CHAPTER TWO

2.0 LITERATURE REVIEW

The stock market has been the centre of attraction among the general public in the past two years when the market went down from a high of 1270.67 points in February 1997 to a low of 261 points in September 1998 (Bank Negara Malaysia Quarterly Report, 1999, first Quarter). The main aim of this chapter is to find out based on previous studies the relationship between macroeconomic variables and the stock market, the direction of the impact of these variables on the stock market and whether there are any extraneous variables affecting the performance of the stock market among others.

2.1 Monetary Policy and Stock Returns

All assets such as equities are claims on future economic output and as such if monetary policy has real economic effects, then shifts in monetary policy should affect stock prices although they may not fully account for asset return predictability. In this respect Patelis (1997, pp. 1951-1972) stated that: “Given stock prices are weighted averages of the infinite stream of future expected dividends, and assuming rational expectations, stock prices should immediately reflect the real effects of monetary policy at the moment these become apparent.”

Theory states that stock prices equal the expected present value of future net cash flows (W. Thorbecke (1997)). Thus evidence that positive monetary shocks, such as an increase in the money supply, increase stock returns indicates that expansionary monetary policy exerts real effects by increasing future cash flows or by decreasing the discount factors at which those cash flows are capitalized (W. Thorbecke (1997)). Results from size portfolios indicate that monetary shocks have larger effects on small firms than on large firms because it affects a firm's
access to credit (W. Thorbecke (1997)). Gertler and Gilchrist (1994) argue that a monetary tightening, by increasing interest rates, can worsen cash flow net of interest and thus the firms' balance sheet positions. The decline in net worth can reduce a firm's ability to borrow and thus to spend and invest. Gertler and Gilchrist (1994) further argue that these credit constraints should affect small firms, which are less collateralised, more than large firms. Evidence that monetary policy affects stock returns of most small firms more than those of large firms thus supports the hypothesis that monetary policy matters because it affects firms' access to credit.

Fred C. Graham (1996) found evidence that the negative real stock return-inflation relation is not stable throughout the post war period in the U.S. The two periods 1953-76 and 1982-90 in which the relationship was negative was separated by a period in which it was positive. His findings was consistent with Fama's hypothesis that monetary policy was counter cyclical or neutral in the two sub periods when the relation was negative and strongly pro cyclical during the period when the return was positive. This is in line with the view that the stock return-inflation relation should be negative only when variations in money demanded is not accommodated by offsetting variations in nominal money growth, that is, not followed by a pro-cyclical monetary policy.

Many economists including Mishkin (1992) would argue that an interest rate operating procedure is likely to be pro-cyclical. For example, a rise in real economic activity tends to increase money demanded and interest rates. To defend its interest rate target the Central Bank would respond by increasing the rate of money growth. In this case, most of the variation in real economic activity and money demanded would be accommodated by variation in the money supply than by variation in the inflation rate. As such the stock market return would be positively affected.
In a study carried out in Korea by Chun, Tai and Bacon (1997) where money supply (M1) was regressed against the monthly returns of the value weighted Korean Composite Stock Price Index (KOSPI) for the period of January 1980 to December 1992 (156 monthly observations), money supply was found to have a significant impact on the Korean Stock Exchange.

2.2 Inflation and Stock Returns

The prominent view on the subject of inflation and stock returns is that low rates of expected inflation will have a favourable influence on equity prices. Many studies such as those by Nelson (1976), Fama and Schwert (1977), Gultekin (1983) and Geske and Roll (1983) support this conclusion.

Based on the tax effect hypothesis, inflation has an adverse effect on after tax corporate income. Because the growth rate of depreciation lags the growth rate in revenues due to the fact that depreciation is based on historical costs, real taxable income would increase with higher inflation. The net impact of larger real tax liabilities together with rising nominal replacement cost of assets will decrease real free cash flows which would in turn lead to a reduction in real returns on equities (Feldstein 1980; Ely and Robinson 1989, DeFina 1991 and Weigel 1994).

Another reason for the inverse relationship between inflation and the returns on equities is given by the proxy effect hypothesis. Under the proxy effect hypothesis, a positive correlation is assumed to exist between stock prices and anticipated economic growth. However a negative relationship is assumed to exist between inflation and anticipated economic growth. This relationship is attributable to the belief that the Central Bank will respond to higher inflation by raising interest rates with a tight monetary policy and thus retard the expansion of the economy (Fama 1981 and 1990; Kaul 1987, McQueen and Roley 1993 and Park 1997).
In summary both the tax effect and the proxy effect hypotheses indicate that a rising anticipated inflation would be associated with falling returns in the stock market. In a similar manner, declining inflationary expectations should be correlated with an improving stock market.

In another study Kiseok Lee and Shawn Ni (1996), who decomposed inflation into its temporary and persistent components found empirical evidence that both temporary and persistent inflation have negative correlations with stock returns but with different patterns (or reasons) as follows. Inclusion of future output in the regression which is strongly correlated with persistent inflation causes persistent inflation to become insignificant. Temporary inflation is not correlated with future output and as such its significance in the stock return regressions is not affected by the presence of future output. Their evidence is consistent with the theory that a rise in persistent inflation predicts slower future real activities and a consequent decrease in stock returns. A rise in temporary inflation induces investors to shift from stocks to interest bearing liquid assets because a rise in temporary inflation decreases the relative attractiveness of stocks, even though the market present value of future cash flows is unchanged.

Monetary policy can be assessed by either the growth rate of money supply (M1 or M2) or a short-term interest rate (for example, the three-month treasury bill rate). A rise in money supply tends to cause short-term interest rates, investment, output, profits and excess stock returns to rise. However, a monetary expansion can also trigger expectations of higher inflation and a subsequent reversal of monetary policy, bringing excess stock returns back to their equilibrium levels. Monetary neutrality is likely to hold in the long run, but not in the short run. On the other hand, higher short-term interest rates reduce profits and unambiguously decrease excess returns. If long-run monetary neutrality holds, inflation should not matter to investors. It is also likely that the assumption of neutrality is violated in the short run. For example, cost-push inflation tends to produce declines in economic
activity and lower excess returns. Yet, demand-pull inflation tends to be associated with a period of economic expansion and higher excess returns. The short-run effect of higher inflation on stock returns is thus ambiguous (Dropsy and Vincent (1996)).

2.3 Real Activities, Income and Stock Returns

When stock prices decline in response to anticipated changes in economic condition, the government given large fixed expenditures will tend to run a deficit (Geske and Roll 1983). Using a vector autoregressive moving average (VARMA) model James, Koreisha and Partch (1985) examined simultaneously the causal links between stock returns, real economic activity, money supply and inflation. They found evidence that stock returns signal both changes in real economic activity and changes in the monetary base, which suggests a link between money supply and real economic activity that is consistent with the money supply explanation offered by Geske and Roll.

At the heart of Fama’s (1981) hypothesis is the issue of whether the variability in money demand growth that results from the variability of real output growth is accommodated by inflation or by money supply growth. Marshall (1992) found that under reasonable circumstances, a positive shock to the growth rate of output causes a positive innovation in the equity returns and a positive innovation to the growth rate in demand for real balances. Fama (1981) hypothesizes that the negative correlation between stock returns and inflation is not a causal relation but is a proxy for a positive relation between stock returns and real economic activity and is induced by a negative relation between real economic activity and inflation.

Fama (1981) found that relations between stock returns and future real economic activity are strong. Consistent with Fama’s (1981) findings, Geske and Roll (1983) and Kaul (1987) found a strong relationship between stock returns and real
economic activity. They estimated variation in stock returns due to expectations of future cash flows by regressing returns and future growth rate of real activity.

Consistent with Fama's findings Bong-Soo Lee (1992) found out that stock returns are positively correlated with growth in industrial production which supports the claim that stock returns anticipate an upward movement in the growth in industrial production. He also states that when nominal interest rate rises because of inflationary expectations, it would likely be associated with a lower growth in industrial production.

2.4 Foreign Exchange Reserve, Exchange Rates and Stock Returns

The findings on the impact of changes in reserves on stock market performance from the literature review in this area is based on the work by Chun, Tai and Bacon (1997). They found that foreign exchange rates have a favourable impact on stock returns. There is a positive relation between stock prices and the value of a currency. However, based on their study, the trade balance does not significantly affect the performance of the Korean Stock Exchange.

Many classical theories suggest a relation between stock prices and exchange rates. "Flow-oriented" models (Dornbusch and Fischer (1980)) of exchange rates, also known as goods market approaches, focus on the current account or the trade balance. These models state that currency movements affect international competitiveness and trade balance, thereby influencing real income and output. The stock price, broadly interpreted as the present value of future cash flows of firms, forms the link between future income or interest rate innovations and current investment and consumption decisions. Innovations in the stock market, on the other hand, affect aggregate demand through wealth and liquidity effects (Gavin (1989)), thereby influencing money demand and exchange rates. "Stock-oriented" models of exchange rates, or portfolio-balance approaches, view exchange rates
as equating the supply and demand for assets such as bonds and stocks. This view gives the capital account an important role in determining exchange rate dynamics. Since the values of financial assets are determined by the present values of their future cash flows, expectations of relative currency values play a considerable role in their price movements especially for internationally held financial assets. Therefore stock price innovations may affect, or be affected by exchange rate dynamics (Ajayi and Mougoue (1996)).

The finding by Ajayi and Mougoue (1996) that domestic currency depreciation tends to have negative short-run and long-run effects on domestic stock market has important theoretical implication. For example in an economy with a significant import sector, the unfavourable effects of a currency depreciation on imports (Ma and Kao (1990)) may induce a bearish stock market in the long run. In the short run, also, currency depreciation may have a negative effect on the stock market because the domestic counterpart of a currency depreciation is inflation, which may exert a dampening effect on the stock market. In addition, the inflationary effects of a declining domestic currency may encourage international investors to decrease their portfolio of domestic assets, thereby depressing the stock market in the long run.

On the other hand, increases in stock prices has a negative short run effects on domestic currency values, but in the long run it has a positive effect on domestic currency values. This is because a bullish market reflects economic expansion, and this tends to fuel inflation expectations. An increase in inflation expectation exerts downward pressure on the value of the domestic currency in the short run. However, the observed long-run effect of increases in stock prices on exchange rates (that is, their positive effect on domestic currency values) is consistent with the asset view of exchange rates. This view suggests that sustained increases in domestic stock prices induce domestic currency appreciation. Foreign investors buy up the domestic currency to invest in the domestic bullish market. This
demand pressure causes the domestic currency to appreciate (Ajayi and Mougoue (1996)).

Solnik (1984) and Adler and Simon (1986) found a weak correlation between stock market indices and currency movements. However Fang and Loo (1996) stated that this does not rule out a significant cross sectional relationship between currency movements and stock returns due to the differences in international links, international competition, and the import-export patterns among firms.

In another study, Dropsy and Vincent (1996) stated that a deterioration of the external balance signals that the domestic and foreign demand are not growing at the same rate. If this disequilibrium is prolonged, a foreign exchange crisis can be expected, with negative consequences on economic growth, profits and stock returns. The trade or current account balance (that is, increase in international reserves) should be positively associated with excess returns.

External shocks such as changes in real oil prices can also affect excess returns, through their effects on the external balance. An oil importer would suffer a worsening of its trade account and a lowering of its excess returns whereas an oil exporter would benefit from higher revenues, profits and excess returns (Dropsy and Vincent (1996)).

Consistent with (Ajayi and Mougoue (1996)) findings, Ma and Kao (1990), using monthly data for six countries found that domestic currency appreciation negatively affects the domestic stock price movement for an export dominant economy and positively affects the domestic stock price movement for an import dominant economy.