CHAPTER 1

INTRODUCTION

The number of empirical studies using daily stock returns has increased rapidly over the years and has led to the discovery of many puzzling patterns in the behaviour of asset prices. These puzzling patterns, often referred to as anomalies, strongly challenged some of the established models that describe the price behaviour of securities in the equity market such as the Efficient Market Hypothesis and the Capital Asset Pricing Model (CAPM). In fact, some of the strongest evidence challenging the hypothesis that security prices are informationally efficient comes from these “anomalies” literature. Some of the anomalies which has been widely discussed are such as the “day of the week effect” or “weekend effect”, “small firm effect”, “monthly effect”, “holiday effect”, “turn of the year or January effect” and “intra day effect”.

The day of the week effect has spawned a massive literature following the first study that uncovered the negative average Monday returns by Cross (1973). The study was further extended by Gibbons and Hess (1981), Rogalski (1984) and Keim and Stambaugh (1984). The latest study on the day of the week effect was undertaken by Kamara (1997). These studies and other relevant literature on the day of the week effect is discussed in Chapter 2.

The day of the week effect refers to an empirical regularity observed in the distribution of average daily stock returns. The most common pattern is the one with significantly low and negative returns on Monday, also known as Monday effect and significantly high and positive returns on Friday. This anomaly has not only been identified in major foreign capital market but also found to exist in our Malaysian market.
In foreign capital market, the day of the week effect was also studied together with the other stock market anomalies such as small firm effect and turn of the year effect. However, in our local market, study on the day of the week effect has been isolated.

1.1 BACKGROUND OF STUDY

An attempt will be made in this paper to examine whether the day of the week effect exist in the Kuala Lumpur Stock Exchange (KLSE) over a period from 1994 to 1998 using the Exchange Main Board All-Share Index or EMAS Index which incorporates all Main Board Companies. The day of the week effect during the study period will be further explored in relation to firm size and economic conditions.

In relation to firm size, this paper will investigate whether the day of the week effect is persistent for both large and small firms by comparing the daily mean return of EMAS Index and Second Board Index. As the EMAS Index incorporates all Main Board Companies which are larger in size as compared to Second Board Index which comprise of relatively smaller firms, the EMAS Index and Second Board Index are used as representation of large and small firms respectively.

A further investigation will be undertaken to see the relationship between the economic conditions and the day of the week effect. For this purpose, the study period will be divided into two sub-period, that is, from January 1994 to June 1997 and from July 1997 to December 1998 to differentiate the period before the economic crisis, which is the economic expansions period and during the economic crisis, which is the economic contractions period.
The topic is chosen, as there was no study on the day of the week effect undertaken on the overall market from 1994 to 1998 at KLSE. Also, the year from 1994 to 1998 spans some changes in the KLSE where it experienced stock downturn from July 1997 onwards after almost 12 years of bullish run (Bank Negara Annual Report, 1998). Thus, the study period comprise of both bullish and bearish stock market conditions that might give some interesting insight on the study of the day of the week effect. Local studies have also not explored the relationship between the day of the week effect with economic conditions. Further, local study on the relationship between day of the week effect and firm size was limited to underlying securities of 31 selected Second Board Companies (Lim, K.C) to represent small firms and 30 large market capitalisation stocks from the Main Board Companies (Lim, K.C) to represent large firms. Instead of choosing few Second Board and Main Board companies to draw inference on the overall performance of small and large firms, which may not reflect the overall performance of the small and large firms, this research uses the EMAS Index and Second Board Index respectively as a better representation of small and large firms.

1.2 ORGANISATION OF THE STUDY

The study is organised into five chapters. This chapter presents brief historical overview of the day of the week effect together with the Efficient Market Hypothesis and Capital Asset Pricing Model to see how the two topics are related. The significant development and changes in the Kuala Lumpur Stock Exchange and overview of the Malaysian Economy is presented in the third and fourth section of this chapter for better understanding of the economy and stock market condition during the study period. The following sections will cover the objective of the study,
importance of the study, statement of hypothesis and limitations and assumptions of the study.

Chapter Two reviews the relevant past empirical studies on the day of the week effect. This chapter is divided into two parts. The first part reviews the relevant research done in foreign countries while the second part reviews the relevant research done in Malaysia.

Chapter Three sets out the research data and methodology used in the study. The first section describes the research method followed by the sampling which includes brief description and movement of the EMAS and Second Board Index used in this study and the rationale for choosing these indices as the data sample. Section three describes how the data was obtained while section four discusses the research methodology, which includes the research design, research model, and the statistical test used.

Chapter Four reports the findings from the empirical analysis of this study and interprets them. The findings of the analysis are reported into three section being the analysis of the day of the week effect on the overall market from 1994-1998, analysis of the impact of the economic conditions on the day of the week effect and analysis of the day of the week effect on both the large and small firms. Relevant tables and figures are used for better interpretation of the findings.

Chapter Five concludes the findings of the analysis and provides recommendations based on the findings. Possible explanations of the day of the week anomaly based on previous studies is discussed in section six of the chapter followed by suggestions for further studies in section seven.
1.3 HISTORICAL OVERVIEW OF THE DAY OF THE WEEK EFFECT

During the 1960s, the day of the week anomaly was not given much thought or discussed since the Efficient Market Hypothesis marshalled much evidence in its favour. But, in the late 70s and early 80s, the validity of the classical view of this efficient markets was questioned. This is due to discovery of several anomalies in stock returns such as the Day Of The Week Effect, January, Holiday, and Size Effect which do not reconcile with the standard efficient market theory.

1.3.1 The Random Walk Theory

Beginning in the late nineteenth century with the Charles Dow theory, many market analysts' thought they could predict future stock prices by examining past transactions.

As early as 1900, academic researchers such as the French statistician, Louis Bachelier began to suspect that past price movements did not greatly affect future movements. By 1960s, results suggested that price movements were nearly random. The new theory became known as the random walk hypothesis.

To describe stock prices as a random walk suggests that price movements cannot be expected to follow any type of pattern; that is, price movements are independent of one another. In order to find a theory for such behaviour, researchers developed the concept of efficient markets.
1.3.2 The Efficient Market Hypothesis

Efficient Market Theory (EMT) states that the security market is a fair game: the odds of having future return greater than should be expected given a security's risk are the same as the odds of having a lower return than should be expected. There is no way to use the information available at a given point in time in order to earn abnormal return. Positive returns will be expected because securities contain risk for which a risk premium will be earned. However, long run abnormal returns will be zero. Hence, the idea behind efficient market is that the market price of securities always fully reflects available information. Also, in an efficient security market, speculative profits are, on average nonexistent. Because security prices reflect all known information, mispriced securities are impossible to find.

The term price efficient is used to indicate that security markets are efficient in processing information. Prices will not adjust to new information with a lag but, instead, instantaneously. Four conditions are necessary to have such an efficiently priced market:

1. People have homogeneous expectations. This means information is costless and is available to all market participants at the same point in time.

2. The market is frictionless whereby there are no transaction costs, taxes or other barriers to trading.

3. People are price takers as prices are bit affected by the trading of a single person or institution.
4. All individuals are rational maximizers of expected utility

Because these criteria are not strictly true in the "real" world, a distinction is made between a perfectly efficient and an economically efficient market. A perfectly efficient market is one in which prices always reflect all known information, prices adjust instantaneously to new information, and speculative profits are simply a matter of luck. In an economically efficient market, prices might not adjust instantaneously to information, but, over the long run, speculative profits cannot be earned after transaction costs such as brokerage commissions and taxes are paid.

The study of EMT has revealed that market can be divided into three main categories that is, weak–form, semi-strong form and strong form.

Market is said to be weak form when the set of available information includes historical security prices and volume. If prices fully reflect all known historical information, such price and volume data would be reflected in existing security prices. Technical strategies would be useless in such a case. To the extent that historical security price patterns might have aided security selection in the past, the information will be accounted for in today's price and will then be of no marginal use.

A more stringent requirement of the EMT is that when a new piece of information becomes publicly available, it is instantaneously accounted for in prices. A lag in the price adjustment (which would allow speculators to trade profitably would not exist). However, certain individuals such as the Finance Director or financial analyst may have the advantage in the access of new information to obtain
some abnormal return. A market that exhibits this pattern is referred to as semi-strong form market.

Market is said to be strong form when information is costlessly available to all market participants (public and private) where no one group of individuals will have a monopoly on information to use for speculative profit.

Using the idea of efficient markets, mathematical models of capital markets have been formulated to emphasize different pricing factor. One of the commonly used model is called Capital Asset Pricing Model (CAPM).

1.3.3 The Capital Asset Pricing Model (CAPM)

The CAPM is an equilibrium model in which investors obtain different returns according to the risks that they bear. The CAPM has occupied a central position in financial economics since its introduction over 20 years ago. The CAPM states that under certain simplifying assumptions, the rate of return on any asset may be expected to equal the rate of return on a riskless asset plus a premium that is proportional to the asset's risk relative to the market.

If the model is correct and security markets are efficient, security return will on average conform to the above relation. Persistent departure from the expected relation however may indicate that the CAPM and the Efficient Market hypothesis are incorrect.
1.4 SIGNIFICANT DEVELOPMENTS AT THE KUALA LUMPUR STOCK EXCHANGE FROM 1994 TO 1998

1994

On 26.4.94 the KLSE had changed name to Kuala Lumpur Stock Exchange. To protect the Exchange from the threat of potential disasters which may lead to prolonged interruption of critical business operations, KLSE had set up a disaster recovery and Business Continuity Plan in 1994 with an alternative site to house the back-up computer system and office facilities for critical operations such as trading, clearing and depository. KLSE also had in the same year, amended the listing requirements and included the Main Board companies into the CDS. The amendment in the KLSE listing requirement which were made in November 1994 was aimed to facilitate the transition of Second Board companies to the Main Board.

1995

With effect from 18 April 1995, the KLSE indices are calculated by the Exchange every minute to increase transparency of the market and give investors greater access to timely information. On 22.6.95, the Ministry Of Finance announced measures to liberalise the Malaysian capital market which covered development and liberalisation of the fund market industry, reduction of transaction costs on KLSE, relaxation of monetary restrictions as well as steps to promote sound regulatory framework for share trading. Also, from 1.9.95, the securities of public listed companies were allowed to be traded in board lots of 200 units, if the securities meet certain criteria, to enable trading of high priced securities to be more affordable to a larger section of the investing public.
1996

In August 1996, the Ministry of Finance approved the listing of foreign companies on KLSE. Under the first phase exercise, foreign companies with substantial assets or operations abroad and which are owned or controlled by Malaysians, was permitted to list on KLSE's Main Board. Also, as part of the capital market liberalisation, EPF contributors were allowed to withdraw a certain percentage of their retirement accounts to invest in funds managed by approved fund management institutions.

1997

The year 1997 spans some interesting changes in our capital market. Malaysian Exchange of Securities Dealing and Automated Quotation (MESDAQ) was launched to allow the trading of shares of small capital, high-tech companies with little or no track record with minimum paid up capital of RM2.0 Mill. On 3.3.97, the KLSE implemented sectorisation of the Second Board into five sectors; Consumer, Industrial, Construction, Trading/Services and Finance. The listing of foreign companies on KLSE was also permitted effective 1.4.97. The KLSE also implemented a five-day settlement period (T+5) from 18.8.97. Public companies were from 2.9.97, allowed to buy back their own shares under amendment to Companies' Act. With the stock market downturn in the second half of 1997, The Ministry of Finance introduced measures to promote corporate governance. Banking guidelines were also tightened in the 1998 Budget.
Measures to strengthen the securities and finance industry were undertaken in 1998. On 24.2.98, the restriction on non-Bumiputera ownership of Bumiputera companies was lifted. Non-Bumiputera and foreign investors are now allowed to buy equity in companies previously reserved for Bumiputera. Effective 1.4.98, the Securities Industry Act 1983 (SIA) and the Securities Industry (Central Depositories) Act 1991 (CDA) was amended to protect investors interest. KLSE also purchased the entire equity interest of KLOFFE Capital in 1998 while effective 1.9.98, KLSE instituted eight new measures to further enhance transparency in the stock market. Trading of Malaysian securities on the Stock Exchange of Singapore's Central Limit Order Book International OTC market was also ceased effective from 16.9.98. Bank Negara instituted new exchange control measures in September 1998.

1.5 OVERVIEW OF THE MALAYSIAN ECONOMY

Between the year 1990 to 1997, the Malaysian economy grew at an average annual rate of 8.7 per cent, with the manufacturing sector continuing to be the main engine of growth, whilst the services sector continued to be developed as a new catalyst of growth as well as more vibrant generator of foreign exchange earnings.

The year 1997 saw the emergence of the East Asian financial crisis, triggered by events in Thailand, which had adversely affected the growth prospects of the regional economies due to the sharp exchange rate and interest rate adjustments from the financial crisis. While, Malaysia's economic fundamentals remain strong, the economy being open, could not escape from the contagion effects of the regional financial crisis.
whereby from July 1997 onwards it experienced severe stock market downturn. The crisis dramatically undermined confidence in the region, changing the Malaysian setting from one of relative economic stability to a situation that was characterised by successive depreciation of the Ringgit, major corrections in the equity market, generally weaker investor confidence and large outflows of non-resident short term capital. By end of December 1997, the stock market prices fell by 44.8% from the end-June position.

The full effect of the regional financial crisis on the Malaysian economy was felt in 1998. For the year as a whole, real output declined by 6.7% after 12 years of uninterrupted expansion averaging 7.8% per annum. Malaysia’s strong initial conditions and the adjustment measures pursued in 1997 did not restore stability in the domestic financial markets. Instability in the international financial markets intensified in 1998, particularly in the early part of the year, which in turn spilled over into the domestic markets. The tight fiscal and monetary policies that were adopted in an environment of weakening external demand, caused aggregate demand to fall more sharply than anticipated. This, together with higher lending rate, led to debt servicing problem and threatened the stability of the financial system. As a result, National Economic Action Council announced a comprehensive National Economic Recovery Plan to expedite recovery which includes monetary and fiscal austerity measures.

These efforts, however, did little to contain the speculative bouts of short-term capital and to promote a stable exchange rate. The share market plunged to an all time low of 262 points (Composite Index) on 1 September 1998 as compared to all time high of 1,271.57 points achieved on 25 February 1997. The Ringgit continued to weaken considerably and the high interest rate suffocated potentially viable businesses.
The economy recorded a sharp decline of 6.1 per cent for the first three quarters projecting worse than expected condition of the economy and casting doubts over the effectiveness of the tight fiscal and monetary policies undertaken. Thus, the Government introduced capital controls on 1st September 1998 to insulate the economy from further exchange rate volatility and eased monetary policy substantially to stimulate demand in the economy.

Overall, the exchange control measures resulted in greater stability in the currency and stock markets and the financial system as well as revival of domestic consumer and investors confidence. Although the economy continued to contract in the second half-year, on a year to year basis, the fundamentals had begun to strengthen towards end-1998.

1.6 OBJECTIVES OF THE STUDY

The central theme of this research is to investigate the following:

1.6.1 Whether the day of the week effect exist in the KLSE over the period from 1994-1998

1.6.2 Whether the day of the week effect is affected by the economic conditions

1.6.3 Whether the day of the week effect exist for both large and small firms for period from 1994-1998
1.7 **IMPORTANCE OF THE STUDY**

The research is done to provide beneficial information to investors in Malaysia as the findings from the research will help investors to invest by making buy and sell decisions according to the daily stock return pattern to maximise their wealth. Investors will also know whether the market conditions will have any effect on the day of the week anomaly to invest wisely and whether they should invest in small or large firms to maximize their wealth.

1.8 **STATEMENT OF HYPOTHESES**

\[ H_0: \mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu_5 \]

\[ H_a: \mu_i \neq \mu_j \]

**Where:**

\[ H_0: \text{Mean return on Monday } (\mu_1) = \text{Mean return on Tuesday } (\mu_2) = \text{Mean return on Wednesday } (\mu_3) = \text{Mean return on Thursday } (\mu_4) = \text{Mean return on Friday } (\mu_5) \]

\[ H_a: \text{at least one mean return is different from the others} \]
LIMITATIONS AND ASSUMPTIONS OF THE STUDY

For the purpose of this research, the market indices are used for computation of daily stock returns instead of using the underlying securities. This is in view of the complexity of computing the daily stock returns of the individual securities for the overall study period.

The EMAS Index is selected for the analysis as it is expected to be a good proxy for the overall market movement of stock prices as it incorporates all the Main Board Companies. Also, most of the foreign researches had used their share capital index for the purpose of their study with exception of Gibbons and Hess (1981) who have also analysed 30 underlying individual securities.

To investigate the persistency of the day of the week effect in small and large firms, the daily mean returns of EMAS Index and Second Board Index are used to represent large and small firms respectively. They are expected to be good representation of size of their category in view of the nature of firms composed in EMAS Index which are larger in size and firms in the Second Board Index which are smaller in size.

Only the EMAS Index is used for the investigation of the existence of the day of the week effect for the overall study period and the investigation of the impact of economic conditions on the day of the week effect. As the firms which composes the EMAS Index are more involved in active trading throughout the year, EMAS Index is assumed to be a good representative of the overall market movement.

The use of time series data such as market indices may produce some auto correlation problem in the computation of daily returns. However,
Gibbons (1981) has argued that the auto correlation problem could be explained by non trading of securities and he has proved that despite using 30 underlying securities to eliminate the non trading problem, all the 30 securities had negative mean returns on Monday. Hence, for the purpose of this study, it is assumed that the auto correlation problem is negligible and will not have much impact on the daily returns to distort the result of the study.

The investigation on the impact of the economic downturn on the day of the week effect is done on a relatively shorter period that is from July 1997 to December 1998. This is because of the crisis which started recently limits investigation on a longer period. However, the writer is of the opinion that investigation on the available period will provide some insight on the impact of stock market downturn on the day of the effect anomaly.

Also, as the economic and stock market downturn started from July 1997 onwards, the expansions period is classified from January 1994 to June 1997. As Malaysian economy was yet to recover as at the end of December 1998, the contractions period was classified from July 1997 to December 1998.