

CHAPTER 5

RESULTS, CONCLUSIONS AND DISCUSSIONS

5.1 *Summary of results*

Tests carried out in this study show the following:

Firstly, there is no significant positive linear relationship between average returns of individual stocks or portfolios and systematic risk. Investors are not rewarded for bearing systematic risk. However, a significant non-linear relationship exists between average returns of individual stocks and systematic risk during the first and the last test periods.

Secondly, Sharpe-Lintner hypothesis that there is unrestricted borrowing and lending at the unique risk free rate cannot be rejected.

Thirdly, no significant relationship exists between average returns and unsystematic risk.

Fourthly, most investors hold diversified portfolios.

Fifth, mixed results were obtained for the fifth hypothesis. Relative skewness of return distribution did affect the price of stocks in the first test period with single stock data and in the last test period with portfolio data. In other words, investors made decisions as if the distribution of average returns of individual stocks and portfolios is skewed during the test periods mentioned above. In the remaining test periods, investors did form the portfolios as if the distribution of the portfolios' return were symmetrical.

Sixth, investors are compensated with higher returns if they invest in stocks of firm of larger size during the last test period. This result contradicts those in other studies. In the remaining test periods investors are unlikely to earn higher returns investing in stocks of larger firms or smaller firms.

Seventh, investors who invest in firms with smaller price-to-book value ratio are compensated with higher returns in the first test period and the combined test period.

2 Conclusions and Discussions

The CAPM is not applicable to the Malaysian market as systematic risk of portfolios or individual stocks failed to explain the variation in returns. Market risk alone or with another risk factor are unable to explain the variation in average returns. However, there are other risk factors that explain the variation in returns albeit to a limited degree. Among them, there is a significant non-linear relationship between average returns of individual stocks and market risk in two test periods 1983-86 and 1995-98 with corresponding adjusted coefficient of determination of 4% and 8% respectively. Skewness of the return distribution explains 2.2% and 13.7% of the variation in stock returns and portfolio during the test periods 1983-1986 and 1995-1998 respectively. Total risk accounts for the variation in stock or portfolio returns during the test period 1987-1990. Firm size as measured by $\ln(\text{mkt})$ is a significant variable during the period 1995-1998 but the positive relationship obtained contradicts those obtained by other studies. After isolating the effects of size, the price-to-book value ratio alone significantly explains 2.7% and 1.5% of the variation in returns during the test period 1992-1995 and the combined test period 1992-1998 respectively. With the inclusion of beta, price-to-book value ratio continues to be significant at 5% and they jointly explain 7% and 9% of the variation in returns in the respective test periods.

In general, this study shows that the variables, beta squared, skewness of return distribution, total risk, firm size and total risk are able to explain the variation in the average returns at certain periods of time and to a limited degree. Also this is a

study of historical data. The predictability of future returns remains as always uncertain. However, the investor can capitalise on this study by selecting stocks based on variables that are significant.

Roll's critique(1977) of the CAPM does not reduce its importance. Market risk may still be an important variable in determining returns in some markets. Where it is not applicable, the search for the determinants of expected returns continues. Thus far, firm size and price-to-book ratio are two important variables that determine returns in a number of markets.

1.3 Limitations of study

There are some possible weaknesses in this study and these will be examined and discussed in details as follows:

(a) Small Sample Size

The sample of sixty stocks used in this study only considers those stocks that satisfied the criteria of no more than 4 of months of missing data due to no trading or suspension and the limited availability of price-to-book ratio (January 1989 to December 1998). Compared with other studies the sample size used here is relatively small. Fama and French (1992) and Lakonishok and Shapira(1985)considered all stocks listed on the New York Stock Exchange from 1963 to 1992 and 1962-1981 respectively. Chan, Hamao and Lakonishok(1991) uses all the stocks on the Tokyo Stock Exchange.

There may also be selection bias as stocks with more than 4 months of no trading was ignored. The sixty stocks selected may not be reflective of the entire market. The results obtained may be true for the sample of stocks under study but need not necessarily be true for the whole market.

(b) Incomplete data on PBV

As a result of incomplete data on PBV (less than 10 years from 1989-1998) the study is unable to test this variable between 1979 - 1989. Hence, the predictability of the variable PBV as a significant variable in risk-return trade off in this period cannot be determined.

(c) KLSE Composite Index

The use of the KLSE composite index may not be a good proxy for the market portfolio. According to CAPM, the market portfolio should be the portfolio consisting of all the stocks in the market.

(g) Efficiency of the Malaysian market

There are various studies on the efficiency of the Malaysian market for different periods in time. Some studies show that the Malaysian market is not an efficient market (Yong, 1990) while others (Barnes, 1986 and Kok, 1994) indicate that the Malaysian market is a weak form efficient market. This may affect the results of this study to some degree.

(h) Survivorship bias

As only actively traded stocks are used while newly quoted stocks and recently delisted stocks are omitted, some survivorship bias may be present.

5.4 Suggestions for future research

This study did not take into consideration the seasonal effects associated with all the variables examined. Lakonishok and Shapiro (1986) have shown that when the January month was omitted the size variable loses its significance. Future research may take into consideration this seasonal component.

Also this study did not consider the effect of stock market crash or severe downturn in the stock market. This factor can be analysed in future research.

Kothari, Shanken and Sloan(1995) and Chou, Zhou and Hsu(1998) noticed that CAPM does not specify the length of horizon that it can be tested. Kothari, Shanken and Sloan(1995) pointed out that the use of annual beta is inconsistent as it is used as independent variable to explain the variability in *monthly* returns. Future research may consider using annual beta to explain the variability in *annual* returns.