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AN EVALUATION OF THE MARKET-TIMING AND SECURITY-SELECTION PERFORMANCE OF MUTUAL FUNDS: THE CASE OF MALAYSIA

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ABSTRACT

In this article, we examine market-timing and security-selection performance of a sample of Malaysian mutual funds. We used Jensen's (1968; 1969) model to test for the overall fund performance and employed the model developed by Merton (1981) and Henriksson and Merton (1981) to highlight the separate contributions of market-timing and security-selection performance to the overall fund's return. Consistent with most previous research, we find evidence that the funds provide investors with overall negative return performance. Since such performance evaluation ignored the existence of timing activities among fund managers, it attributed the overall negative performance exclusively to the manager's security-selection efforts. When we model timing and selectivity simultaneously using the Henriksson and Merton's (1981) model, we find evidence of negative market-timing performance by fund managers. Perhaps more importantly, our results suggest that after accounting for the manager's market-timing ability, the manager's security-selection ability no longer contributes significantly to the overall fund performance. That is, the overall negative return performance of the fund is driven by the poor timing ability of the fund manager. The evidence presented highlights the importance of considering both the market-timing and the security-selection abilities of the fund manager when evaluating the performance of mutual funds to avoid erroneous conclusions regarding the fund performance.

ABSTRAK

Artikel ini menyelidik prestasi pemasaan dan pemilihan sekuriti untuk sampel dana amanah di Malaysia. Model Jensen (1968; 1969) digunakan untuk menguji prestasi dana secara keseluruhan manakala model yang dibentuk oleh Merton (1981) dan Henriksson and Merton (1981) digunakan untuk

memisahkan komponen sumbangan prestasi pemasaan dan pemilihan sekuriti ke atas pulangan dana secara keseluruhan. Konsisten dengan dapatan kajian yang lepas, keputusan kajian ini menunjukkan bahawa prestasi pulangan yang diterima oleh pelabur adalah negatif secara keseluruhannya. Memandangkan penilaian prestasi pulangan sedemikian mengabaikan kewujudan aktiviti pemasaan di kalangan pengurus dana amanah, maka pulangan negatif keseluruhan tersebut adalah disebabkan oleh prestasi pemilihan sekuriti. Apabila aktiviti pemasaan dan pemilihan sekuriti diambil kira bersama-sama dengan menggunakan model Henriksson and Merton (1981), terdapatnya bukti prestasi pemasaan yang negatif di kalangan pengurus dana. Keputusan kajian mencadangkan bahawa selepas prestasi pemasaan pengurus dana diambil kira, prestasi pemilihan sekuriti didapati tidak lagi menyumbang kepada prestasi keseluruhan dana amanah tersebut. Prestasi menyeluruh yang negatif tersebut adalah disebabkan prestasi negatif pengurus dana di dalam membuat pemasaan untuk melabur. Dapatan kajian menunjukkan bahawa di dalam membuat penilaian prestasi dana amanah adalah penting untuk mengambil kira kedua-dua keupayaan pemasaan pasaran dan pemilihan sekuriti pengurus dana amanah untuk mengelakkan daripada membuat kesimpulan yang salah terhadap prestasi dana amanah.

INTRODUCTION

The mutual fund industry or more popularly known as the unit trust industry in Malaysia, began in 1959 and the first three decades in the history of this industry were characterized by a period of slow growth. The period during the 1990s marked the fastest growth of the unit trust industry and it has continued to grow rapidly in recent years despite the slowdown in economy and volatile stock market conditions. This growth is evidenced by the increasing number of funds managed by the unit trust management companies. As at 31 January 2003, there were 39 unit trust management companies managing a total of 188 unit trust funds as compared with 31 unit trust management companies managing only 84 funds as at December 1997 and the percentage of the net asset value of the unit trust industry to the Kuala Lumpur Stock Exchange's market capitalization has grown from 8.93% as at December 1997 to approximately 11.37% as at 31 January 2003.[1] In developed countries, the investment performance of mutual funds has been a vast topic of research in the literature of finance. Evidence about the performance of fund portfolios is certainly of great interest not only to practitioners or investors but also to academics alike. To the investors, such information is helpful for making decisions on the allocation of investment funds in the marketplace. Furthermore, investors may also be attracted to mutual fund investing based on a popular belief that professionally managed funds are able to generate superior returns. On the other hand, to the academics, the finding of superior performance of such funds has important implications for the theory of finance relating to efficient market hypothesis. This study is organized as follows: Section II provides discussions on previous studies. Section III presents the data and the methodology employed in the study. Section IV discusses the results of the study. Concluding remarks are offered in Section V.

LITERATURE REVIEW

Over the decades, the investment performance of mutual funds has attracted substantial research in the literature of finance. In a classic article, Jensen (1968) evaluated the aggregated performance of 115 open-end mutual funds for the period 1945-1964 and concluded that most funds performed at a level inferior to that of the market. Similar results were reported by Sharpe (1966), Carlson (1970), McDonald (1974), Firth (1977) and Lehmann and Modest (1987). In addition, studies on the investment performance of international mutual funds such as Cumby and Glen (1990) and Droms and Walker (1994) also suggest a lack of superior performance by fund managers.[2] In general, most previous studies, with a few exceptions, have found either negative performance or no performance for the average mutual funds.[3]

While the investment performance of mutual funds has been studied extensively in developed countries, there is remarkably little evidence about the performance of fund portfolios in developing nations. The performance of unit trusts funds in Singapore as reported by Chua, Koh and Koh (1985) and Koh, Koh and Chang (1987) concluded that the funds were unable to outperform the market. In the context of Malaysia, Mohamed and Nassir (1995) studied the performance of unit trust funds during the period of 1988-1992. Their results indicate that the investment performance of unit trust funds in Malaysia also show evidence of under-performance in relation to the market. Similar findings were reported by Tan (1995) and Taib, Shahnon and Lee (2002). Leong and Aw (1997) in their study of mutual funds performance using different benchmarks, concluded that the total performance of the funds was inferior to that of the market regardless of the choice of a market benchmark. Collectively, these empirical findings indicate that not only the actively managed portfolio could not beat the market, but some even perform at a level inferior to that of the market.

The objective of the study is to determine the separate contributions of market-timing and security-selection performance to the overall fund's performance. In the past, most empirical studies that examined the performance of mutual funds in developed countries focused the research on evaluating the overall or aggregated fund's performance and many of these studies have typically used an evaluation method based on Jensen's (1968,1969) model. The Jensen's performance model assumes that the systematic risk of the managed portfolio is stationary through time. However, in reality the risk level of a managed portfolio is not constant over time. Fund managers frequently attempt to alter the risk composition of their portfolio in anticipation of broad market movements. Thus, when predicting a bull market condition, these fund managers will adjust the risk of their portfolio by changing their portfolio holdings to high risk securities since such securities tend to earn more than the market average during a rising market. Conversely, if a bear market condition is forecasted, these managers will position their portfolio accordingly by switching their portfolio compositions to low-risk securities which tend to decline less than the market average during a downmarket. Given the assumption of stationarity in systematic risk, Jensen's model therefore, ignores the ability of fund managers to time the market movements. Fama (1972) addressed this issue by suggesting a better breakdown of performance when the risk level of the portfolio is non-stationary[4], that is, fund managers' forecasting abilities have two distinct components: market-timing and security-selection. Market-timing or also known as macro-forecasting ability refers to the ability of the fund managers to forecast the broad stock market movement. Security-selection involves micro-forecasting, i.e., the ability of fund managers to identify securities which are under- or over-valued relative to the market in general. Since it is important that fund managers be evaluated on both the security-selection ability and the market-timing skill, attention of the research has since shifted toward studies that decompose the overall performance ability of fund managers into these two separate components.

Numerous studies have since picked up on that point, examining the market-timing and or selectivity performance of mutual fund managers and these studies have reached mixed conclusions. Evidence on the timing performance of mutual funds are provided by Merton (1981), Henriksson and Merton (1981), Veit and Cheney (1982), Kon (1983), Chang and Lewellen (1984) and Henriksson (1984). In general, these studies indicate that fund managers have poor timing and poor overall performance. Similarly, more recent empirical findings also suggest that on average, fund managers do not have special information to time the return of the market portfolio successfully. Studies by Grinblatt and Titman (1989b), Cumby and Glen (1990), Connor and Korajczyk (1991), Chen, Lee, Rahman and Chan (1992), Coggin, Fabozzi and Rahman (1993), Kao, Cheng and Chan (1998), Volkman (1999) and Rao (2000) found evidence of negative market-timing skills on the part of the fund managers. In addition to finding no evidence of superior timing ability, Volkman (1999) in his study of mutual fund performance during high volatile market period of the 1980s, also show that the average mutual fund did not exhibit a significant ability to pick undervalued securities during periods of high market volatility. Nevertheless, at the individual fund level, several studies show that some funds do demonstrate either superior security selection ability or a significant ability to time major market movement successfully. (examples, see Kon (1983), Lehmann and Modest (1987) and Lee and Rahman (1990)).[5]

The findings of Coggin *et al.* (1993) relating to selection ability suggest that pension fund managers are on average better stock pickers than market timers. However, their findings also indicate that when managers are grouped by investment styles, their stock selection and market-timing abilities appear to be sensitive to the choice of benchmarks used.[6] In addition to these findings, many studies report a negative correlation between fund managers' stock selection and market-timing abilities (examples, see Kon (1983), Henriksson (1984), Chang and Lewellen (1984), Connor and Korajczyk (1991), Coggin *et al.* (1993), Bello and Janjigian (1997) and Volkman (1999)). As noted by Coggin *et al.* (1993), the correlation between the market-timing and the selectivity measures remains an unresolved question in the literature. Their findings indicate that when the sampling errors of both the selectivity and the timing estimates are taken into account, both the estimates become "largely uncorrelated".[7] Volkman (1999) argues that the negative correlation between the fund's timing and selectivity performance could arise from the manager's attempt to maximize his stock selection performance at the expenses of timing performance. Jagannathan and Korajczyk (1986) suggest that the negative correlation between the measures of security-selection and market-timing occurs due to the differential leverage of firms in the market portfolio and those invested in by the fund managers. Lee and Rahman (1990) found positive correlation between selectivity and market-timing. On the other hand, Lehmann and Modest (1987), (footnote 33), found no evidence of "substantive correlation" between measures of timing and security-selection of fund managers.

Most previous evidence on timing and selectivity is based on the findings in the developed countries. While there are several studies that investigate the overall investment performance of the mutual funds or better known as unit trust funds in Malaysia, there is remarkably little evidence to distinguish between the performance due to selectivity and the market-timing abilities of the fund managers. One such study is provided by Nassir, Mohamed and Ngu (1997). Using the Treynor and Mazuy Model (1966), Nassir *et al.* (1997) found evidence of negative timing performance and positive selectivity performance during the period from July 1990 through August 1995. This paper extends the understanding of the unit trusts performance by providing further empirical evidence on the separate performance measure for a sample of the Malaysian unit trust funds.

DATA AND METHODOLOGY

The data in this study consists of monthly returns for a sample of forty unit trust funds with complete data for the entire period of study from January 1996 through December 2000. The monthly returns for each fund is calculated as follows:

$$R_t = \frac{NAV_t - NAV_{t-1} + DIST_t}{NAV_{t-1}}$$

where NAV is the net asset value of the fund and DIST is the income and capital gain distributions of the fund.[8] The price records and distributions information were obtained from the local newspapers, fund prospectus and annual reports of the fund management companies. The sample of forty funds includes twenty five income funds, ten growth funds and four balanced funds. Monthly returns on the Kuala Lumpur Stock Exchange (KLSE) Composite Index served as a proxy for the market's returns. This information was gathered from the Investors Digest published by the KLSE. The proxy for risk-free rate is a three-month Treasury bill rate gathered from the Monthly Statistical Bulletin, published by Bank Negara Malaysia (Central Bank of Malaysia). Since the reported Treasury bill rate is an annualized holding period yield on a three-month Treasury bill, this rate was converted to a monthly equivalent, consistent with the monthly returns of the unit trust funds and the market's returns.[9]

While there are several methods available for calculating the risk-adjusted returns, most empirical studies that examined the performance of managed portfolios have employed the most widely-used Jensen's model (1968,1969) with the following regression specification:

$$R_{pt} - R_{ft} = \alpha_J + \beta_p (R_{mt} - R_{ft}) + \epsilon_{pt} \tag{1}$$

where R_{pt} is the rate of return of the fund at time t; R_{ft} is the contemporaneous rate of return on a risk-free asset; and R_{mt} is the rate of return for the market portfolio at time t. β_p is an estimate for the systematic risk level of the fund, α_J is the Jensen's performance coefficient, indicating the risk-adjusted performance of the fund, and ϵ_{pt} represents the random error term.

In this regression equation, the systematic risk level of the fund, β_p is assumed to be stationary over time. Such an assumption has ignored the existence of timing ability on the part of the fund manager and therefore, attributed the fund's performance solely to the manager's security-selection ability. Accordingly, a statistically significant positive (negative) value of α_J indicates a superior (inferior) security-selection performance by the fund manager. Note that if the manager has superior information relating to security-selection but has no timing information, Jensen's measure gives an accurate performance evaluation of the fund. However, when the fund manager does engage in market-timing activities, obviously there exists a potential for misinterpretation of the performance estimate, α_J in Equation (1). For example, if the fund manager has the ability to successfully time the market movements and this ability is not accounted for by Equation (1), the resulting estimate of α_J in Equation (1) will overestimate the security-selection ability of the successful market-timing manager. On the other hand, if the manager is an unsuccessful market timer, his poor timing skill will cause a downward bias to the estimate of α_J and as a result, his security-selection ability will be underestimated.[10] Hence, it is important to consider timing and selection abilities simultaneously in evaluating fund performance.

In addressing the possibility that fund managers may engage in market-timing activities, Merton (1981) and Henriksson and Merton (1981) developed an alternative performance evaluation model that attempts to breakdown the overall performance ability of the fund manager into two separate components i.e., market-timing and security-selection abilities. Their model highlights the separate contributions of market-timing and security-selection performance to the overall fund's return and the model can be expressed by the following regression equation:

$$R_{pt} - R_{ft} = \alpha_S + \beta_1 X_t + \beta_2 Y_t + \epsilon_{pt} \tag{2}$$

where $X_t = R_{mt} - R_{ft}$, $Y_t = \max [0, - (R_{mt} - R_{ft})]$, and α_S is the abnormal component of the fund's return attributed to the manager's security-selection ability, after filtering out his market-timing ability. β_2 is the measure for the manager's market-timing ability and it represents the change in the fund's risk when the manager restructures the composition of the fund as the direction of the market changes. A successful market-timing manager is able to correctly assess the direction of the market and adjust the portfolio's risk accordingly. The manager's ability to successfully (unsuccessfully) time the market will be revealed by a significant positive (negative) estimate of β_2. While Equation (2) provides an estimate for the timing performance of the manager, it does not explicitly show the separate risk levels of the fund during an upmarket or downmarket conditions. Henriksson and Merton (1981) went on to suggest that the up-market and down-market conditions can be identified in an alternative version of Equation (2). Through a linear transformation, Henriksson and Merton (1981) indicate that Equation (2) is shown to be equivalent to the following alternative regression specification:

$$R_{pt} - R_{ft} = \alpha_S + \beta_{UP} X_{ut} + \beta_{DOWN} X_{dt} + \epsilon_{pt} \tag{3}$$

where X_{ut} = max $[0, R_{mt} - R_{ft}]$, X_{dt} = min $[0, R_{mt} - R_{ft}]$, β_{UP} and β_{DOWN} represent the up-market and down-market Beta respectively. A good market-timing manager should have an up-market beta greater than the down-market beta. As pointed out by Henriksson and Merton (1981), since both Equations (2) and (3) are related to each other econometrically, the test for the manager's market-timing ability as shown by the estimate of β_2 in Equation (2), is equivalent to testing whether the up-market beta and the down-market beta in Equation (3) are significantly different from each other ($H_o : \beta_{UP} = \beta_{DOWN}$).[11]

In this study, we employed the popular Jensen's model as represented by Equation (1) to provide an estimate for the overall performance of mutual funds (α_J). A good (poor) overall performance can be driven by the manager's good (poor) selection-ability, a good (poor) timing-ability or a combination of both abilities. Since previous studies have clearly demonstrated the importance of taking into account the existence of market-timing activities among fund managers, we utilized both Equations (2) and (3) to analyze empirically the separate contributions of market-timing and security-selection performance to the overall fund's return. The coefficient estimates of Equation (3) will indicate the selection-ability of the manager (α_S) and the fund's risk-levels in an up-and down-market conditions (β_{UP} and β_{DOWN} respectively). We then used Equation (2) to provide an estimate for the manager's market-timing ability (β_2) and this market-timing estimates represent a test of whether β_{UP} and β_{DOWN} in Equation (3) are significantly different from each other. A fund managed by a good market-timing manager should have an up-market beta that is significantly greater than the down-market beta, that is, the estimate of β_2 should be positive. The estimate of α_S in Equation (2) and (3) measures the manager's selection-ability after filtering out his market-timing ability. We then examined the possible relationship between the components of fund performance by computing the pair-wise Pearson correlation coefficients of market-timing ability (β_{UP}-β_{DOWN}), security-selection ability (α_S) and Jensen's performance coefficient (α_J) for the entire and subsamples of the funds under study.

EMPIRICAL RESULTS AND DISCUSSIONS

Panel A of Table 1 presents summary statistics of the regression estimates from Equation (1), (2) and (3) for the full sample of unit trust funds and Panel B provides information for subsamples of the funds grouped by investment objectives. We report in Table 2 the frequency counts of both positive and negative regression estimates. Note that the Jensen performance coefficient, α_J, measures the fund manager's overall performance and it is the intercept term from Equation (1). The selectivity performance coefficient, α_S, is the intercept term from Equation (3) and it measures the selection ability of the manager after taking into account the impact of his market-timing activities. This estimate indicates the manager's ability to select under-valued investments. On the other hand, the manager's market-timing ability is captured in the timing performance coefficient, β_2, produced by Equation (2). This timing coefficient also represents a test for the differences in an up-market and down-market beta (β_{UP} - β_{DOWN}) from Equation (3). Thus, a significant positive (negative) value for the differential of β_{UP} - β_{DOWN} would imply a superior (inferior) market-timing ability on the part of the fund manager.

As apparent from Panel A in Table 1, the full sample of 40 funds has a mean risk-adjusted return of -0.00671 (α_J in Equation (1)), and the mean return is significant at the 0.01 level. Furthermore, from Table 2, 33 out of the 40 funds report negative overall performance (α_J), 8 of which are statistically significant at the 0.05 level. The remaining 7 funds have positive overall performance but none is statistically significant. The results suggest that these fund managers seem to exhibit poor overall investment performance.

Since the regression specification in Equation [1] ignores the existence of timing-activities among fund managers, the estimated intercept α_J

Table 1
Summary Statistics for Unit Trust Fund Performance

Panel A: Full Sample (40 Funds)	**Mean**	**Standard Deviation**	**Maximum**	**Minimum**
Jensen's Performance (α_J)	-0.00671*	0.00605	0.00408	-0.01928
Selectivity Performance (α_S)	-0.00071	0.01021	0.01754	-0.02670
Up-Market Beta (β_{UP})	0.59024*	0.23324	1.17445	0.13276
Down-Market Beta (β_{DOWN})	0.73908*	0.21276	1.18640	0.27584
Timing Performance (β_2)	-0.14833*	0.28294	0.44487	-0.59498

Panel B: Subsamples	**Mean**	**Standard Deviation**	**Maximum**	**Minimum**
Type of Fund: Income (25 Funds)				
Jensen's Performance (α_J)	-0.00885*	0.00592	0.00408	-0.01928
Selectivity Performance (α_S)	-0.00078	0.01060	0.01754	-0.02670
Up-Market Beta (β_{UP})	0.60218*	0.23265	1.17445	0.13276
Down-Market Beta (β_{DOWN})	0.79681*	0.19603	1.18640	0.48826
Timing Performance (β_2)	-0.19463*	0.28513	0.37780	-0.59498
Type of Fund: Growth (11 Funds)				
Jensen's Performance (α_J)	-0.00160	0.00388	0.00331	-0.00829
Selectivity Performance (α_S)	0.00080	0.00969	0.01144	-0.01591
Up-Market Beta (β_{UP})	0.61625*	0.17669	0.87230	0.39367
Down-Market Beta (β_{DOWN})	0.68033*	0.20329	0.91741	0.39256
Timing Performance (β_2)	-0.06408	0.28569	0.44487	-0.47790
Type of Fund: Balanced (4 Funds)				
Jensen's Performance (α_J)	-0.00738**	0.00329	-0.00368	-0.01092
Selectivity Performance (α_S)	-0.00439	0.01086	0.00711	-0.01907
Up-Market Beta (β_{UP})	0.44409	0.37147	0.99798	0.21231
Down-Market Beta (β_{DOWN})	0.53978**	0.22339	0.76877	0.27584
Timing Performance (β_2)	-0.09569	0.26586	0.22920	-0.41862

Notes: * denotes statistical significance at the 0.01 level.
** denotes statistical significance at the 0.05 level.

attributes the overall performance of the fund manager exclusively to his selection ability. As such, if there exists a market timer, a generally good (poor) market-timing manager will tend to cause an upward (downward) bias to the estimate α_J and therefore, overestimate (underestimate) the contribution of the manager's security-selection ability to the overall investment performance of the fund. A more accurate evaluation of the manager's selection ability is provided by

Equation (3). The estimated intercept, α_S , measures the manager's contribution to the fund performance from his security-selection activities after filtering out his market-timing activities. Results on the selectivity performance indicate that, after filtering out the manager's market-timing ability, the fund earns a mean monthly return of -0.00071 (α_S in Panel A, Table 1). However, the mean return figure is not significantly different from zero. If a fund manager is simultaneously engaged in both market-timing and security-selection activities, the finding that the mean α_J of -0.0067067 from Equation (1) has a smaller value than the mean α_S of -0.00071 suggests that the poor timing-ability of the manager does contribute to making his selection-ability worse off, that is, if the fund manager is generally a poor market timer and his timing ability is ignored as in Equation [1], the fund manager's talent for security selection will be underestimated as shown by a smaller value of α_J.

Table 2

Frequency Counts of Positive and Negative Regression Estimates Representing Overall Fund Performance (α_J), Selectivity Performance (α_S) and Timing Performance (β_{UP} - β_{DOWN}) of Fund Managers

	Overall Performance		Selectivity Performance		Timing Performance	
	$\alpha_J > 0$	$\alpha_J < 0$	$\alpha_S > 0$	$\alpha_S < 0$	β_{UP}-$\beta_{DOWN} > 0$	β_{UP}-$\beta_{DOWN} < 0$
Full Sample	7 (0)	33 (8)	22 (2)	18 (4)11 (2)	29 (15)	
Subsamples:						
Income Fund	2 (0)	23 (8)	13 (2)	12 (19 (11		
Growth Fund	5 (0)	6 (0)	7 (0)	4 (1)4 (1)	7 (3)	
Balanced Fund	0 (0)	4 (1)	2 (0)	2 (1)1 (0)	3 (1)	

Numbers in parentheses are the numbers of coefficient estimates statistically significant at the 0.05 Level

Results from the frequency counts indicate that the number of funds having positive and negative selectivity performance (α_S) is about the same, even though significant negative estimates (4 out of 18) exceed significant positive estimates (2 out of 22). Such a finding implies that for those managers who are engaging in security-selection activities, their selection is about as often in the wrong as in the right securities. Although at the individual fund level there appears to be some evidence of selection ability among the fund managers, the insignificant mean monthly return as shown by α_S indicates that when all the funds are examined together, there are really not much security-selection activities going on among these fund managers. Interestingly, the findings suggest that after accounting for the manager's market-timing ability, the manager's security-selection ability does not seem to contribute significantly to the overall investment performance of the funds. Such findings further support the assertion that the presence of market-timing activities among fund managers, if not accounted for, would lead to inaccurate conclusions regarding the fund performance.

Table 1 also reports the manager's market-timing ability measure as shown by the timing performance coefficient (β_2) from Equation (2). We used Equation (2) and (3) to identify and estimate the separate contributions to performance from both the security-selection and market-timing abilities of the fund manager. As reported, the timing performance coefficient has a negative mean value of -0.14833 and is significant at the 0.01 level. The 40 funds exhibit an average up-market beta of 0.59024 which is approximately 20% smaller than its average down-market beta of 0.73908. These findings indicate that, on the average, the fund managers do not possess good market timing ability. From Table 2, the frequency counts show that 29 out of the 40 funds have an up-market beta that is smaller than its down-market beta (72.5%), 15 of which are statistically significant at the 0.05 level. This result suggests that 15 funds have attempted to adjust their portfolio risks in a way that was not in line with the direction of changes in the market conditions. There are 11 funds with positive market-timing estimates, but only 2 are statistically significant at the 0.05 level. Such weak evidence of positive timing ability implies that fund managers who do engage in market-timing activities should reevaluate their efforts because it seems that their predictions are more often in the wrong than in the right direction. In Panel B of Table 1, the fund performance is separately analyzed for subsamples of the fund, grouped by investment objective. For market timing performance, the mean values in Table 1 are negative for each group. For selectivity performance, growth funds are the only group that have positive selectivity estimates. However, as shown by the frequency counts in Table 2, even though almost two thirds (7 out of 11) of the growth funds exhibit positive selectivity estimates, none is significantly different from zero. Consistent with the results reported for the full sample of funds, the findings for the subsamples of funds also indicate that the funds in each group have more unfavorable timing performance than selectivity performance. This finding also seems to suggest that the market-timing and the security selection performances of fund managers are quite similar when the funds are grouped by investment objective.

Table 3

Pearson Correlation Coefficients among the Measure of Overall Fund Performance, Selectivity Performance and Timing Performance of Fund Managers

Panel A: Correlation between Overall Performance (α_J) and Selectivity Performance (α_S)

Full Sample	0.0203
Subsamples:	
Income Fund	0.0552
Growth Fund	-0.3357
Balanced Fund	-0.0632

Panel B: Correlation between Overall Performance (α_J) and Timing Performance (β_{UP}-β_{DOWN})

Full Sample	0.4917*
Subsamples:	
Income Fund	0.4657*
Growth Fund	0.5788
Balanced Fund	0.1801

Panel C: Correlation between Selectivity Performance (α_S) and Timing Performance (β_{UP}-β_{DOWN})

Full Sample	-0.8557*
Subsamples:	
Income Fund	-0.8568*
Growth Fund	-0.9603*
Balanced Fund	-0.9732**

Notes: * denotes statistical significance at the 0.01 level.
** denotes statistical significance at the 0.05 level.

Table 3 presents the pairwise Pearson correlation coefficients of the 3 performance estimates, α_J , α_S and (β_{UP}-β_{DOWN}) for the full sample and subsamples of funds. In Panel A of Table 3, we observe that the correlation between the overall fund performance (α_J) and selectivity performance (α_S) is not significantly different from zero. Consistent with the regression results obtained earlier, the correlation result suggests that the security-selection ability of the fund manager does not seem to have much effect on the overall fund performance. Panel B reports the correlation between the overall fund performance and the timing-ability of the fund manager. The significant positive correlation between the two estimates indicates that a good (poor) timing ability on the part of the fund manager results in a positive (negative) overall investment performance. A fund's overall performance could be a result of the selectivity performance, the market-timing performance or a combination of the two performances. The findings that α_J is not significantly correlated with α_S but is significantly positively correlated with the timing measure are consistent with the regression results reported earlier. That is, when market-timing is ignored, the manager's selection ability is assumed to be the sole cause of the negative overall fund performance. However, when timing performance is considered, it turns out that the selectivity performance no longer contributes significantly to the overall fund performance. The correlation coefficients between selectivity and timing performance measures are presented in Panel C of Table 3. The results indicate a strong negative correlation between the fund's timing and selectivity performance and such findings are consistent with previous studies. The reported correlation results in Panel A through C of Table 3 for the subsamples of funds are quite similar to those of the full sample.

CONCLUSIONS

This paper examined market-timing and security-selection performance of a sample of Malaysian mutual funds. We employed the model developed by Merton (1981) and Henriksson and Merton (1981) to identify the two separate performance components and the Jensen's model to test the overall fund performance. Consistent with previous studies on Malaysian funds, the empirical results obtained indicate that on the average, the funds exhibit a significant negative overall performance. As demonstrated by previous studies, such results ignored any potential market timing activities by fund managers and thus may not give an accurate picture of investment performance. When we employed models which consider timing and selectivity simultaneously, some interesting results emerged. In addition to finding evidence of negative timing abilities among fund managers, we found that the security selection abilities of fund managers no longer contributes significantly to the overall fund performance. Taken together our results suggest that the poor overall fund performance is driven by the poor timing performance by fund managers. The evidence presented further support the assertion that the presence of timing activities of fund managers, if not properly accounted for, would lead to erroneous conclusions regarding fund performance.

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END NOTES

1 Source: Securities Commission, Malaysia.

2 In contrast, several other studies such as findings by Eun, Kolodny and Rasnick (1991) and Kao *et al.*(1998) show that fund managers have good overall performance.

3 Grinblatt and Titman (1989a) indicated that although some mutual funds may show superior performance based on gross returns, these funds fail to generate above normal performance after considering all expenses. The findings of Malkiel (1995) show that in aggregate, mutual funds underperformed the market benchmark of both net of management expenses and even gross of expenses. For a review on the performance of mutual funds, see Ippolito (1993).

4 See Kon and Jen (1978, 1979), Miller and Gressis (1980), Klemkosky and Maness (1978) and Fabozzi and Francis (1979) for some empirical evidence on the non-stationarity of the systematic risk of mutual funds over time. Such evidence is consistent with the existence of timing activities of fund managers, thus implying that these managers are adjusting their portfolio risk in anticipation of market movements.

5 Findings by Chen *et al.* (1992) show that although selectivity exists for some fund managers; the evidence is generally weak especially after considering management fees. Eun *et al.* (1991) found weak evidence that international fund managers are good market-timers.

6 Other studies demonstrating evidence of superior selection performance by fund managers are Chang and Lewellen (1984), Henriksson (1984), Bello and Janjigian (1997) and Kao *et al.* (1998).

7 The results of Henriksson (1984) show that the sampling error is unlikely to be the only source of the negative correlation between selectivity and market-timing estimates.

8 Because the monthly return of the fund is calculated based on the sum of distributions and the change in net asset values over time, the rate of return therefore, reflects net return after the deductions of operating expenses, fees and transaction costs. The return is however, gross of sales fees (load charges). According to Jensen (1968), since the primary focus of the study is to assess the fund performance in terms of the manager's forecasting ability and not to measure the fund performance from the viewpoint of an investor, the load charges were excluded from the return calculations.

9 We estimated the monthly equivalents of the annualized yield as a geometric mean, that is $(1+ \text{Annualized Yield})^{1/12} - 1$.

10 Several studies indicate that the estimated intercept α_J tends to show negative value when there exists market timers (see Jensen (1968), Admati and Ross (1985) and Dybvig and Ross (1985)). The findings of Chang and Lewellen (1984), Henriksson (1984) and Lee and Rahman (1990) indicate that the security-selection performance of fund managers will tend to exhibit a lower value when timing is ignored. Their results are consistent with Grant's (1977) contention that in the presence of market-timing ability, the estimate of α_J will be biased downward.

11 As demonstrated by Henriksson and Merton (1981), when $R_{mt} - R_{ft} > 0$, the term $\beta_2 Y_t$ in Equation [2] vanishes and Equation [2] becomes $R_{pt} - R_{ft} = \alpha_S + \beta_1 X_t + \epsilon_{pt}$. Similarly, in Equation [3], the term $\beta_{DOWN} X_{dt}$ is dropped and the resulting Equation [3] becomes $R_{pt} - R_{ft} = \alpha_S + \beta_{UP} X_{ut} + \epsilon_{pt}$. By comparison, since X_t in Equation [2] is identical to X_{ut} in Equation [3], technically $\beta_1 = \beta_{UP}$. On the other hand, when $R_{mt} - R_{ft} < 0$, $X_t = - Y_t$ and through the relevant substitution, Equation [2] becomes $R_{pt} - R_{ft} = \alpha_S + \beta_1 X_t - \beta_2 X_t + \epsilon_{pt}$ or $R_{pt} - R_{ft} = \alpha_S + (\beta_1 - \beta_2) X_t + \epsilon_{pt}$. Accordingly, Equation [3] can be rewritten as $R_{pt} - R_{ft} = \alpha_S + \beta_{DOWN} X_{dt} + \epsilon_{pt}$. Thus, β_{DOWN} in Equation [3] is equal to the difference between α_1 and α_2 of Equation [2], that is $\beta_{DOWN} = (\beta_1 - \beta_2)$. Since $\beta_1 = \beta_{UP}$, α_2 now equals $\beta_{UP} - \beta_{DOWN}$ or $\beta_2 = (\beta_{UP} - \beta_{DOWN})$.

REFERENCES

Admati, A. & Ross, S. A. (1985). Measuring investment performance in a rational expectations equilibrium model. *Journal of Business, 58*, 1-26.

Bank Negara Malaysia. (January 1996- December 2000). Monthly Statistical Bulletin, various issues.

Bello, Z. Y. & Janjigian, V. (1997). A re-examination of the market-timing and security- selection performance of mutual funds. *Financial Analysts Journal, 53*, 24-30.

Carlson, R. S. (1970). Aggregate performance of mutual funds 1948-1967. *Journal of Financial and Quantitative Analysis, 5*, 1-32.

Chang, E. C. & Lewellen, W. G. (1984). Market-timing and mutual fund investment performance. *Journal of Business, 57*, 57-72.

Chen, C. R., Lee, C. F., Rahman, S. & Chan, A. (1992). A cross-sectional analysis of mutual funds' market-timing and security-selection skill. *Journal of Business Finance & Accounting, 19*, 659-675.

Chua, J. E., Koh, S. K. & Koh, F. (1985). Unit trusts in Singapore. *Securities Industry Review, 11*, 70-88.

Coggin, T. D., Fabozzi, F. J. & Rahman, S. (1993). The investment performance of U.S. equity pension fund managers: an empirical investigation. *Journal of Finance, 48*, 1039-1055.

Connor, G. & Korajczyk, R. A. (1991). The attributes, behavior, and performance of U.S. mutual funds. *Review of Quantitative Finance and Accounting, 1*, 5-26.

Cumby, R. E. & Glen, J. D. (1990). Evaluating the performance of the international mutual funds. *Journal of Finance, 45*, 497-521.

Droms, W. G. & Walker, D. A. (1994). Investment performance of international mutual funds. *Journal of Financial Research, 17*, 1-14.

Dybvig, P. H. & Ross, S. A. (1985). Performance measurement using differential information and a security market line. *Journal of Finance, 40*, 383-399.

Eun, C. S., Kolodny, R. & Resnick, B. G. (1991). U.S.-based international mutual funds: a performance evaluation. *Journal of Portfolio Management, 17*, 88-94.

Fabozzi, F. J. & Francis, J. C. (1979). Mutual fund systematic risk for bull and bear markets. *Journal of Finance, 34*, 1243-1250.

Fama, E. F. (1972). Components of investment performance. *Journal of Finance, 27*, 551- 567.

Firth, M. A. (1977). The investment performance of unit trusts in the period 1965-1975. *Journal of Money, Credit and Banking, 9*, 597-604.

Grant, D. (1977). Portfolio performance and the cost of timing decisions. *Journal of Finance, 32*, 837-846.

Grinblatt, M. & Titman, S. (1989a). Mutual fund performance: an analysis of quarterly portfolio holdings. *Journal of Business, 62*, 393-416.

Grinblatt, M. & Titman, S. (1989b). A comparison of measures of mutual fund performance on a sample of monthly mutual fund returns. *Journal of Business*, 62, 383-416.

Henriksson, R. D. (1984). Market-timing and mutual fund performance: an empirical investigation. *Journal of Business, 57*, 73-96.
Henriksson, R. D. & Merton, R. C. (1981). On market-timing and investment performance. II. Statistical procedures for evaluating forecasting skills. *Journal of Business, 54*, 513-533.
Investors' Digest. (January 1996- December 2000). Monthly publication of the Kuala Lumpur Stock Exchange, various issues.
Ippolito, R. A. (1993). On studies of mutual fund performance, 1962-1991. *Financial Analysts Journal, 49*, 42-51.
Jagannathan, R. & Korajczyk, R. A. (1986). Assessing the market-timing performance of managed portfolios. *Journal of Business, 59*, 217-235.
Jensen, M. C. (1968). The performance of mutual funds in the period 1945-1964. *Journal of Finance, 23*, 389-416.
Jensen, M. C. (1969). Risk, the pricing of capital assets, and the evaluation of investment portfolios. *Journal of Business, 42*, 167-247.
Kao, G. W., Cheng, L. T. W. & Chan, K. C. (1998). International mutual fund selectivity and market-timing during up and downmarket conditions. *Financial Review, 33*, 127-144.
Klemkosky, R. C. & Maness, T. S. (1978). The predictability of real portfolio risk levels. *Journal of Finance, 33*, 631-639.
Koh, F., Koh, S. K. & Cheng, T. C. (1987). An empirical analysis of the performance of unit trusts in Singapore. *Securities Industry Review, 13*, 1-13.
Kon, S. J. (1983). The market-timing performance of mutual fund managers. *Journal of Business, 56*, 323-347.
Kon, S. J. & Jen, F. C. (1978). Estimation of time-varying systematic risk and performance for mutual fund portfolios: an application of switching regression. *Journal of Finance, 33*, 457-475.
Kon, S. J. & Jen, F. C. (1979). The investment performance of mutual funds: an empirical investigation of timing, selectivity, and market efficiency. *Journal of Business, 52*, 263-289.
Lee, C. F. & Rahman, S. (1990). Market-timing, selectivity, and mutual fund performance: an empirical investigation. *Journal of Business, 63*, 261-278.
Lehmann, B. N. & Modest, D. M. (1987). Mutual fund performance evaluation: a comparison of benchmarks and benchmark comparisons. *Journal of Finance, 42*, 233-265.
Leong, K. H. & Aw, M. W. (1997). Measuring unit trust fund performance using different benchmarks. *Capital Market Review, 5*, 27-44.
Malkiel, B. G. (1995). Returns from investing in equity mutual funds 1971-1991. *Journal of Finance, 50*, 549-572.

McDonald, J. G. (1974). Objectives and performance of mutual funds. *Journal of Financial and Quantitative Analysis, 9,* 311-333.

Merton, R. C. (1981). On market-timing and investment performance. I . An equilibrium theory of value for market forecasts. *Journal of Business, 54,* 363-406.

Miller, T. W. & Gressis, N. (1980). Nonstationarity and evaluation of mutual fund performance. *Journal of Financial and Quantitative Analysis, 15,* 639-654.

Mohamed, S. & Nassir, A. M. (1995). The performance of unit trusts in Malaysia: some evidence. *Capital Market Review, 3,*51-69.

Nassir, A. M., Mohamed, S. & Ngu, M. H. (1997). Selectivity and timing: evidence from the performance of Malaysian unit trusts. *Pertanika Journal of Social Science & Humanities, 5*(1), 45-57.

Rao, S. P. U. (2000). Market-timing and mutual fund performance. *American Business Review, 18,* 75-79.

Sharpe, W. F. (1966). Mutual fund performance. *Journal of Business, 39,* 119-138.

Taib, F. M., Shahnon, S. & Lee, H. L. (2002). Malaysian unit trust performance. *Conference Proceedings, The fourth annual Malaysian Finance Association Symposium,* 31st May-1st June 2002.

Tan, H.C. (1995). The investment performance of unit trust funds in Malaysia. *Capital Market Review, 3,* 21-50.

Veit, E. T. & Cheney, J. M. (1982). Are mutual funds market-timers?. *Journal of Portfolio Management, 8,* 35-42.

Volkman, D. A. (1999). Market volatility and perverse-timing performance of mutual fund managers. *Journal of Financial Research, 22,* 449-470.