

THE INVESTMENT PERFORMANCE OF UNIT TRUST FUNDS IN MALAYSIA

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ABSTRACT

This paper investigates the investment performance and ranking of a sample of twenty one unit trust funds in Malaysia for the period January 1984 to December 1993. It also includes an investigation into the consistency of performance of the funds over time, the degree of risk diversification, the stability of the funds' systematic risk over time, adherence of funds to their stated objectives and ability of fund managers to predict security prices. The impact of fund characteristics such as age, size, portfolio turnover and expense ratio on investment performance and systematic risk was also investigated.

The findings revealed that the funds as a whole performed worse than the market portfolio. Their performance was quite consistent and their market risks were stable over time. They also held quite well diversified portfolios. Generally the funds did not adhere very well to their stated objectives and all the fund managers could not forecast security prices and failed to outperform the naive buy and hold strategy. The research also revealed that the fund characteristic, expense ratio has a negative correlation with investment performance, with the larger funds and funds that practise active trading being more risky. The older funds however were more risk averse.

INTRODUCTION

A unit trust is an open ended mutual fund which pools the financial resources of numerous investors and invest the money thus received in the stock market such as the Kuala Lumpur Stock Exchange (KLSE) or other permitted investment instruments.

* This article is based on a MBA research paper submitted to the Faculty of Economics and Administration, University of Malaya. The author would like to express his appreciation to Associate Professor Dr. Mansor Md. Isa for his guidance and comments in the preparation of this research.

Investors buy units from the managers of the fund at the offer price and can choose to sell them back later to the managers at the bid price. These prices are published daily in our local newspapers and are calculated daily based on the current underlying value of the portfolio held by the managers.

The unique feature of a unit trust is that it establishes a tripartite relationship between three parties namely the investors (unit holders), the investment manager and the trustee. This unique relationship is governed by the trust deed which spells out the rights, duties and responsibilities of each party. The investors may be individuals, companies or institutions which invest funds in the trust with the hope of generating returns in the form of dividends and/or capital gains. The investment manager is usually a public company which is responsible for the daily investment operation. It administers and manages the portfolio of investments and maintains a market for the units. The trustee is affiliated to major banks or insurance companies and grants approval for the purchase of securities and hold the purchased securities. The trustee monitors the fund managers, maintains a register of unit holders and ensures that all the terms of the trust deed are strictly adhered to.

The advantages of unit trusts are : the small capital outlay required for investment, benefits of risk diversification, security of capital, access to the services of professional investment managers, liquid and readily marketable units as the fund managers are obligated to re-purchase the units.

The objectives of this study are :

1. To evaluate the historical performance (January 1984 to December 1993) of a sample of twenty one unit trust funds in Malaysia (See Appendix 1) and to rank their performance
2. To evaluate the degree of risk diversification of the funds
3. To evaluate the consistency of the investment performance and the stability of the funds' market risks over time
4. To determine if the funds adhere to their stated objectives
5. To determine if the fund managers have the ability to predict security prices
6. To determine the impact of fund characteristics such as age, size of fund, expense ratio and portfolio turnover on investment performance and the market risks of the funds

LITERATURE REVIEW

Empirical Studies in the West

Sharpe (1966) studied the performance of 34 mutual funds over the period 1954 to 1963 in the United States. He developed a risk adjusted measure of performance based on the reward to variability ratio (Sharpe Index). On the average, the funds could not out perform the market portfolio (Dow Jones Industrial Average). Sharpe showed that good performance was associated with low expense ratio and that size of the fund per se is an unimportant factor in predicting future performance.

Jensen (1968) studied the performance of 115 open end mutual funds for the ten year period 1955 to 1964. He developed a performance measure called the Jensen's Alpha for evaluating a portfolio manager's predictive ability of security prices. His study results indicated that on the average the funds were unable to predict security prices well enough to outperform the naive buy and hold strategy.

In the United Kingdom, Firth (1977) studied the performance of 72 British unit trust funds over the period 1965 to 1975. The results of his study also showed that fund managers were unable to outperform the naive buy and hold strategy. There was no statistically significant evidence of any unit trust having superior performance but there was evidence of statistically significant inferior performance. Firth could not find any consistency in the performance ranking of the funds over the various time periods and also found no difference in performance between the various types of the funds. The systematic risks of the funds were found to be lower than that of the market. Firth also showed that the size of the unit trust, the relative number of investment holdings, the relative number of unit holders, age of the fund, initial and annual management charges, liquidity and the beta values have no significant effect on Jensen's Alpha. The beta value cannot also be explained by the variables. It suggested that the beta value of individual trusts depends largely on the investment policies of the managers.

Gurney (1976) found that there was a weak correlation between the size of the funds and their performance. However, a significant correlation was noted between the yields quoted by the funds at the beginning of the periods and their performance. A positive correlation between performance ranking in the successive years was also found unless market conditions changed considerably. However this could not be generalised for all market conditions.

Empirical Studies in Singapore and Malaysia

Koh and Koh (1987) analysed 19 unit trusts in Singapore over a five year period from 1980 to 1984. They found that growth funds that were expected to yield the highest returns and to have the highest risk relative to the other type of funds do not have the highest returns nor do they possess the highest risk. This means that the returns and risk characteristics of these unit trusts are not fully consistent with their stated objectives. The funds did not achieve a high degree of diversification and were unable to outperform the market with some funds having negative Adjusted Sharpe Index (ASI). This means that they earned returns that are less than the average risk free rate. The income funds outperformed the balanced and growth funds but none of the groupings could out perform the market. The sample of funds was not able to report consistent performance over time as the Spearman Rank Correlation (R_s) for the different pairs of years was not significant.

Lee (1993) did a study on 21 unit trusts in Singapore over a five year period from 1986 to 1990. Her results are similar to those of Koh and Koh (1987). She showed that the funds' systematic risk levels were quite stable over time although they were not consistent with the funds' stated objectives.

Chua (1985) did an empirical study that covered a ten year period from 1974 to 1984 of 12 Malaysian unit trust funds. On the average, the funds outperformed the market. The R_s values for the Sharpe Index and the Treynor Index for the two sub-periods 1974 to 1979 and 1979 to 1984 were significant indicating fairly consistent performance over time. The unit trusts appeared to adhere to their stated objectives and had also performed their risk control and diversification tasks reasonably well. Fund characteristics such as size, expense ratio and portfolio turnover were all negatively correlated to performance. Simple regression analysis showed that all fund characteristics studied were reasonably good predictors of the performance measure. Among the fund characteristics studied, the average portfolio turnover had the highest explanatory power for the performance measure. This means that high performance funds tend to relate to those with low expense ratios, low asset size (net asset value), low portfolio turnover. Hence, investment managers can improve performance by reducing expenses, managing smaller funds as well as avoiding active trading which only results in excessive expense on brokerage. On average, Jensen's Alpha showed that the unit trust funds were able to predict security prices well enough to outperform the naive buy and hold strategy.

RESEARCH METHODOLOGY

Continuously Compounded Rate of Return

Jensen (1969) showed that the Capital Asset Pricing Model (CAPM) holds for any arbitrary length of time as long as the returns are expressed in terms of the proper compounding interval. This horizon interval is instantaneous ie. the interval is infinitesimally small and that the natural logarithm form of the returns provides a very good approximation of reality.

The equations 1, 2 and 3 shown below for calculating the rates of return are based on this continuously compounded method that was adopted by Jensen (1968).

$$R_{j,t} = \log_e \frac{NA_{j,t} + D_{j,t}}{NA_{j,t-1}} \quad (1)$$

$$R_{m,t} = \log_e \frac{I_t + DI_t}{I_{t-1}} \quad (2)$$

$$R_{f,t} = \log_e (1 + r_{f,t}) \quad (3)$$

where

$R_{j,t}$ = The monthly continuously compounded rate of return of the jth unit trust during the month t

$NA_{j,t}$ = The net asset value for unit trust j at the end of month measured by the managers bid price (repurchase price)

$D_{j,t}$ = Dividend per unit paid by unit trust j during month t

$R_{m,t}$ = The estimated monthly continuously compounded rate of return on the market portfolio m for month t

I_t = Level of the KLSE Composite Index (CI) at the end of month t

DI_t = Estimate of dividends received by the market portfolio m in month t (obtained from gross dividend yield records of the KLSE CI and market capitalisation figures) expressed in the same scale as the level of the KLSE CI

$R_{f,t}$ = The monthly continuously compounded risk free rate of interest for month t

$r_{f,t}$ = The yield to maturity rate of the 90 day Treasury Bill for month t as the proxy for the riskless rate of interest

Measurement of Risk

Two measures of risk are used for the analysis in this study. The first measure is the standard deviation of historical returns as shown in equation 4.

$$\sigma_j = \left[\frac{\sum_{t=1}^N (R_{j,t} - \bar{R}_j)^2}{N - 1} \right]^{0.5} \quad (4)$$

where

$R_{j,t}$ = Rate of return of the j th unit trust at time t

\bar{R}_j = Mean of the rate of return for the j th unit trust

N = Number of observations

The second measure of risk is the beta coefficient (β_j) of the unit trust. This is the slope of the characteristic line (equation 5) obtained by regressing the monthly returns of the unit trust with respect to the monthly returns of the market portfolio m .

$$R_{j,t} = \alpha_j + \beta_j R_{m,t} + e_{j,t} \quad (5)$$

where

α_j = Regression intercept

β_j = Slope of characteristic line

$R_{j,t}$ = Return on unit trust in month t

$R_{m,t}$ = Return on market portfolio m in month t

$e_{j,t}$ = Regression's unexplained residual return in month t, $E(e_{j,t}) = 0$

Investment Performance Measurement

The investment performance measures to be used for evaluating and ranking the performance of the unit trust funds in this study are the Adjusted Sharpe Index, Treynor Index, Jensen's Alpha and the Adjusted Jensen's Alpha.

Sharpe Index and Adjusted Sharpe Index

The Sharpe Index (SI) is defined in equation 6.

$$SI = \frac{\text{Risk Premium}}{\text{Total Risk}} = \frac{\bar{R}_j - \bar{R}_f}{\sigma_j} \quad (6)$$

where

\bar{R}_j = Average return of unit trust j

\bar{R}_f = Average riskless rate of return

σ_j = Standard deviation of return of unit trust j

The Sharpe Index was found to be biased by Miller and Gehr (1978). The bias was found to be a function of the number of return intervals (K) in the evaluation period and this was corrected by Jobson and Korkie (1981) using the Adjusted Sharpe Index (ASI) given in equation 7.

$$ASI = \frac{SI \times K}{(K + 0.75)} \quad (7)$$

Treynor Index

The Treynor Index (TI) is given in equation 8.

$$TI = \frac{\text{Risk Premium}}{\text{Systematic Risk}} = \frac{\bar{R}_j - \bar{R}_f}{\beta_j} \quad (8)$$

where

β_j = Beta coefficient obtained from the slope of the characteristic line of the unit trust

Jensen's Alpha and Adjusted Jensen's Alpha

Jensen restated the original characteristic line of equation 5 in risk premium form instead of the return. Equation 9 defines the Jensen's characteristic line in risk premium form.

$$R_{j,t} - R_{f,t} = A_j + B_j (R_{m,t} - R_{f,t}) + U_{j,t} \quad (9)$$

where

A_j = Jensen's Alpha of unit trust j obtained from the regression intercept

B_j = Regression slope coefficient

$U_{j,t}$ = Residual risk premium for jth unit trust at time t which is unexplained by the regression, $E(U_{j,t}) = 0$.

Jensen's Alpha cannot be used to rank the performance of different assets unless it is risk adjusted by dividing by B_j as defined in equation 10.

$$\text{Adjusted Jensen's Alpha (AA}_j\text{)} = \frac{A_j}{B_j} \quad (10)$$

Degree of Risk Diversification of Unit Trusts

The degree of risk diversification of a fund may be measured by the Coefficient of Determination, R^2 of the regression equation 5. The closer the R^2 value to 1.0 the higher the degree of diversification. The R^2 is theoretically the proportion of the total variance of the returns of a portfolio which is explained by the market portfolio.

Consistency of Performance with Time

In this study, the unit trusts are ranked annually using the Adjusted Sharpe Index, Treynor Index and the Adjusted Jensen Alpha for the period 1984 to 1993. Thereafter, the Spearman Rank Correlation (R_S) is calculated using equation 11 for each pair of years for determining the consistency of performance over time. The test of significance of R_S is then carried out using the t statistic given by equation 12.

$$R_S = 1 - \frac{6 \sum d^2}{n(n^2 - 1)} \tag{11}$$

$$t = \frac{R_S (n - 2)^{0.5}}{(1 - R_S^2)^{0.5}} \text{ with } (n-2) \text{ degrees of freedom} \tag{12}$$

where

- d = Difference between rankings of year 1 and year 2
- n = Number of paired rankings of years 1 and 2 in the data series

Stability of Systematic Risks (Beta)

To determine if the funds have stable ranking of beta values over time, the Spearman Rank Correlation Coefficients together with the t statistic are calculated for each pair of years during the period 1984 to 1993. Equations 11 and 12 are again used.

Objectives of Unit Trust Funds

Unit trust funds can be classified according to the different risk categories that cater for investors with different risk tolerance level. The stated objectives of unit trust funds provide the investor with qualitative guide posts to follow in selecting a fund. These objectives in particular indicate the risk and return that can be expected from a fund and are communicated to the investing public in advertisements, brochures and propectuses.

There are basically six types of fund objectives stated qualitatively by Coates (1978) as shown in Table 1 below :

Table 1 : Objectives of Unit Trust Funds

Fund Objective	Definition
1. Income Funds	Funds that provide as liberal a current income from investment as possible
2. Balanced Funds	Funds that minimise risk and at the same time retain some possibilities for long term growth and current income
3. Income-Growth Funds	Funds that place slightly more emphasis on current income than on growth
4. Growth-Income Funds	Funds that emphasise growth more than current income
5. Growth Funds	Funds that view income as only a secondary or incidental objective
6. Maximum Capital Gains Funds	Funds that pay low or no dividends and invest in risky stocks

A quantitative definition based on the empirical findings of McDonald (1974) is given in Table 2 below.

**Table 2 : Relationship between Beta value and
Traditional Fund Objectives**

Fund's Stated Objective	Beta Value
Income	0.55
Balanced	0.68
Income-Growth	0.86
Growth-Income	0.90
Growth	1.01
Maximum Capital Gains	1.22

One can determine whether investment managers adhere to the fund's stated objectives by comparing the historical beta value of the fund with those defined in Table 2 above.

Forecasting Ability of Investment Managers

Following the method used by Jensen (1968), estimates of the systematic risk B_j of the fund can be obtained by regressing the fund's risk premium against the market portfolio's risk premium using equation 13.

$$R_{j,t} - R_{f,t} = B_j (R_{m,t} - R_{f,t}) + e_{j,t} \tag{13}$$

If the manager is a superior forecaster he will tend to systematically select securities which will realise $e_{j,t} > 0$. Hence his portfolio will earn more than the "normal" risk premium for its level of risk.

Allowance for such forecasting ability can be made by simply not constraining the estimating regression to pass through the origin. This means we allow for the possible existence of a non zero constant in equation 13 by using equation 14 as the estimating equation.

$$R_{j,t} - R_{f,t} = A_j + B_j (R_{m,t} - R_{f,t}) + U_{j,t} \tag{14}$$

where the new error term $U_{j,t}$ will have $E(U_{j,t}) = 0$.

Thus if the unit trust manager has an ability to forecast security prices, the intercept A_j in equation 14 will be positive ($A_j > 0$). This represents the average incremental rate of return on the portfolio per unit of time which is due solely to the manager's ability to forecast future securities' prices. In contrast, a naive buy and hold strategy can be expected to yield a zero intercept ($A_j = 0$). In addition, if the manager is not doing as well as the naive buy and hold strategy, A_j will be negative ($A_j < 0$).

The least square regression of monthly returns for each year provides the dispersion of the sampling distribution of the intercept, A_j . Furthermore the sampling distribution of the estimate, A_j is a Student t distribution with $(n-2)$ degrees of freedom. The test of significance of the forecasting ability of investment managers involved the testing of the following hypothesis :

H_0 : The investment performance of the unit trust equals that of the market portfolio ie. $A_j = 0$.

H_1 : The investment performance of the unit trust is better or worse than that of the market portfolio ie. $A_j > 0$ or $A_j < 0$ respectively.

Impact of Fund Characteristic on Investment Performance and Systematic Risks

It is of interest to determine whether the various fund characteristics are associated with investment performance. Some of the fund characteristics to be investigated in this study are :

- (i) Age of the funds which is measured by the number of years since commencement (X_1)
- (ii) Size of the funds as measured by the net asset value of the fund (X_2)
- (iii) Portfolio turnover which is measured as the sum of the proceeds from investment sold and cost of investment purchased (X_3)
- (iv) Expense ratio which is the ratio of the management expenses/fees to the net asset value of the fund (X_4)

In this study, the above independent variables are individually regressed against the investment performance measures such as the Adjusted Sharpe Index (ASI), Treynor Index (TI) and the Jensen's Alpha (α). This is achieved by simple linear regression to see if any

significant relationship between the independent variables and the dependent variables can be uncovered. A multiple regression is also performed to see if the investment performance measure is dependent upon the combined effect of the independent variables.

The above procedure is also repeated with the systematic risk measure (β) of the fund as the dependent variable, using the above independent variables.

The regression analysis is performed using data at the end of the financial year of each of the funds for the period 1990 to 1993.

RESEARCH RESULTS

Table 3 below shows the overall risk adjusted performance measures, mean monthly return, beta value and coefficient of determination of the funds as a whole and those of the market portfolio (KLSE CI).

Table 3 : Overall Results

Investment Type	Mean Monthly Return (%)	Beta	Coefficient of Determination	Adjusted Sharpe Index	Treynor Index	Adjusted Jensen's Alpha
Unit Trust Funds	0.7307	0.711824	0.723203	0.049041	0.004319	-0.008211
Market Portfolio	1.6692	1.0	1.0	0.149659	0.012290	0

It can be seen from Table 3, that the unit trust funds as a whole performed worse than the market portfolio. All the performance measures are lower than those of the market portfolio. Even the mean monthly return of the funds is less than that of the market portfolio.

Table 4 shows the the results of the individual unit trust funds. When the funds are ranked according to the Adjusted Sharpe Index, the best performer is Fund 13 while the worst performer is Fund 19. When ranked using the Treynor Index the best performer is Fund 21 while the worst performer is Fund 16. In the case of the Adjusted Jensen's Alpha, the best performer is Fund 13 while the worst performer is Fund 16. As can be observed, all the funds

Table 4 : Summary of Results of all the Unit Trust Funds for Period 1984 to 1993

Fund ID No.	Mean Monthly Return	Standard Deviation of Return	Beta	Coefficient of Determination	Sharpe Index	Adjusted Sharpe Index	Treynor Index	Jensen's Alpha	Adjusted Jensen's Alpha	Objective Of Fund
1	0.008732	0.062339	0.668031	0.764693	0.069463	0.069024	0.006482	-0.003889	-0.005815	Balance
2	0.009878	0.057038	0.602443	0.742870	0.096002	0.095395	0.009089	-0.001937	-0.003212	Balance
3	0.011236	0.053430	0.593173	0.820733	0.127899	0.127092	0.011521	-0.000459	-0.000773	Balance
4	0.011004	0.065829	0.737702	0.836269	0.100286	0.099653	0.008949	-0.002470	-0.003346	Balance
5	0.008940	0.072626	0.803349	0.814785	0.062482	0.062088	0.005649	-0.005339	-0.006644	Balance
6	0.011429	0.063118	0.711406	0.845942	0.111333	0.110629	0.009878	-0.001722	-0.002419	Balance
7	0.011147	0.061176	0.697535	0.865741	0.110260	0.109564	0.009670	-0.001834	-0.002627	Income
8	0.009082	0.060433	0.648446	0.766685	0.077442	0.076953	0.007217	-0.003299	-0.005082	Growth
9	0.010475	0.064536	0.743091	0.882874	0.094109	0.093515	0.008173	-0.003065	-0.004122	Balance
10	0.010879	0.070389	0.675253	0.612828	0.092013	0.091432	0.009592	-0.001829	-0.002706	Balance
11	0.011980	0.062849	0.710871	0.851918	0.120573	0.119811	0.010660	-0.001167	-0.001640	Balance
12	0.011165	0.073771	0.761443	0.709448	0.091681	0.091102	0.008882	-0.002601	-0.003414	Balance
13	0.012911	0.065696	0.733991	0.831216	0.129519	0.128701	0.011593	-0.000516	-0.000703	Balance
14	0.002996	0.065125	0.650045	0.663444	-0.021582	-0.021446	-0.002162	-0.009386	-0.014455	Balance
15	-0.001104	0.078868	0.732625	0.574621	-0.069809	-0.069368	-0.007515	-0.014491	-0.019821	Growth
16	-0.004096	0.075003	0.646309	0.494470	-0.113296	-0.112580	-0.013148	-0.016427	-0.025460	Growth
17	0.001888	0.084739	0.894746	0.742421	-0.029671	-0.029483	-0.002810	-0.013505	-0.015102	Growth
18	-0.000962	0.081650	0.729799	0.532001	-0.065693	-0.065279	-0.007350	-0.014318	-0.019653	Growth
19	-0.005791	0.086284	0.830271	0.628523	-0.118171	-0.117405	-0.012281	-0.021105	-0.025441	Income
20	0.009199	0.069658	0.688823	0.651170	0.068875	0.068440	0.006965	-0.003661	-0.005320	Balance
21	0.012451	0.078148	0.688962	0.554609	0.102754	0.102032	0.011655	-0.003216	-0.004672	Growth
Market	0.016692	0.081603	1.000000	1.000000	0.150610	0.149659	0.012290	0.000000	0.000000	

performed worse than the market portfolio. Funds 14, 15, 16, 17, 18 and 19 all have negative Adjusted Sharpe Index and Treynor Index. This means that these funds earned lower returns than the risk free rate.

As can be observed, the different ranking methods produced slightly different performance rankings. Spearman Rank Correlation Coefficients were calculated for the different ranking methods over the period 1984 to 1993 namely : (1) between Treynor Index and Adjusted Jensen's Alpha (2) between Treynor Index and Adjusted Sharpe Index and (3) between Adjusted Jensen's Alpha and Adjusted Sharpe Index. In all the above cases, the Spearman Rank Correlation Coefficient exceeds 0.9 and all are significant at the 0.05 level (Table 5). This means that all the ranking methods produce significantly similar performance rankings and that any of these methods could be used for ranking purposes without substantial discrepancies.

Table 5 : Spearman Rank Correlation Coefficient for the Different Investment Performance Measures

Treynor Index & Adjusted Jensen's Alpha	Treynor Index & Adjusted Sharpe Index	Adjusted Jensen's Alpha & Adjusted Sharpe Index
0.92857 (10.90532)*	0.96623 (16.34557)*	0.96623 (16.34557)*

Note : () * indicates the observed t statistic which is significant at the 0.05 level

Beta Values

Table 3 shows that the unit trust funds as a whole have a beta value which is lower than 1.0. This means that unit trust funds are less risky than the market portfolio. Table 4 shows that the fund which has the highest beta value is Fund 17 while the fund with the lowest beta value is Fund 3. It can be observed that all the funds have beta values that are less than 1.0. This confirms the notion that unit trust funds are less risky than the market portfolio and offer security of capital for investors.

Risk Diversification

The Coefficient of Determination (R^2) of the funds as a whole as shown in Table 4 is less than 1.0. This means that the funds are less than perfectly diversified. Nevertheless, the unit trust funds in the sample are quite well diversified portfolios with an overall R^2 value of 0.723203 (Table 3).

Fund 9 has the highest R^2 value and is thus the most well diversified portfolio in the sample while the least diversified portfolio is Fund 16.

Results when Funds are Grouped According to their Objectives

If the funds are grouped according to their objectives as shown in Table 6, the average mean monthly return of the balanced, growth and income funds are 1.0063%, 0.2877% and 0.2678% respectively. Among them, the income funds post the worst results while the balanced funds are the best performers.

When performance is risk adjusted using the Adjusted Sharpe Index, Treynor Index and the Adjusted Jensen's Alpha, all the three measures produce similar results with the balanced funds being the best performers and the growth funds being the worst performers.

The beta value shows that the balanced funds have the lowest risk while income funds have the highest risk. This contradicts the fact that income funds should have the lowest risk as they invest mainly in government securities and bonds while growth funds have the highest risk as they invest in risky stocks which have high capital gains potential. The balanced funds have a beta value (0.698432) which is close to the value of 0.68 listed in Table 2 indicating that balanced funds seem to adhere to their stated objectives. The growth and income funds have values that are different from the values in Table 2 implying that they do not adhere very well to their objectives.

The R^2 value shows that the balanced funds are the most well diversified whereas growth funds are the least diversified.

Consistency of Performance of Funds

Table 7 shows that when performance is ranked by the Adjusted Sharpe Index, the Spearman Rank Correlation Coefficient (R_s) for the periods 1987 & 1988 and 1988 & 1989 are positive

Table 6 : Return, Risk & Performance Profiles of Funds for Period 1984 to 1993

Fund Objective	Number of Funds	Mean Monthly Return	Standard Deviation of Return	Beta of Fund	Coefficient of Determination	Adjusted Sharpe Index	Treynor Index	Adjusted Jensen's Alpha
<u>BALANCE</u>	13	0.002996	0.053430	0.593173	0.612828	-0.021446	-0.002162	-0.014455
Range		to	to	to	to	to	to	to
Mean		0.012911	0. 073771	0.803349	0.882874	0.128701	0.011593	-0.000703
		0.010063	0.065108	0.698432	0.771399	0.087341	0.008098	-0.004198
<u>GROWTH</u>	6	-0.004096	0.060433	0.646309	0.494470	-0.112580	-0.013148	-0.025460
Range		to	to	to	to	to	to	to
Mean		0.012451	0.084739	0.894746	0.766685	0.102032	0.011655	-0.004672
		0.002877	0.076474	0.723481	0.610801	-0.016288	-0.001992	-0.014965
<u>INCOME</u>	2	-0.005791	0.061176	0.697535	0.628523	-0.117405	-0.012281	-0.002627
Range		to	to	to	to	to	to	to
Mean		0.011147	0.086284	0.830271	0.865741	0.109564	0.009670	-0.025441
		0.002678	0.07373	0.763903	0.747132	-0.003921	-0.001306	-0.014034

and significant at the 0.05 level. This means that funds that performed well in the first year also performed well in the second year i.e. the funds are ranked similarly in both years. However for the period 1989 & 1990, the R_S value was significantly negative. This means that the funds' performance rankings have reversed.

Similar results were obtained using the Treynor Index and the Adjusted Jensen's Alpha, as shown in Table 8 & 9. This provides conclusive evidence that for the period 1987 to 1989, funds that performed well or poorly in one year repeated their performance in later years. However the trend was reversed for the period 1989 & 1990.

Stability of Systematic Risks (Beta)

Table 10 shows the R_S values of the funds' systematic risks. It shows that for the periods 1987 & 1988, 1988 & 1989, 1990 & 1991 and 1992 & 1993, the R_S values are significantly positive. This means that the funds' beta values that are high in the first year are also high in the following years. This means that the relative ranking of the risks does not change considerably and is quite stable.

Forecasting Ability of Investment Managers

As can be seen from Table 11, all the Jensen's Alphas are negative. This means that none of the investment managers has forecasting ability of security prices and that they did not perform better than the naive buy and hold strategy (market portfolio) which has a value of 0.0.

It can be observed that Funds 14, 15, 16, 17, 18, 19 and 20 have significantly negative Jensen's Alpha. This leads to the acceptance of the H_1 hypothesis that the investment managers have poor forecasting ability.

As far as this sample of unit trust funds is concerned, the result seems to dispel the notion that unit trust managers have superior forecasting ability.

Table 7 : Rank Correlation of Performance Rankings for all the Funds using the Adjusted Sharpe Index

Period	Spearman Rank Correlation Coefficient	T Value
1984 & 1985	0.06316	0.26849
1985 & 1986	0.39091	1.85124
1986 & 1987	0.41299	1.97661
1987 & 1988	0.53506	2.76073 *
1988 & 1989	0.72338	4.56674 *
1989 & 1990	-0.58961	-3.18199 *
1990 & 1991	-0.37662	-1.77215
1991 & 1992	-0.03896	-0.16996
1992 & 1993	0.12987	0.57093

Note : * Significant at 0.05 level

Table 8 : Rank Correlation of Performance Rankings for all the Funds Using the Treynor Index

Period	Spearman Rank Correlation Coefficient	T Value
1984 & 1985	0.04962	0.2108
1985 & 1986	0.64286	3.65822 *
1986 & 1987	0.42078	2.02184
1987 & 1988	0.62208	3.46326 *
1988 & 1989	0.51429	2.61389 *
1989 & 1990	-0.49351	-2.47331 *
1990 & 1991	-0.35065	-1.63207
1991 & 1992	-0.01688	-0.0736
1992 & 1993	0.29091	1.32536

Note : * Significant at 0.05 level

**Table 9 : Rank Correlation of Performance Rankings for
all the Funds using the Adjusted Jensen's Alpha**

Period	Spearman Rank Correlation Coefficient	T Value
1984 & 1985	0.05414	0.23001
1985 & 1986	0.62727	3.51081 *
1986 & 1987	0.42078	2.02184
1987 & 1988	0.62208	3.46326 *
1988 & 1989	0.51429	2.61389 *
1989 & 1990	-0.49351	-2.47331 *
1990 & 1991	-0.35065	-1.63207
1991 & 1992	-0.02727	-0.11892
1992 & 1993	0.28701	1.30601

Note : * Significant at 0.05 level

**Table 10 : Rank Correlation of Systematic Risks (Beta)
for all the Funds**

Period	Spearman Rank Correlation Coefficient	T Value
1984 & 1985	0.42556	1.9952
1985 & 1986	0.33117	1.52986
1986 & 1987	0.30779	1.41009
1987 & 1988	0.61299	3.38182 *
1988 & 1989	0.56494	2.98435 *
1989 & 1990	-0.02078	-0.09059
1990 & 1991	0.45325	2.21639 *
1991 & 1992	0.25065	1.12858
1992 & 1993	0.45974	2.25658 *

Note : * Significant at 0.05 level

Table 11 : Jensen’s Alpha & T Values for Individual Unit Trusts
for Period 1984 to 1993

Fund ID No.	Mean Jensen’s Alpha Value	T Value	No. of Observations
6	-0.001973	-1.011524	10
2	-0.003104	-0.980182	10
10	-0.003108	-1.775749	10
11	-0.003252	-1.41157	10
13	-0.003252	-1.463397	10
7	-0.003515	-1.675251	10
4	-0.003606	-1.863431	10
3	-0.003628	-2.300736	10
1	-0.004515	-1.578245	10
12	-0.004595	-1.517209	10
9	-0.004796	-2.101649	10
8	-0.004798	-1.498738	10
21	-0.005111	-1.677177	9
5	-0.005113	-2.207836	10
14	-0.005319	-2.509369 *	10
20	-0.005494	-3.089742 *	10
15	-0.009262	-2.306946 *	10
17	-0.009872	-3.201339 *	10
16	-0.010394	-2.311599 *	10
18	-0.011974	-3.093338 *	10
19	-0.018907	-3.660698 *	10

Note : * Significant at 0.05 level

Impact of Fund Characteristics on Investment Performance and Systematic Risks

When simple and multiple linear regressions were performed the following significant relationships shown in Table 12 are obtained.

Table 12 : Significant Regression Equations

No.	Equation	R ²	F Value
1	$\alpha = -1.243325 X_4 + 0.003148$	0.27323	10.52642 *
2	$\beta = -0.018606 X_1 + 0.936996$	0.19805	6.9149 *
3	$\beta = 7.408317 \times 10^{-9} X_2 + 0.546612$	0.52098	30.45295 *
4	$\beta = 5.023057 \times 10^{-9} X_3 + 0.557829$	0.54847	34.01151 *

Note : * Significant at the 0.05 level

As can be seen in equation 1 in Table 12, the Jensen's Alpha is negatively related to the expense ratio. However, the relationship is weak with a R² value of 0.27323. Hence a high expense ratio tends to result in lower returns. This is due to the fact that high expenses spent on investment analysis erode the returns that unit holders can earn.

Equation 2 in Table 12 suggests that the riskiness of the funds are negatively related to the age of the funds although the relationship is weak with a R² value of 0.19805. This means that the older funds are less risky and more conservative in their fund management whereas the newer funds are more aggressive and invest in more risky stocks which however did not result in higher returns.

Equation 3 in Table 12 suggests that the riskiness of the funds are positively related to the size of the funds with a R² value of 0.52098 indicating a fairly strong relationship. This equation implies that the larger funds have higher risks and vice versa.

Equation 4 in Table 12 shows that the riskiness of the funds is positively related to the portfolio turnover with a R² value of 0.54847 which indicates a fairly strong relationship. This means

that funds that experience active trading were probably invested in the more speculative stocks with higher risks, in an attempt to generate better returns over a shorter time horizon. However they were not successful in earning higher returns but became more risky.

CONCLUSION

The results of the study show that none of the funds in the sample could out perform the market portfolio. Funds managed by different management companies performed differently with the best performing funds coming from the same management company and the worst performing funds coming from another management company. This means that different management companies have different performances and investors may choose funds based on who the managers of the funds are.

The study also revealed that all the funds are less risky than the market portfolio and thus offer security of capital for the investors. They are also quite well diversified in terms of their risk as they hold rather well diversified portfolios.

When the funds are classified according to their types, the best performers are the balanced funds followed by the income and growth funds. This seems to contradict the notion that growth funds should be the best performers as they invest in more risky assets that have higher potential for capital gains while the balanced funds should earn the lowest returns since they invest in the less risky and more secure assets. The risk profile of the different type of funds shows that the funds do not adhere very well to their stated objectives as their systematic risks are quite different from the traditional values. Hence both the returns earned and risk levels observed in the study suggest that the stated objectives of the unit trust funds issued to the investors are not always dependable ie. there is sometimes no relation between the stated investment objectives and the actual performance of some unit trust funds.

For the ten year period, the funds' performance ranking is consistent 50% of the time. This shows that the funds are quite consistent in their performance. The same can be said for the funds' systematic risk as the beta values are quite stable over time.

It was also shown that none of the fund managers could forecast securities' prices and none could beat the naive buy and hold strategy. In fact evidence of poor forecasting ability of a management company was discovered.

The study suggests that investment managers can improve their performance by reducing their expenses on securities analysis so that investors can enjoy better returns. It also shows that the larger funds and those that are involved in active trading are more risky while the older funds are less risky. Hence investors can use such variables as age, size and trading practices in selecting and investing in the funds that suit their degree of risk aversion.

The major implications raised by the research are that (1) unit trust funds should strive to keep costs down in the light of the managers' inability to benefit from research activities, (2) investors should be wary of managers' claims of superior performance as many of their claims are over optimistic and not based on satisfactory measures, and (3) unit trust managers should possibly spend more time on defining objectives with regard to risk and return, explicitly stating their fund's objectives to the public and formulating portfolios to match these objectives.

Appendix 1 : List of Unit Trust Funds in the Sample

Fund Identification (ID) Number	Name of Fund
1	Kumpulan Modal Bumiputra yang Pertama
2	Kumpulan Modal Bumiputra yang Kedua
3	Kumpulan Modal Bumiputra yang Ketiga
4	Kumpulan Modal Bumiputra yang Keempat
5	Kumpulan Modal Bumiputra yang Kelima
6	Kumpulan Modal Bumiputra yang Keenam
7	Kumpulan Modal Bumiputra yang Ketujuh (Perolehan)
8	Kumpulan Modal Bumiputra yang Ketujuh (Pertambahan)
9	Kumpulan Modal Bumiputra yang Kelapan
10	Kumpulan Modal Bumiputra yang Kesembilan
11	Kumpulan Modal Bumiputra yang Kesepuluh
12	Kumpulan Modal Bumiputra yang Kesebelas
13	Kumpulan Bumiputra Pelaburan Perwira
14	Malaysian Investment Fund
15	Malaysia Progress Fund
16	Tabung Amanah Bakti (Malaysia Security Fund)
17	Malaysia Berjaya Fund
18	Malaysia Equity Fund
19	Malaysia Commerce Fund
20	Kuala Lumpur Savings Fund
21	Kuala Lumpur Growth Fund

APPENDIX 2

LIST OF UNIT TRUST FUNDS IN MALAYSIA

I	Funds managed by Arab-Malaysia Unit Trust Bhd	Date of launching
	1. Arab-Malaysian Gilts	28/11/86
	2. Arab-Malaysian First Fund	23/11/88
	3. The Malaysia Growth Fund	28/4/89
	4. Tabung Ittikal Arab-Malaysian	18/12/92
II	Funds managed by Arab-Malaysian Property Trust Bhd	
	1. Arab-Malaysian First Property Trust	
III	Funds managed by Asia Unit Trust Bhd	Date of launching
	1. Malaysian Investment Fund	2/12/66
	2. Malaysia Progress Fund	1/6/70
	3. Tabung Amanah Bakti (Malaysia Security Fund)	14/5/71
	4. Malaysia Berjaya Fund	5/5/76
	5. Malaysia Equity Fund	20/1/82
	6. Malaysia Commerce Fund	24/1/84
IV	Funds managed by Palaburan Harta Tanah Nasional Bhd	
	1. Amanah Harta Tanah PNB	
V	Funds managed by Amanah Saham Bumiputra Bhd	Date of launching
	1. Amanah Saham Bumiputra	January 1991
VI	Funds managed by Amanah Saham Nasional Bhd	Date of launching
	1. Amanah Saham Nasional	1981
VII	Funds managed by Amanah Saham Mara Bhd	Date of launching
	1. Kumpulan Modal Bumiputra yang Pertama	9/4/68
	2. Kumpulan Modal Bumiputra yang Kedua	19/2/69
	3. Kumpulan Modal Bumiputra yang Ketiga	1/11/69

VII

(cont'd)	4. Kumpulan Modal Bumiputra yang Keempat	2/2/70
	5. Kumpulan Modal Bumiputra yang Kelima	3/9/71
	6. Kumpulan Modal Bumiputra yang Keenam	5/5/72
	7. Kumpulan Modal Bumiputra yang Ketujuh (Perolehan)	28/12/72
	8. Kumpulan Modal Bumiputra yang Ketujuh (Pertambahan)	28/12/72
	9. Kumpulan Modal Bumiputra yang Kelapan	17/7/75
	10. Kumpulan Modal Bumiputra yang Kesembilan	22/10/77
	11. Kumpulan Modal Bumiputra yang Kesepuluh	24/10/78
	12. Kumpulan Modal Bumiputra yang Kesebelas	29/10/79
	13. Kumpulan Bumiputra Pelaburan Perwira	14/8/72
	14. Amanah Saham Mara First Public Fund	20/4/92

VIII Funds managed by Pelaburan Johor Bhd**Date of launching**

1. Amanah Saham Johor	22/10/77
2. Tabung Pelaburan Johor Kemajuan	26/5/80

IX Funds managed by Amanah Saham Sabah Bhd

1. Tabung Amanah Saham Sabah

X Funds managed by Amanah Saham Sarawak Bhd

1. Amanah Saham Sarawak

XI Funds managed by Tabung Amanah Saham Selangor Bhd

1. Tabung Amanah Saham Selangor

XII Funds managed by Amanah Saham Pahang Bhd

1. Kumpulan Modal Bumiputra Pahang Unit Trust Fund
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XIII Funds managed by Amanah Saham Terengganu Bhd

1. Tabung Amanah Saham Terengganu

XIV Funds managed by Amanah Saham Kedah Bhd

1. Tabung Amanah Saham Kedah

XV Funds managed by BBMB Unit Trust Management Bhd**Date of launching**

1. BBMB Unit Trust Fund 2/2/94
2. BBMB Prime Fund 14/5/91

XVI Funds managed by BHLB Pacific Trust Management Bhd**Date of launching**

1. BHLB Pacific Double Growth Fund 15/5/91
2. BHLB Pacific Emerging Companies Growth Fund 10/5/94

XVII Funds managed by BIMB Unit Trust Management Bhd**Date of launching**

1. Amanah Saham Bank Islam First Fund 19/7/94

XVIII Funds managed by Commerce Property Trust Managers Bhd

1. First Malaysia Property Trust

XIX Funds managed by DCM-RHB Unit Trust Management Bhd**Date of launching**

1. DCM-RHB Dynamic Fund 15/9/92

XX Funds managed by Kuala Lumpur Mutual Fund Bhd**Date of launching**

1. Kuala Lumpur Savings Fund 29/3/81
2. Kuala Lumpur Growth Fund 11/12/84
3. Kuala Lumpur Index Fund 2/3/92
4. Kuala Lumpur Industry Fund 24/11/93
5. Kuala Lumpur Aggressive Growth Fund 25/4/94
6. Kuala Lumpur Regular Savings Fund 25/4/94

XXI Funds managed by Mayban Management Fund Bhd**Date of launching**

1. Mayban Unit Trust Fund 26/3/92
2. Mayban Balanced Trust Fund 19/9/94

XXII Funds managed by Mayban Property Trust Fund Bhd**Date of launching**

1. Mayban Property Trust Fund One (unlisted) August 1990

XXIII Funds managed by MBF Unit Trust Management Fund Bhd Date of launching

- | | |
|-------------------|--------|
| 1. MBF First Fund | 2/5/91 |
|-------------------|--------|

XXIV Funds managed by MIC-TPG Unit Trust Management Fund Bhd Date of launching

- | | |
|------------------------------|---------|
| 1. Amanah Saham Dana Pertama | 12/7/77 |
| 2. Amanah Saham Dana Kedua | |
| 3. Amanah Saham Dana Ketiga | |

XXV Funds managed by PAB Unit Trust Management Bhd Date of launching

- | | |
|---------------------|---------|
| 1. Amanah Saham PAB | 29/4/93 |
|---------------------|---------|

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