CHAPTER 4:

RESEARCH RESULTS

CHAPTER 4: RESEARCH RESULTS

4.1. Summary of Statistics

Value portfolios	Year after portfolio formation				
	Year 1	Year 2	Year 3	Year 4	Year 5
Average monthly return, Rp (%)					
Low P/B	-0.08	0.83	0.36	0.05	0.44
Low P/E	0.37	0.46	0.11	-0.14	0.35
Low P/S	0.02	0.66	0.19	-0.18	0.4
Beta, Bp (t-statistic in parentheses)					
Low P/B	0.97 (9.75)	0.85 (7.96)	0.93 (9.36)	1.01 (12.91)	0.93 (14.56)
Low P/E	1.00 (11.20)	0.83 (8.72)	0.91 (10.83)	1.05 (13.55)	0.8 (12.19)
Low P/S	1.05 (11.42)	0.93 (9.01)	0.96 (11.04)	0.96 (12.28)	0.94 (11.71)
Standard Deviation, (%)					
Low P/B	5.24	4.49	4.72	5.34	4.77
Low P/E	5.13	4.21	4.35	5.43	4.29
Low P/S	5.37	4.57	4.58	5.11	5.07
Jensen's alpha, (%) (t-statistics in parentheses)					
Low P/B	-0.0108 (-2.32)	-0.0087 (-2.02)	-0.0105 (-2.46)	-0.0081 (-2.030)	-0.0074 (-2.26)
Low P/E	-0.0057 (-1.38)	-0.0128 (-3.31)	-0.0133 (-3.68)	-0.0092 (-2.37)	-0.0108 (-3.19)
Low P/S	-0.0082 (-1.91)	-0.0094 (-2.25)	-0.0116 (-3.08)	-0.0117 (-2.95)	-0.0076 (-1.86)
Treynor's measure					
Low P/B	-3.12	-2.67	-3.06	-3.11	-2.83
Low P/E	-2.58	-3.18	-3.4	-3.17	-3.4
Low P/S	-2.79	-2.62	-3.15	-3.51	-2.84
Sharpe ratio					
Low P/B	-0.58	-0.5	-0.6	-0.58	-0.55
Low P/E	-0.5	0.63	-0.71	-0.61	-0.63
Low P/S	-0.55	-0.53	-0.66	-0.66	-0.53

Table 1 : Summary of Value Portfolio Result

Table 1 provide the result obtained from the research analysis for the value portfolio. From the above, it can be seen that portfolio that is formed based on P/B, the positive return existed only starting on the year 2,3,4 and 5 but not on year 1 whereas for portfolio based on P/E, the positive return can be observed starting from year 1 until year 2 but negative return shown on year 4 before it went up again on yea 5. Lastly, for P/S portfolio, simialr trend was identified with the negative return experienced on year 4.

As for the risk-adjusted portfolio measurement, for P/B portfolio, the results show that for all Jensen's alpha, Treynor measure and Sharpe ratio indicate

that the portfolio underperformed the market. This means the stock selection based on P/B do not yield higher return compared to the market return.

A detail study of the risk-adjusted measurement for P/E based portfolios also that the stock selected based P/E underperform the market. Similar result was obtained for the P/S based portfolios as explained earlier.

Growth portfolios		Year after portfolio formation			
	Year 1	Year 2	Year 3	Year 4	Year 5
Average monthly return, Rp (%)					
High P/B	-0.06	0.42	0.32	-0.21	0.35
High P/E	0.11	0.22	0.26	-0.04	0.27
High P/S	-0.08	0.35	0.07	-0.06	0.25
Beta, Bp (t-statistic in parentheses)					
High P/B	0.64 (9.34)	0.60 (8.41)	0.56 (10.11)	0.65 (13.02)	0.81 (15.16)
High P/E	0.77 (10.69)	0.74 (10.44)	0.76 (12.35)	0.72 (11.78)	0.72 (15.79)
High P/S	0.82 (13.11)	0.68 (10.33)	0.70 (10.66)	0.78 (16.28)	0.73 (16.97)
Standard Deviation, (%)					
High P/B	3.49	3.07	2.80	3.34	4.06
High P/E	4.02	3.53	3.52	3.86	3.58
High P/S	4.00	3.2	3.34	3.86	3.59
Jensen's alpha, (%) (t-statistics in parentheses)					
High P/B	-0.0173 (-5.45)	-0.0171 (-5.99)	-0.0180 (-7.50)	-0.0191 (-7.54)	-0.0106 (-3.90)
High P/E	-0.0129 (-3.83)	-0.0167 (-5.78)	-0.0148 (-5.57)	-0.0158 (-5.05)	-0.0133 (-5.71)
High P/S	-0.0139 (-4.81)	-0.0164 (-6.20)	-0.0180 (-6.36)	-0.0147 (-5.99)	-0.0132 (-6.01)
Treynor's measure					
High P/B	-4.7	-4.47	-5.16	-5.23	-3.36
High P/E	-3.69	-3.89	-3.88	-4.49	-3.89
High P/S	-3.7	-4.04	-4.49	-4.17	-3.86
Sharpe ratio					
High P/B	-0.86	-0.87	-1.03	-1.02	-0.67
High P/E	-0.71	-0.82	-0.84	-0.84	-0.78
High P/S	-0.76	-0.86	-0.94	-0.84	-0.79

Table 2: Summary of Growth Portfolio Result

Table 2 shows the result obtained for growth portfolios. From this table, it can be clearly seen that the negative return is more apparent compared to the value portfolio. Firstly, for P/B based portfolio, there are 2 negative returns occur, in year 1 and also in year 4 whereas for value portfolio, losses only appear on year 1 only. However, for P/E based portfolio, similar trend occur for both value and growth portfolio that is the occurrence of negative return is

simultaneous (year 4). Again, in P/S portfolio, it appeared that the negative return appears twice during the period (year 1 and year 4).

Similar to value portfolio, for the risk-adjusted portfolio measurement, for P/B portfolio, the results show that for all Jensen's alpha, Treynor measure and Sharpe ratio indicate that the portfolio underperformed the market. This means the stock selection based on P/B do not yield higher return compared to the market return.

A detail study of the risk-adjusted measurement for P/E based portfolios also that the stock selected based P/E underperform the market. Similar result was obtained for the P/S based portfolios as explained earlier.

Value - growth					
	Year 1	Year 2	Year 3	Year 4	Year 5
Difference in returns (t-statistics in parentheses)					
P/B	-0.02 (0.04)	0.41 (-1.059)	0.04 (-0.099)	0.26 (-0.749)	0.09 (-0.373)
P/E	0.26 (-0.819)	0.24 (-0.874)	-0.15 (0.499)	-0.1 (0.291)	0.08 (-0.311)
P/S	0.1 (-0.321)	0.31 (0.929)	0.12 (0.385)	-0.12 (0.441)	0.15 (-0.408)
Number of observation	118	118	118	118	118

Table 3: Summary of Value Premium

Table 3 summarizes the statistics results obtained for post performance of the portfolios, both for value and growth portfolios. For portfolios that are based on P/B ratio, the monthly average return for value is higher in the year 2,3,4 and 5 but zero premium detected on year 1. The monthly average return is -0.02 (0.04) for year 1, 0.41 (t=1.059) for year 2, 0.04 (t=-0.099) for year 3, 0.26 (t=-0.749) for year 4 and 0.09 (t=-0.373) for year 5. However, the t-value analysis shows that the result is not significant for whole period under studies.

For P/E portfolio, the monthly average returns indicate higher return for year 1, 2 and 5 but not on year 3 and 4. The monthly average return is 0.26 (t=-0.819) for year 1, 0.24 (t=-0.874) for year 2, -0.15 (t=0.499) for year 3, -0.1 (t=0.291) for year 4 and 0.08 (t=-0.311) for year 5.

For P/S based portfolios, value and growth performance show a similar pattern to that of P/B and P/E based portfolios with only one value discount experience in this portfolio that is on year 4. The value premium in year 1 is 0.1% (t = -0.321) and on year 2 the value premium is 0.31% (t = 0.929). On year 3, the value premium was slightly lower with 0.12% (t = 0.385) and on year 5, the value premium is 0.15% with the t-value of -0.408. This means that P/S based portfolio also experienced the same portfolio returns as the other portfolios do. In addition, the value premium is not significant for whole years under studies, similar to P/B and P/E portfolio.

Overall, it can be concluded that the selection of stocks based ratios (P/B, P/E and P/S) proved to be immaterial in Malaysia. This result is contrary to the findings earlier findings particularly similarity of results by Ding et al. (2005) for his study of existence of value premium in Malaysia pre 1997 Financial crisis.

In Malaysia, the value premium is vastly non-existence as evidenced by the close study of its t-value of all the results obtained though in terms of the figure, value stocks portfolio show higher return than growth stock portfolio. The trend experienced in Malaysia is diametrically different from those evidenced in the US where the value premium has been documented for up to 5 years after the portfolio formation (Fama & French, 1998; Chan et al., 1991; Capaul et al., 1993; Bauman et al. 1998).

Ding et al. (2005) conducted research on the performance of of portfolio for both growth stocks and value stocks for the period of 1975–1997. The samples of seven (7) countries in Asian countries (Malaysia, Hong Kong, Indonesia, Japan, Singapore, Taiwan and Thailand) were used in this study. Their result shows that value portfolio indicate higher returns compared to growth portfolio in countries like Hong Kong, Japan, Malaysia and Singapore but not in Thailand, Indonesia and Taiwan.

4.2 Analyses of Measures

In this section, I will analyze the traditional measures of evaluating the portfolio performance adopted (Jensen's alpha, Treyor's measure and Sharpe ratio) in this research. This will signifies the actual performance of the portfolios under study.

4.2.1 Jensen's alpha

Jensen's alpha is a risk-adjusted performance measure that represents the average return on a portfolio over and above that predicted by the capital asset pricing model (CAPM), given the portfolio's beta and the average market return. Jensen's alpha is calculated using the formula below. In this research, simple regression is used to obtain the risk free rate and also the beta.

*Jensen's alpha = Portfolio Return − [Risk Free Rate + Portfolio Beta * (Market Return − Risk Free Rate)]*

$$\alpha_J = R_i - [R_f + \beta_{iM} \cdot (R_M - R_f)]$$

The fundamental theory is that to analyze the performance of a portfolio, one must not look not only at the overall return of a portfolio, but also at the risk of that portfolio.

Specifically, a rational investor may want the fund that is less risky to ensure some certainty of return of the portfolio based on his required returns. Jensen's measure is then used in the post-formation stage to determine if a portfolio is earning the proper return for its level of risk. If the value is positive, then the portfolio is earning excess returns. In other words, a positive value for Jensen's alpha means a fund manager has "beat the market" with his or her stock picking skills.

In this research, for P/B portfolio, all data shows that both portfolio experienced negative value on Jensen's alpha. This basically means the portfolio has not been able to earn excess returns in its portfolio. This also means that picking of stocks based on equally weighted that is expounded in the methodology section does not outperform the market. However, the value portfolio shows a smaller value compared to the growth portfolio. Therefore, the value portfolio's risk is less compared to the growth portfolio's risk. The lower risk compensated in the value stocks as commensurate with the stock picking method.

For P/E portfolio, the value obtained in this portfolio is the same as with the P/B portfolio. The same pattern is evidenced in the P/E based portfolio. Lastly, P/S portfolio also shows the same pattern in terms of figure for the Jensen's alpha.

4.2.2 Treynor's measure

Next, after evaluating the return of both portfolios in term how the return fared in relation to its given risk; the Treynor's measure is then utilized. Treynor's measure is the measurement of returns that is earned in excess of that which could have been earned on a riskless investment per each unit of market risk.

The Treynor measure is calculated using the formula above:-

$$T = \frac{r_i - r_f}{\beta_i}$$

where:

$T \equiv$ Treynor ratio,

$r_i \equiv$ Portfolio's return,

$r_f \equiv$ Risk free rate

$\beta_i \equiv$ Portfolio's beta

Treynor ratio is a risk-adjusted measure of return based on systematic risk. It is similar to the Sharpe ratio (which will be discussed later), with the difference being that the Treynor ratio uses beta as the measurement of volatility.

For P/B, P/E and P/S portfolio, the value gain in this measure are all the same as discussed for Jensen's alpha (negative value). This basically means that for P/B, P/E and P/S based portfolio, it has an indication of an unfavorable returns on the entire portfolio in this research.

4.2.3 Sharpe ratio

The Sharpe ratio measures risk-adjusted performance. The Sharpe ratio is calculated by subtracting the risk-free rate (substituted by deposit rate in

Malaysia) from the rate of return for a portfolio and dividing the result by the standard deviation of the portfolio returns.

The Sharpe ratio calculated via the following formula:-

$$S = \frac{R - R_f}{\sigma} = \frac{E[R - R_f]}{\sqrt{\mathrm{var}[R - R_f]}},$$

where R is the asset return, R_f is the return on a benchmark

The Sharpe ratio will enable to inform investors whether the stock selection portfolio return based ratios will result in higher returns or otherwise. In addition, Sharpe ratio will also indicate whether the returns that investors reap from these stock selection methods are commensurate with the level of risks associate with the selection i.e. returns obtained do not involve too much risk to ensure consistency of results in the future.. In short, the greater a portfolio's Sharpe ratio, the better its risk-adjusted performance would be. Additionally, a negative Sharpe ratio indicates that a risk-less asset would perform better than the security being analyzed.

In this research, the same value exhibited for all P/B, P/E and P/S based portfolio, where all shows a negative value. These negative values indicate an unfavorable return on all these portfolios.

4.3   Comparative Results

Study/Measure	1A	1B	2	3	4	5	6	7	8	9	10A	10B
Fama & French (1992)												
1. Price-to-Book ratio	0.3	0.67	0.87	0.97	1.04	1.17	1.3	1.44	1.5	1.59	1.92	1.83
2. Price-to-Earning ratio	1.04	0.93	0.94	1.03	1.18	1.22	1.33	1.42	1.46	1.57	1.74	1.72
	1	2	3	4	5	6	7	8	9	10		
Lakonishok, Shleifer & Vishny (1994)												
1. Price-to-Book ratio	11	11.7	13.5	12.3	13.1	15.4	15.4	17	18.3	17.3		
2. Price-to-Earning ratio	12.3	12.5	14	13	13.5	15.6	17	18	19.3	16.2		
	1	2	3	4								
Chan, Hamao & Lakonishok (1991)												
1. Price-to-Book ratio	1.3	1.7	1.9	2.4								
2. Price-to-Earning ratio	1.5	1.7	1.8	1.9								
	1	2	3	4	5							
Jenn, Sun & Yan (2004)												
1. Price-to-Book ratio	0.48	0.42	-0.08	0.11	-0.23							
2. Price-to-Earning ratio	0.33	0.09	0.12	0.31	0.24							
	1	2	3	4	5							
Current Study (2011)												
1. Price-to-Book ratio	-0.02	0.41	0.04	0.26	0.09							
2. Price-to-Earning ratio	0.26	0.24	-0.15	-0.1	0.08							

Table 4: Comparative Results from Previous Researchers

Comparison has to be made to see the similarity of results obtained by previous researches. From the Table 4, the similarity of results can be observed only to the study made Jenn et al. (2004) with the conclusion made that the value premium was only concentrated for the first 2 years in their studies. Although the result was not similarly obtained for this study, it can be concluded that for both Malaysia and Singapore, the consistent of value premium for both countries are not consistent with the US and Japan market.

4.4   Summary of Research Results

A thorough study of the result obtained above indicate that all portfolios that formed based on P/E, P/B and P/S ratios, are all unfavorable. An analysis done on the t-value also shows that, with the confidence level of 5%, an insignificant relation between returns value portfolios and growth portfolios.

This means that, based on this research, a selection of stocks based on P/E, P/B and P/S ratios would be indifferent in terms of its returns as evidenced by the values obtained in the measurements mentioned above. This is further supported with the close study of the t-value for all portfolios.