

## Performances of Shares by Exploiting Value Strategy: A Test of Weak Form Informational Market Efficiency of Share Market in Malaysia

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**Abstract**— This research examined the performance of value strategy based on dividend yield relative to the performance of Kuala Lumpur Composite Index as a mean to determine weak form informational market efficiency of share market in Malaysia. One rolling year performance to five rolling year performance were examined in this research. In addition, entire rolling year performance was also examined in this research. All shares listed on the Main Board of Bursa Malaysia were utilized as the sampling frame. Annual data from the end of December 1986 to the end of December 2008 was employed in this research. Dividend-to-price was used as the base for the value strategy. This research also investigated whether unconventional risk of the value strategy is significantly different from unconventional risk of the Kuala Lumpur Composite Index or not. Overall, it could be concluded that share market in Malaysia is weak form informational efficient. Moreover, although the entire year value strategy had been found to significantly underperform the entire year Kuala Lumpur Composite Index, there was no significant difference between their unconventional risks.

**Keywords**- Trading strategies, Value strategy, Informational market efficiency

### I. INTRODUCTION

It is important for share market in a nation to be informational efficient since informational efficient share market could push upward or outward the production frontier of the nation that measurement of wealth of a nation is based on. An informational efficient share market could increase the production level of the nation in which the share market operates by improving informational efficiency of other financial markets in the nation that lead to greater allocation efficiency of funds that flow in the nation. An informational efficient share market could enhance the informational efficiency of other financial markets in the nation that the share market operates since share markets are not afflicted with bureaucratic biasness that other financial markets that are priced solely by structural organization succumbed to. Unlike other financial markets, share markets that are free from bureaucratic biasness mean market prices of shares when compared to prices of other financial assets offered by other financial markets could better reflect the capitalization rate of firm that issued shares and other financial assets since free from bureaucratic biasness means information related to capitalization rate of firms would not be loss due to (1) Loss of information in the flow of information to reach higher-level management, (2) Loss of information due to

irresponsible act of certain parties like the higher level management that try to hide some information from the public and (3) Loss of information due to selective hearing that is management team disseminates information gather from a particular party only. In other words, free from bureaucratic biasness means share markets are able to improve the informational efficiency of other financial markets by empowering surplus units who wish to extend their funds or loans to other financial markets to gauge the prospects of the financial assets offered by other financial markets by observing the prospect of shares issued by the same issuer of the 'other' financial assets, which would lead to better allocation efficiency of funds. The work of Liza Marwati (2008) could be referred to for more detail on the mechanism of the way an informational efficient share market could improve the degree of informational efficiency of other financial markets in the same nation that the informational efficient share market operates.

Informational efficiency of share markets could be segregated to three levels (Fama, 1970) that are useful in identifying at which level or degree of information the informational efficiency in a share market breaks down. The three levels or degree informational market efficiency (Fama, 1970, 1991) are as follows: (1) Weak form informational market efficiency, in which all past prices and all past variables incorporated in any trading strategy that are used to forecast returns are already reflected in the current market prices of shares, (2) Semi strong form informational market efficiency or event studies test, in which in addition to all past prices and all past variables, all publicly available information is reflected in current market prices of shares and (3) Strong form informational market efficiency or private information test, in which in addition to all past prices, past variables and public information, privately held information is also reflected in current prices of shares.

It could be readily seen from the just above paragraph that the first level of informational efficiency is a subset to the second level of informational efficiency, the second level of informational efficiency is a subset to the third level of informational efficiency, which means the first level of informational efficiency is also a subset to the third level of informational efficiency. The last sentence explains the reason for Green (2008) to mention that a semi-strong form informational market depends on the validity of the weak form informational market efficiency. In fact, the importance of testing weak form informational market efficiency rather than testing the semi-strong or strong form

informational efficiency of the share market in Malaysia which is categorized as an emerging country, is undeniable when the works of Mobarek & Keasey (2000) is referred to. According to them, unlike developed markets that are generally weak form efficient, the dynamics of an emerging or developing market requires clarification of the weak form market efficiency in the emerging or developing market. Moreover, company information in emerging or developing markets is released and circulated before the annual report is officially available. The annual reports of some of the listed companies are mistrusted and often result in rumours circulating in the market about the companies.

The objective of the paper is to test the weak form informational market efficiency of share market in Malaysia. There are five methods including testing performance of trading strategy that could be used to test weak form informational efficiency of share market. The paper follows the method of testing performance of trading strategy, specifically, performance of value strategy to determine the weak form informational market efficiency of share market in Malaysia. The reason for selecting testing performance of trading strategy specifically the performance of value strategy would be revealed in section 2 that is the literature review section of the paper. Value strategy is a share selection strategy that falls under the category of active investment strategy which tells share investors to buy value shares that have been fundamentally weak, but are currently underpriced. The methodology of the research would be described in section 3 of the paper, followed with the findings and discussion of the research in section 4 of the paper. Section 5 of the paper ends the paper with the conclusion, implication and suggestion of the research.

## II. LITERATURE REVIEW

This section will first touches on the weaknesses of the four approaches other than testing performance of trading strategy that could be used for testing weak form informational market efficiency to provide merit to the approach of utilising trading strategy in testing weak form informational market efficiency. The four approaches are asset pricing model approach, autocorrelation test approach, run test approach and Rescaled range (R/S) analysis. The details of each of the first three of the four approaches could be found in an article written by Liza Marwati, M.Fazilah & Nor Azlinna (2009a), while the details of the fourth approach could be found in an article written by Liza Marwati, M. Fazilah & Nor Azlinna (2009b). Secondly, this section will attempt to provide the justification for selecting value strategy as a trading strategy that is used to determine the weak form informational market efficiency of share market in Malaysia.

Asset pricing models include the Capital asset pricing model, which suffers from the joint hypothesis problem (Fama, 1991) and the problem of misspecification of the model (Ball, 1978), and the Arbitrage pricing model that also suffers from the problem of misspecification of the model. According to Jo & Kim (2008), finance has no test powerful enough to distinguish (weak form) informational market efficiency from bad asset pricing models, thus, the best

practice is to determine (weak form) informational market efficiency in the 'beat the market' sense. Beat the market actually refers to the situation where positive abnormal return could be gained from share market by adhering to trading strategy. Positive abnormal return is the excess of return gained from adhering trading strategy over the return on share market index that represents return on passive indexing strategy (Fama, 1965). Moreover, Fama (1998) explicitly stated that the asset pricing model is not applicable in emerging markets. The following excerpt from Fama (1998, p. 1997) provides the evidence to such a claim:

*"Finally, given the short sample period and the high volatility of emerging market returns, asset pricing tests for emerging markets are quite imprecise, so we do not report any."*

In fact, in the same paper, Fama (1998) mentioned leptokurtic and right skewed distribution of returns in emerging markets as another reason impeding the validity of using the asset pricing model in testing weak form informational efficiency in the market, as such characteristics of the distribution of returns would cause statistical inference on the asset pricing model to be hazardous. Indeed, in the presence of skewness in returns, serious inference problems in tests of rational pricing would exist even in minor test misspecification or data truncation as mentioned by Guay (2000) and Kothari, Sabino & Zach (2000). A poor fit to standard asset pricing models among share markets in emerging markets was also highlighted by Platt (1998, p. 9), as can be observed in the following quote:

*"From these findings, one concludes that, compared to developed markets, the emerging markets tend to have no more than marginally higher returns (significance level of 6.75%) but significantly more volatile in returns, less-weak form market efficiency, smaller world betas, more variability among world betas, and poorer fits to standard asset model. In short, emerging markets really are different from developed markets in ways that should matter to investors seeking the full benefits of portfolio diversification and asset allocation."*

Autocorrelation tests lack of power to reject the null hypothesis that market is informational weak form efficient when the null hypothesis is false (Summers, 1986), and are restricted to detecting linear dependency which was asserted by Fama (1970, p. 394) as follows:

*"...there are types of nonlinear dependence that imply existence of profitable trading systems, and yet do not imply non zero serial covariances. Thus, for many reasons it is desirable to directly test the profitability of various trading rules"*.

Run tests are too rigid in determining the duration of upward and downward movements in prices (Fama, 1965). In particular, a run is terminated whenever there is a change in sign in the sequence of price changes. Meanwhile, the H exponent of the Rescaled range (R/S) analysis may be biased in the presence of non-stationary data and short memory. In addition, the logarithmic return of shares, which according to

Osborne (1959) could only approximate the percentage changes in prices when percentage changes in price are less than  $\pm 15$  percent, is utilized as input to the R/S analysis.

The weaknesses in the above mentioned four approaches in testing the informational market efficiency could have driven Merton (1985) to implicitly state that repeated findings that share traders could consistently obtain positive abnormal return by adhering to trading strategy is a major evidence against (weak form) informational market efficiency.

Unlike research on the performance of other trading strategy, research on the performance of the value strategy and research on performance of growth strategy have been receiving considerable attention from proponents of the standard asset pricing theory. Even Fama who is one of the advocates of the standard asset pricing theory (Fama & French, 1992; Fama & French, 1998; and Fama, 1998) had tested the strategies, which strengthens the basis for the research to consider focusing on the two strategies. The reason for such attention is given by the proponents of standard asset pricing to the research on the performance of value strategy and growth strategy is because the evidence that shows that value strategy and growth strategy could deliver (positive) abnormal returns actually runs counter to the basic assumption underlying the standard asset pricing theory that all share traders are rational, or at least, marginal share traders are rational (Liza Marwati, M.Fazilah & Nor Azlinna, 2009a) that is required for the standard asset pricing model to hold. Furthermore, finance academicians have long acknowledged value strategy and growth strategy as active trading strategies that are adored by market practitioners. The acknowledgement could even be traced back to a paper written by Chan (1988), which was published in the *Journal of Business*. A popular way to discriminate the value shares and growth shares is through the use of multiples (Kothari & Shanken, 1997). Multiples are computed from items in the financial statements of the firms issuing the shares. The computation involves a simple basis arithmetic operation. Multiples could take either of the two forms: Ratio of item in the financial statements to price, or, ratio of price to the item in the financial statements. If the first form is followed, then shares with high multiples are considered as value shares while shares with low multiples are considered as growth shares. The opposite holds when the second form of multiples is followed. Between the value strategy and the growth strategy, this research chooses to focus on performance of value strategy to determine the weak form informational market efficiency of share market in Malaysia since it had been mentioned by Addae-Dapaah, Ho & Chua (2007) and Zhang (2005) that historically, growth shares earn lower average returns than value shares. Furthermore, strategies based on value investing had been mentioned to work in emerging markets (Fama & French, 1998; Barry, Goldreyer, Lockwood & Rodrigues, 2002; and Kargin, 2002).

The reason for value strategy producing a positive abnormal return, if any, has been the polemical issue in research on the performance of value strategy (Petkova & Zhang, 2005), as some researchers believe that the superior

return of value strategy is due to the fundamentally riskier shares that constitute the value portfolio (Ball & Kothari, 1989; Doukas, Kim & Pantzalis, 2002; Fama & French, 1992; Fama & French, 1993; Fama & French, 1995; and Fama & French, 1996), while other researchers believe the superior return of value strategy is due to the fact that the strategy simply identifies undervalued shares (Lakanishok, Shleifer & Vishny, 1994). Therefore, it has been customary for the test on the return performance of trading strategy to be followed with a test on its risk, and thus, the same approach is followed in this research.

### III. METHODOLOGY

Hy 5 system that has been popularized by Fry (1995) will be employed as the tool to measure performance of value strategy when applied to shares listed on Bursa Malaysia. The Hy5 system is a share selection strategy that tells share traders to select value shares that are low priced. Previous studies by Asness (1997), Chan, Lakonishok & Souginannis (2001), Daniel & Titman (1997), Ferson & Harvey (1999), and Piotroski (2000) that found value strategy that had been linked to other anomalies or return regularities delivered return higher than return generated solely by value strategy substantiated the evidences for the advantage of value strategy which is linked to price anomaly over a simple value strategy. The followings are the shares selection procedure in the Hy5 System:

- Step 1: Rank shares according to dividend yield (D/P) in descending order. Focus on the top 10 shares. High dividend yield shares tend to indicate they are out of fashion and probably having a rough time. They are, therefore, recovery candidates either through a cyclical change in their fortunes, management shake-ups or takeover (Fry, 1995, p. 286). Furthermore, this is the step that proves the concept of value strategy is embedded in the Hy 5 system since value strategy is a strategy that tells investors to buy shares that have been fundamentally weak but are underpriced (Bartov & Kim, 2004).
- Step 2: Among the top 10 shares identified in step 1, rank them according to price in ascending order. Choose the bottom 5 price shares as the components of a value portfolio since price of low priced shares tend to move more compared to high priced shares (Latane, 1954). The portfolio is equally weighted. Only 5 shares constitute a value portfolio since the success of the performance of value investing strategy depends on a few shares, while tolerating the poor performance of many deteriorating value shares (Piotroski, 2000).
- Step 3: Rebalance the portfolio once a year at the end of the year. There are two reasons for rebalancing the portfolio once a year. The first reason is to reduce transaction cost (Fry, 1995; and Lakonishok, Shleifer & Vishny, 1994). The second reason is to reduce market microstructure issues (Lakonishok,

Shleifer & Vishny, 1994), that is, to reduce the possibility that the profitability of trading strategy is merely induced by trading mechanism, which is faced by high frequency trading strategies. The market microstructure issues that might plague high frequency trading strategies are bid ask bounce (Conrad, Gultekin & Kaul, 1997) and nonsynchronous trading (Lo & MacKinlay, 1990).

All shares listed on the Main Board of Bursa Malaysia are utilized as the sampling frame in this research. Prices and all the multiples used in this research are drawn from DataStream, the data service provider. The sample period covered in this research is from the end of December 1986 to the end of December 2008. The sample period is subdivided into a one year rolling period, two year rolling period, three year rolling period, four year rolling period, five year rolling period and the entire period rolling period (Addae-Dapaah, Ho & Chua, 2007). The rolling period approach is employed because it allows the performance of the portfolio in every possible k-year window over the whole period for which data is available to be examined (Sengupta, 2004, p. 252). Furthermore, overlapping returns data could increase the power of statistical tests (Richards, 1997). Returns would be measured according to the widely commonly approach, that is, to calculate simple holding period (raw percentage return) as periodic returns. For a longer holding period, the simple periodic returns are compounded to obtain the multiyear holding period returns as defined in the following equation.

$$R_t = [(1+R_1)(1+R_2)...(1+R_m)] - 1$$

Where

$R_1, R_2...R_m$  = periodic raw returns of the holding period m years

m = number of years during m holding year period

In this research, dividends will be omitted from the calculation of return. The practice does not alter the result (Mills & Coutts, 1995) especially in Malaysia where the cash dividend has been found to be very low (Harwood, 1993 and Shimomoto, 2002). Transaction cost will also be ignored in this research since each share trader faces different transaction costs (O'Shaughnessy, 1998, p.33). The null hypotheses that are tested in this research are as follows:

H<sub>10</sub>: There is no different between return on Hy5 system and return on buy and hold strategy.

H<sub>20</sub>: There is no different between risk on Hy5 system and risk on buy and hold strategy.

Return on buy and hold strategy is represented by return on buy and hold share index (Fama, 1965), therefore, since this study attempt to examined performance of value strategy on shares listed on Bursa Malaysia, return on buy and hold Kuala Lumpur Composite Index (KLCI) is utilized to represent return on buy and hold strategy in this study. Mann-Whitney U test, a non-parametric test, is employed to ascertain that the existence of abnormal return, if any, is not due to chances. Mann-Whitney U test is used instead of the independent t-test since this study has found that return on the Hy5 system is non normal but to fit the description of fat tail probability of distribution. Specifically, the kurtosis of

the fat tail probability distribution is high, and skewed to the right. The normality test was done using the Shapiro-Wilks statistics available in the SPSS software. The Shapiro-Wilks statistics was chosen since it fits with the small size sample that inhibits this research (Cooke & Steed, 2003, p. 33). Unconventional risk measurement instead of conventional risk is employed in this research. In this research, a strategy is said to be unconventionally riskier than its benchmark if the return on the strategy is statistically significantly lower than the return on its benchmark during the worst performance of share market. Following the steps of Soo-Wah Low (2007), who, in turn, followed the steps of Henriksson & Merton (1981), the share market is said to experience worst condition when the return on the Kuala Lumpur composite index is lower than return on the Treasury bill of the Government of Malaysia. Similar to the test on the existence of abnormal return, the test on the unconventional risk also utilizes Mann-Whitney U test.

#### IV. RESULTS AND DISCUSSIONS

It is depicted in table 1 that value portfolio based on dividend yield significantly underperformed the Kuala Lumpur Composite Index when the value portfolio was held for the entire holding period. In fact, unlike the entire holding period average return on the Kuala Lumpur Composite Index that took a positive value, the entire holding period average return on the value portfolio was negative. The value of Z in the Mann-Whitney U test was -3.3570 while the p-value was 0.0010. The finding appear to substantiate evidence for the statement that implies performance of value strategy could be attributed to the investing holding period (Brown, Ghon Rhee & Zhang, 2008; and Jordan, 2006).

TABLE I PERFORMANCE OF VALUE STRATEGY BASED ON DIVIDEND YIELD WHEN APPLIED ON ALL SHARES LISTED ON MAINBOARD OF BURSA MALAYSIA

Holding period (year)	Average Return of value strategy based on Dividend yield (%)	Average return of KLCI (%)	Non parametric test (Mann-Whitney U test)			
			Mean rank of value strategy based on Dividend yield	Mean rank of KLCI	Z	p-value
1	22.83	10.42	22.59	22.41	-0.0470	0.9630
2	49.53	22.85	21.50	21.50	0.0000	1.0000
3	75.35	32.22	20.25	20.75	-0.1350	0.8920
4	100.42	40.16	19.47	19.53	-0.0150	1.0000
5	129.01	52.33	19.28	17.72	-0.4430	0.6580
Entire	-8.70	41.36	16.00	29.00	-3.3570	0.0010**

\*\* Significant at the 0.01 level

Year 1990, year 1994 to year 1998, year 2000 to year 2002, year 2005 and year 2008 were identified as the years when Malaysia experiences its down share market

conditions. It was found that there is no significant difference between performance of value strategy based on dividend yield and performance of Kuala Lumpur Composite Index during the down share market conditions. In other words, the return on the value strategy based on dividend yield is not unconventionally riskier than the return on buy and hold Kuala Lumpur Composite Index. The fact that the entire holding period value portfolio based on dividend yield had significantly underperformed the Kuala Lumpur Composite Index, while the unconventional risk of the value portfolio had been found not to significantly differ from the Kuala Lumpur Composite Index appear to suggest that there is no relationship between return and risk of value portfolio. The relationship between return and risk of value strategy found in this research was not in line with the positive relationship between return and risk stipulated by the theory of Portfolio selection (Markowitz, 1952, 1959).

## V. CONCLUSIONS, IMPLICATIONS AND SUGGESTIONS

This research attempts to determine the weak form informational efficiency of share market in Bursa Malaysia. The finding of this research seems to suggest that share market in Bursa Malaysia is weak form informational efficient, which means movement in the prices of shares in Malaysia do not follow any trend that could be extrapolated from past information. The implication of this is that trading strategies should not be emphasized by share traders who trades on shares listed on Bursa Malaysia. The share traders should instead focus on fundamental analysis.

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