand and Taiwan. The daily return of SES All-Share Index and OCBC Index of Singapore, KLSE Industrial and Commercial Index of Malaysia, Hang Seng Index of Hong Kong, Taiwan Weighted Index of Taiwan and SET Index of Thailand were used in the study. The study covers the period from January

1975 to May 1988 for all countries except Thailand which covers May 1975 to May 1988. The results confirmed that there is presence of day-of-the-week effect in all the countries except Taiwan. Like the US and Canadian markets, Singapore, Malaysia and Hong Kong showed negative mean returns on Monday, while Thailand has a negative mean return on Tuesday, which is more like the Japanese and Australian markets.

Chan et al. (1996) have also conducted studies on seasonality of daily returns of KLSE, Stock Exchange of Bombay, the SES of Singapore and the SET of Thailand. Their study has confirmed the strong existence of day-of-the-week effects in all the four markets, apart from the other calendar anomalies such as month-of-the-year effect and holiday effect.

Seow and Wong (1998) have investigated, among others, the day-of-the-week effect of stock returns of SES All-Singapore Index from January 1975 to December 1994. Again, this study has confirmed the persistence of the day-of-the-week effect, although they detected a weakening of this anomaly for sub-period 1985 to 1994, as seen from the increase in the p-value of the F-statistics.

Wong et al. (1999) conducted the first study of the weekday effect on the Shanghai Stock Exchange (SSE) in the People's Republic of China, for period covering December 1990 to June 1996. In addition, they also examined if the settlement system and non-trading period have an impact on the weekday returns pattern on SSE. The result shows that the weekday effect, fairly

similar to the widely documented up Friday and down Monday pattern, does exist on the SSE, especially after the price and volume control imposed by regulations was abolished from 21 May 1992. Nevertheless, the settlement system and the non-trading period do not, however, contribute much to the existence of weekday effect.

The study by Mookerjee and Qiao (1999), which covers the Shanghai and Shenzhen stock indices from December 1990 and April 1991, respectively, to December 1993, has also concluded the presence of the weekday effect in the Shanghai and Shenzhen stock exchanges.

Mills et al. (2000) studied the calendar effects of the emerging Athens stock exchange based on the Athens Stock Exchange General Index for the period from October 1986 to April 1997. They have also found the existence of the day-of-the-week effect, apart from the monthly, trading month and holiday effects.

Choudhry (2000), by using the GARCH model and data from January 1990 to June 1995, has found significant Monday effect on returns in the markets of Indonesia, Malaysia and Thailand. A significant Tuesday effect is found only in the Korea, Taiwan and Thailand markets. Thailand is the only market that is affected by all the five days.

Courts and Hayes (1999) investigated the weekend effect using daily returns from the Financial Times Industrial Ordinary Shares Index of UK and

concluded that a weekend effect does exist, although it is not as strong as has been previously documented for other major UK indices.

2.4 Empirical Evidence on Volatility, Return and Volume Causality

Many empirical studies have been conducted previously, using the Granger-Causality test, to study the inter-dependence of one variable with another or to investigate the lead-lag patterns between two variables. Among others, stock returns is one of the variables most studied by the previous researchers against other variables such as exchange rates, interest rates, inflation rates, money supply, real activities, etc. There are also many previous studies investigating the causal relationship between various stock indices in different markets. Nevertheless, there is very limited empirical evidence documented in the financial literature on causal relationship between stock return volatility, returns and trading volume.

Martikainen et al. (1994) investigated the dynamic linkages between stock returns and trading volume in the Helsinki Stock Exchange of Finland for the period 1983 to 1988, using the Granger-causality tests and GARCH modeling. The results, using both methodologies, confirmed the significant bi-directional feedback between volume and stock returns. This result is consistent with the earlier findings in the US market.

Freund and Webb (1999), in their study on trading volume in NASDAQ in relation to New York Stock Exchange and American Stock Exchange, has also investigated the relationship between volume and volatility. Freund and

Webb (1999) used three measures of market volatility in this study. The first is the variance of the value-weighted market index, which reflects marketwide volatility. The other two stock-specific measures are the cross-sectional variance and the market residual variance. The study found that the stock-specific volatility measures are significantly and positively correlated with volume on NASDAQ, while the NYSE/AMEX trading volume is more closely associated with the marketwide volatility.

Song et al. (1998) used the GARCH model to analyse the relationship between returns and volatility on the Shanghai and Shenzhen Stock Exchanges in China. The empirical study using sample data from May 1992 to February 1996 from both exchanges showed that the returns series are best explained by the GARCH-M(1,1) model. The estimated GARCH-M models are consistent with a positive risk premium on stock prices i.e higher risks result in higher returns.