CHAPTER 3:

RESEARCH METHODOLOGY

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3.1. Sample

The sample of companies in this research project shall cover the period from the year 2001 until 2010. The reason why this particular period is selected is to exclude the period when Malaysia experienced an adverse impact during the year 1997 (Asian Financial Crisis). The stock market had recovered quickly due to the aggressive measure taken by the government of Malaysia. The exclusion of this period will portray a better perspective of Malaysia capital market in that period. All the information relating to accounting and stock returns for these Malaysian companies were obtained from the Bloomberg database. To begin with, I will follow the standard definition of value and growth based on criteria set forth by Fama & French (1993) and Jenn et al. (2004). During this period of research, I will form of three pairs or six portfolio consisting value and growth stocks that will be selected based on these ratios 1) *price-to earning (P/E) ratio* 2) *price-to-book (P/B) ratio* and 3) *price-to-sales (P/S) ratio*. I will then be evaluating their post-formation stocks for the period of 5 years after it formation. The 5 years period is chosen as to align with the common practice of evaluating portfolio (normally for a period between 3 to 5 years). Also this is deemed that in 5 years the portfolio should be able to demonstrate any return or losses (Fama & French, 1992, 1998; Capaul et al., 1993; Loughran, 1997; Bauman et al., 1998; Arshanapalli et al., 1998; Chan et al., 1991; Mukherji et al., 1997). After the returns are obtained for each portfolio, the risk-adjusted measurement will be used namely Jensen's alpha, Treynor measures and Sharpe ratio to evaluate its return in

regards of its associate risks. Similar method has been adopted by Jenn et al. (2004).

The selection of stocks procedures that had been used by Lakonishok, Shleifer and Vishny (1994) and Jenn et al. (2004) will be adopted in this research. Firstly, the chosen company that will form the portfolio shall comply with the requirement before it is chosen part of the portfolio for the year *t*: (1) the chosen stock must be traded on the last trading day of June of in the year *t* and also throughout the sample period of year *t*+4 (2) the selected stocks shall have the required accounting information needed for calculation for the fiscal year ending in calendar year *t-1*; and (3) the selected stocks shall be traded with positive P/E, P/B and P/S ratios. In addition, stocks with negative ratio will be omitted. Basu (1977) testified that by not including firms with negative valuation ratios, it will have minimum impact on the overall portfolio returns. Additionally, the financial companies are excluded in this formation of portfolio as their financial structures and different assets structures are diametrically different from the non-financial companies. This is adopted to avoid any bias of the grading of firm size, risk, liquidity and growth probable substitutes. Similar method is adopted by Fama & French, 1992; Capaul et al., 1993; and Jenn et al., 2004).

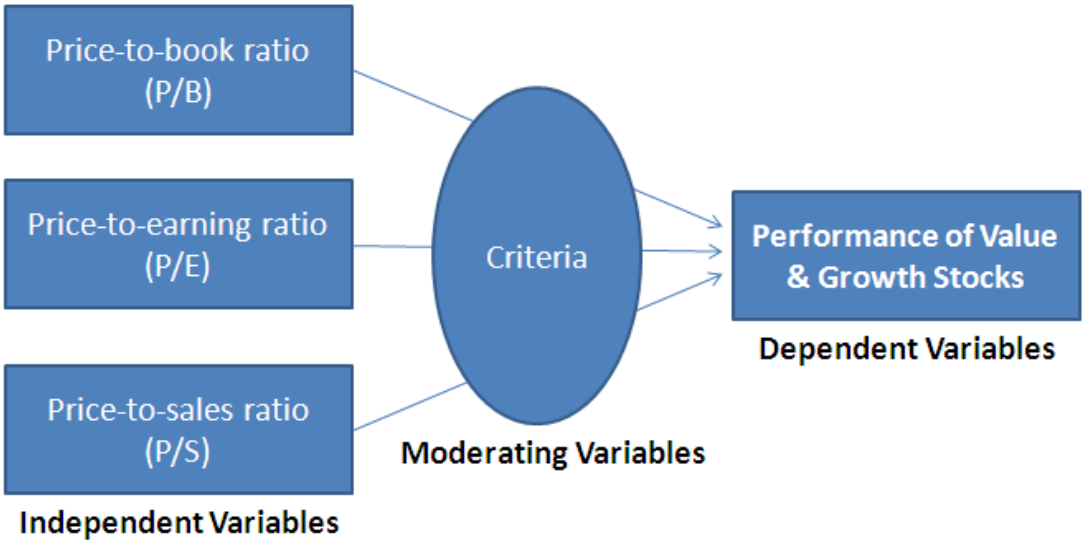

Figure 2: Variables Used in this Research Project

3.2. Variables

The data collected on the following variables are from the Bloomberg database. Whilst the dependant variable is the performance of the of value and growth stock, the independent variables in this research project are (1) Price-to-earning (P/E) ratio; (2) price-to-book (P/B) ratio and; (3) price-to-sales (P/S) ratio. Price-to-earning (P/E) ratio is market price per share divided by the earnings per share, price-to-book (P/B) ratio is the closing price of the stock divided by the latest quarter's book value per share and price-to-sales (P/S) is the share price divided by the cash flow per share. The moderating variables will be as per discussed in the previous section.

3.3 Formation of Portfolio

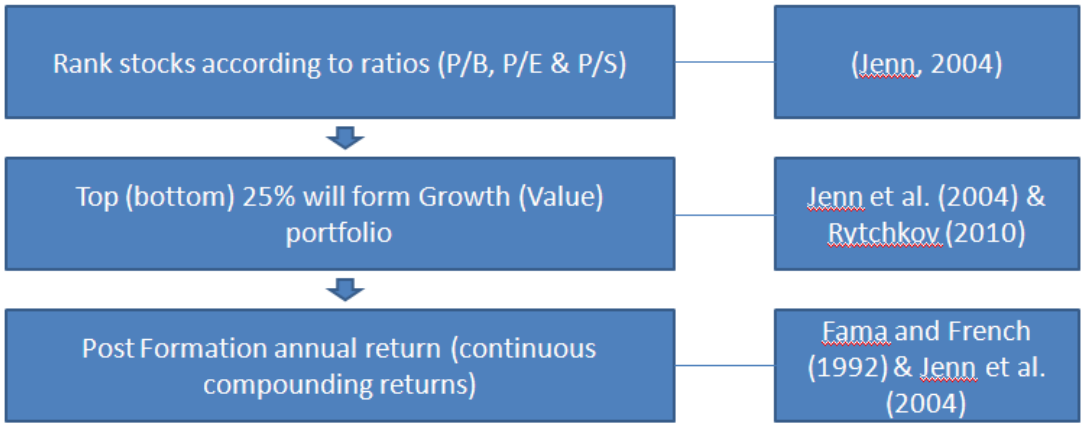

Figure 3: Formation of Portfolio

Previous researchers have shown the significant relationship between the sizes of the company (calculated by its market capital) together with its stock return (Banz, 1981; Bauman et. al, 1998). This is further supported with most of the findings indicate that smaller companies provide better risk-adjusted return compared to big companies under studies. In order to embrace this concept, in this research, I will employ an equally weighted approach in forming the portfolio (as opposed to value weighted approach that concentrates on the market capitalization at a given time). This is to ensure that the selected stocks in portfolio will be fully diversified across different sectors (Fama & French, 1992; Lakonishok et al., 1994; Chan et al., 1991).

Accordingly, the companies will then be ranked in accordance to their valuation as stated in *3.2 Variables* namely *P/E ratio, P/B ratio* and *P/S ratio*. For P/E ratio, earnings are taken as measurement and they are calculated as profit before extraordinary items. These are non-recurring expenses and deemed would not significantly influence the long term valuation of the stock.

For P/B ratio, book value is the accountant's valuation on the worth of the company's net worth. Book value would have more advantage over earnings, as it is more constant (Jenn, 2004). For P/S, sale is much preferred compared as to cash flow as the available of data for P/S is widely updated and available compared to data relating to cash flow.

Then, the *top* 25% of the companies from each of the P/E, P/B and P/S ranking shall be grouped to form a *growth stocks* portfolio whereas the *bottom* 25% companies shall be grouped as *value stocks* portfolio. Therefore, three pairs of or six portfolios consisting of value and growth portfolios are formed on yearly basis starting from the period 2001 to 2010. Thus, this can be regarded as a cluster of stocks consists of value and growth stocks. This methodology is adopted by Jenn et al. (2004) and Rytchkov (2010).

Finally the performance of these portfolios annual returns for all the portfolios is calculated yearly with the 5 years period under study. This will be calculated using the continuous compounding returns for each the portfolios under study (Jenn et al., 2004) on monthly basis starting from the month of July of the year *t* to the month June of year *t*+1. This will be repeated for every year. Dividends from the stocks are assumed to be reinvested.

3.4 Risk-adjusted Performance Measures

Theoretically, returns on these portfolios shall be measured by both estimating it in terms of its associate risk and returns. For this purpose, I will employ the three traditional performance measures (1) Jensen's alpha; (2) Treynor measure and; (3) Sharpe ratio.

The arithmetic mean return is computed monthly up from the 1st year until the 5th years after the formation of these portfolios. In this research paper, since the portfolios are formed each year from the year 2001 to the year 2006, therefore there are 9 first-year post-formation period with the total of 108 monthly portfolio returns (July 2001 – June 2010). In running the Jensen's alpha and Treynor measure, the following CAPM based regression is needed.

$$R_{\mathrm{p}t} - R_{\mathrm{f}t} = \alpha_{\mathrm{p}} + \beta_{\mathrm{p}}(R_{\mathrm{m}t} - R_{\mathrm{f}t}) + \varepsilon_{\mathrm{p}}$$

In this equation, Rpt would be the return of either value or growth portfolio in that particular month (*t)*; Rft would be deposit rate obtained by the Bank Negara Malaysia (BNM) data which is regarded as the risk-free rate in that particular month (month *t)*; whereas Rmt would be the market return in that particular month of *t.* This will be proxied by Kuala Lumpur Composite Index (KLCI); and finally *Xp* is estimated intercept that would indicate the Jensen's alpha value and *Bp* is the estimated slope.

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$$\text{Treynor measure} = \frac{R_{\mathrm{p}t} - R_{\mathrm{f}t}}{\beta_{\mathrm{p}}}.$$

The regression process will be repeated for all of portfolios and also of the individual post-formation year. Lastly, the Sharpe ratio will be computed by dividing the surplus yield of portfolios by its respective monthly return's standard deviation, (Rpt – Rft) / op.