Market Timing and Selectivity Performance – A Cross-Sectional Analysis of Malaysian Unit Trust Funds

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Abstract

This study examines to what extent fund characteristics contributes to explaining the cross-section of fund returns differentiated by managers' stock picking and market timing abilities. The findings show that managerial selectivity performance relates negatively to fund size, risk, and expense ratio as opposed to the positive relationships found for market timing performance. This is an evidence of activity specialization among portfolio managers and is consistent with prior studies that a trade-off exists between managers' market timing and stock picking skills. The results indicate that a fund's investment objective, age, and turnover are not important in explaining selectivity and market timing measures.

Keywords: unit trust fund; market timing; security selection; fund characteristics; fund performance

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1. Introduction

The unit trust industry in Malaysia has grown tremendously in recent years. As of October 2010, the total net asset value as a percentage to Bursa Malaysia market capitalization stood at 18.91 percent and the industry held total net asset value amounting to RM 227.8 billion in 2010 which is more than five times the amount of RM 43.3 billion, managed in the year 2000 (Federation of Investment Managers Malaysia).

The investment performance of unit trust funds or mutual funds has been vastly researched in both developed and developing countries. While market timing and selectivity performances of mutual funds have been studied extensively in developed countries, there is remarkably little evidence on this aspect in developing countries. Most studies that examined unit trust performance in Malaysia have focused the research on evaluating overall or aggregrated fund performance. Among the limited studies that investigate market timing and security selection abilities of portfolio managers in Malaysia, none has examined what factors influence the two distinct performance components due to market timing and stock selection activities. While fund return is generally observable by investors, the extent to which fund characteristics has an influence on fund return is not obvious to the investing public at large. Since fund's return can be driven by manager's selection or and market timing abilities, it would certainly be of interest to investors to know the extent to which fund characteristics influences the selectivity and timing performance components of their funds. In addition, given that a portfolio manager's stock selection and market timing skills are not observable, information on what fund attributes contributes to selectivity and timing performances would allow managers to better manage their

stock selection and market timing activities. That said, this study embarks on the following two objectives. First, the study evaluates the overall risk-adjusted performance and separates the fund performance into selectivity and market timing components. By breaking down the performance components, this study is able to more accurately measure performance based on manager's expertise and thus determine which of the two managerial activities is more rewarding to investors. Second, this study examines to what extent the measures of portfolio manager's ability to select undervalued securities and to time market movements are related to fund characteristics, such as fund size, expense ratio, investment objective, portfolio turnover ratio, fund risk, fund age, and the growth rate in fund size. The information on what fund attributes contribute to the two separate performance components would certainly be of interest to both investors and portfolio managers. This study is organized as follows. Section 2 discusses the related literature and Section 3 describes the data and methodology employed. Section 4 reports the findings and concluding remarks are offered in Section 5.

2. Literature Review

The research on mutual fund performance has been extensively studied and the major finding that emerges from the research is that on average, mutual funds exhibit either negative or no abnormal performance. For examples, several key papers that comprehensively evaluate fund performance include, among others, Jensen (1968), Grinblatt and Titman (1989), and Malkiel (1995). In the past, early studies on fund performance focused the research on evaluating overall or aggregated performance without much consideration on the performance components that are driven by managers' investment making abilities. Since the overall fund performance can be influenced by a manager's security selection ability, market timing ability or a combination of

both abilities, it has become important that manager be evaluated based on these two abilities. Fama (1972) segregates managers' forecasting skills into two separate components: security selection and market timing skills. Security selection, also known as mirco-forecasting refers to the ability of portfolio manager to identify under-or-over-valued securities. Market timing or also known as macro-forecasting refers to the ability of portfolio manager to forecast broad market movements. In practice, portfolio managers' investment decision makings involve both market timing and security selection activities. For example, in anticipation of upcoming market movements, portfolio managers do alter the risk composition of their portfolios by changing the asset mix or readjusting the proportion of their holdings within an asset class. Empirical studies on the existence of security selection and or market timing activities among portfolio managers are provided by among others, Kon and Jen (1979), Henriksson (1984), Chang and Lewellen (1984), Lee and Rahman (1990), Chen et al. (1992), Kao et al. (1998),Wermers (2000), Rao (2000), Stotz (2007), and Abdel-Kader and Kuang (2007). Managers' security selection and market timing activities are viewed as important elements that affect fund returns which can then be decomposed into selectivity and market timing components. Despite the importance of evaluating portfolio managers based on their selection and market timing skills, one research area that has not received much attention in the literature is on the determinants of these two performance components. This present study builds on a relatively small literature on the cross-sectional analysis of selectivity and market timing components of fund performance. While there are numerous studies that examine the link between fund performance and fund characteristics, the focus of these studies are on the effects of fund attributes on the overall fund performance without segregating the performance into market timing and selectivity components. In general, empirical findings indicate that fund attributes play significant roles in explaining the cross-

sectional variations in fund performance although mixed findings have been found on the factors affecting fund returns and on the direction of the relationships. While Sharpe (1966) shows that funds with low expenses have higher reward-to-variability ratios, Ippolito (1989) finds that fund performance is not significantly related to turnover, management fee, and expense ratio. Other studies that find expense ratios to be associated with negative fund returns are Golec (1996), Cahart (1997), and Elton et al. (1993). Using a cross-section and time series analyses for 151 equity mutual funds over a 20-year period, Droms and Walker (1996) find that funds with high expense ratio are associated with high fund returns but asset size, portfolio turnover, and load or no load status have no significant relation with fund performance. Other studies that find no relation between fund performance and size include Cicotello and Grant (2001), Grinblatt and Titman (1994), Gallagher and Martin (2005), Tng (2007), Low (2010), among others. In their study of international mutual funds, Fortin and Michelson (2005) find that fund performance is unrelated to expense ratio but is positively correlated with portfolio turnover and fund size. Dahlquist et al. (2000) examine Swedish mutual funds and document that fund performance is negatively related to fund size and fee but positively related to frequency of trading activities. The findings of Otten and Bams (2002) indicate that fund age and expense ratio have negative relations with fund returns and that larger funds have higher fund returns than smaller funds.

Using a large cross-section of international funds from 19 countries for a period from 1999-2005, Ferreira et al. (2006) examine fund attributes and country characteristics that are related to the cross-sectional variations in fund performance. Their findings indicate that mutual funds in countries with strong legal institutions and investor protection have better performance than those in countries with weak institutional structure and poor investor protection. On fund attributes, evidence shows that large funds, funds with high fee charges and young funds that

invest abroad are associated with good performance. In addition, Ferreira et al. (2006) also argue that fund size can affect managerial skills because when the size of the fund is large, portfolio managers would have to keep on looking for worthwhile investment opportunities and such effort contribute to diluting managerial skills. Such argument is broadly consistent with the contention of Indro (1999) that while a minimum fund size is required to justify research and trading expenditure, an uncontrollable growth in fund size would lead to several cost disadvantages that reduce fund returns. That is, a fund that has grown beyond its optimal size would experience diminishing or negative marginal return. Low's (2010) findings show that while fund size is not related to performance, the growth in fund size is negatively related fund returns. This suggests that as funds grow larger in size, they become less efficient in their operations and this evidence provides support for Indro's (1999) argument on the negative effects of uncontrollable growth in fund size.

In a comprehensive study, Chen at al. (1992) examine the relationship between fund's fundamental characteristics and fund's performance components. They separately measure managerial selection and market timing abilities of 93 US mutual funds and examine fund's fundamental characteristics that are related to the cross-sectional variations in selectivity and timing components. Their major findings indicate that expense ratio and fund size are significant in explaining the cross-sectional variations in security selection and market timing skills of managers although the effects of both managerial skills are in the opposite direction. This is broadly consistent with findings of past studies that there is a trade-off between a manager's security selection and market timing abilities. The results of cross-sectional variations in security selection ability show that larger funds and funds with higher expense ratio have better selectivity performance than smaller funds and funds with lower expense ratio. As for the cross-

sectional variations in market timing ability, the coefficients of expense ratio and fund size are negative as opposed to the positive coefficients found for selectivity performance. The results also indicate that timing abilities vary across funds with different investment objectives. However, it is shown that managerial selection skill is not related to fund objective and load charges.

Given that unit trust investing in Malaysia has become an important investment vehicle in recent years, it would certainly be of interest to investors and managers to know to what extent a fund's fundamental characteristics are related a manager's selection and market timing skills. In Malaysia, empirical findings have shown that, on average unit trust funds record negative fund returns or no abnormal performance (Mohamed and Nassir (1995); Leong and Aw (1997); Low (2007, 2010)). Examples of studies in Malaysia that distinguish fund performance due to selection and market timing abilities of portfolio managers are Nassir et al. (1997) and Low and Ghazali (2005). However, no studies have examined what factors influence the two distinct performance components due to market timing and security selection activities of portfolio managers. The objectives of this study are first, to evaluate a portfolio manager's stock selection and market timing skills and second, to examine to what extent these performance measures are related to a fund's fundamental characteristics such as fund size, expense ratio, investment objective, portfolio turnover ratio, fund risk, age, and fund growth.

3. Data and Methodology

The dataset in this study comprises sixty-five unit trust funds. The data used are net asset value (NAV) of funds, market index prices, rate of return on a 91-day Malaysian Treasury bill, and fund characteristics variables such as fund expense ratio, fund age, fund investment

objective, portfolio turnover, fund size, the growth rate in fund size, and fund's beta value. The return on each fund was calculated using monthly dividend-adjusted NAVs. The fund attributes data with the exception of the beta value were sourced from Investor's Guide to Malaysian Unit Trust which provides all relevant fund attributes data for a five-year study period from January 2000 through December 2004 (Choong ,2005). The beta of the fund was estimated using monthly fund return data. The monthly market return was calculated based on the Kuala Lumpur Composite Index (KLCI). Since the reported Treasury bill rate is an annualized holding period yield, this rate is converted to a monthly equivalent, to be consistent with the monthly returns of unit trust funds and the market return.

This study employs the widely used Jensen's model (1968) to calculate the overall fund performance and the model of Henriksson and Merton (1981) to separate the performance into market timing and selectivity components. The study then examines whether fund characteristics are related to these sub-component performance measures. Jensen's model (1968) is represented by the following regression specification:

$$R_{pt} - R_{ft} = \alpha_J + \beta_p (R_{mt} - R_{ft}) + \in_{pt} \qquad [1]$$

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, R_{mt} is the rate of return of the market portfolio at time t. β_p is the estimated coefficient 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 $\in_{pt}$ represents the random error term. The above regression equation assumes that the systematic risk of a fund is stationary over time and thus has ignored the existence of timing activities of fund managers. Thus, Jensen's performance model attributes a fund's overall performance entirely to manager's stock selection ability.

Since it is highly possible that portfolio managers do engage in market timing activities, Henriksson and Merton (1981) developed a model that allows market timing and selectivity to be evaluated simultaneously as shown by the following regression equation:

$$R_{pt} - R_{ft} = \alpha_S + \beta_1 X_t + \beta_2 Y_t + \in_{pt} \qquad [2]$$

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 manager's security selection ability, after filtering out his market timing ability. β_2 is the measure of manager's market timing ability and it represents the change in the risk level of the fund when manager re-adjusts the composition of fund in anticipation of broad market movement. A significant positive (negative) estimate of β_2 is indicative of good (poor) market timing ability. By taking market timing and stock selection abilities into consideration, Henriksson and Merton's model (1981) removes the biases in Jensen's performance estimate that ignores market timing activities of portfolio managers. For example, if a portfolio manager is able to successfully time market movement and such ability is not accounted for in Equation [1], the resulting performance estimate of α_J has attributed the fund performance solely to the manager's selection ability. This has the effect of over-estimating the selection ability of portfolio manager. Similarly, a poor market timer manager will cause a downward bias to the estimate of α_J, resulting in an under-estimation of his stock selection ability. Hence, it is important to consider timing and selectivity performance simultaneously in fund performance evaluation.

To determine to what extent selectivity and timing performances are related to fund characteristics, the α_S and β_2 generated from Equation [2] are regressed on several fund characteristics variables as shown in Equations [3A] and [3B] respectively.

$$\alpha_{Sj} = b_o + b_1 \text{ OBJECTIVE}_j + b_2 \text{ RISK}_j + b_3 \text{ TURNOVER}_j + b_4 \text{ EXP}_j + b_5 \text{ SIZE}_j + b_6 \text{ GROWTH}_j + b_7 \text{ AGE}_j + \in_j \quad [3A]$$

$$\beta_{2j} = b_o + b_1 \text{ OBJECTIVE}_j + b_2 \text{ RISK}_j + b_3 \text{ TURNOVER}_j + b_4 \text{ EXP}_j + b_5 \text{ SIZE}_j + b_6 \text{ GROWTH}_j + b_7 \text{ AGE}_j + \in_j \quad [3B]$$

where α_{Sj} and β_{2j} are the selectivity and market-timing measures of fund j estimated from Equation [2]; OBJECTIVE_j is dummy variable equals to 1 for aggressive funds and 0 otherwise. Aggressive funds are funds with objectives of growth and high growth while the non-aggresive funds are those with objectives of income and income and growth; RISK_j is the beta value of fund j and is estimated using monthly return data from January 2000 through December 2004; TURNOVER_j is the turnover ratio of fund j, measured by the average total acquisition and disposal of securities for the year as a percentage of the average net asset value of the fund. This ratio captures the aggressiveness of portfolio manager in managing funds by indicating whether managers buy and sell securities frequently or take a longer term approach to investing. EXP_j is the jth fund's expenses ratio, which is the portion of the fund's average net asset paid for management fees, trustee fees, audit fee and other administrative fee involved in operating the fund; Expense ratio and turnover ratio capture the costs associated with the acquiring of and trading on information. AGE_j is the natural logarithm of the fund's age since inception until December 2004; SIZE_j is the natural logarithm of the fund's year end total net asset value; GROWTH_j refers to the percentage growth in fund assets over the previous year for fund j; $\in_j$ is the residual term for fund j.

4. Empirical Results and Discussion

Table 1 provides summary statistics for unit trust performance measures calculated based on Jensen's model (1968), and Henriksson and Merton's model (1981). The Jensen alpha α_J, measures the overall fund performance and it represents the stock picking skill of portfolio managers. The selectivity and market timing measures in Henriksson and Merton's model (1981) are represented by α_S and β_2 respectively. On average, portfolio managers' stock selection skills are not adding value to fund returns as shown by the negative mean values of α_J and α_S. The average value of α_J is -0.0024 and it represents selectivity performance when the market timing ability of portfolio manager is not taken into consideration. When the effects of manager's market timing activities are taken into account, the fund's return attributed to a manager's security selection ability, α_S has an average value of -0.004which is about 68% more negative than α_J. In other words, the Jensen's model in fact has over-estimated the selection skill of manager because the effects of timing skill were ignored. When a portfolio manager is a successful market timer and if the effects of his managerial skill are not accounted for, his good timing skill will cause an upward bias to the estimate of α_J. The timing performance β_2, has a positive average value of 0.0713 suggesting that on average, portfolio manager's market timing activities contribute positively to funds' return. In other words, on average, portfolio managers have good market timing abilities. Thus, it becomes obvious that in Jensen's model, the positive timing performance has mitigated the degree of negative returns associated with managerial selection skills as shown by α_J. However, when fund performance is broken down into selectivity and timing components, a manager's poor selection skill is revealed by a negative value of α_S that is larger than α_J along with his good market timing talent as indicated by a

positive average value of β_2. Hence, it is important to consider timing and selection skills simultaneously in evaluating fund performance. Table 2 presents the pairwise correlations for fund characteristics and performance measures. Selectivity and market timing measures have significant high negative correlation of 0.881, suggesting that there is a trade-off between a portfolio manager's stock selection and market timing abilities. This is an evidence of activity specialization among portfolio managers and it seems that no manager can excel in both activities. As shown, a manager's selectivity performance is inversely correlated with fund risk and the coefficient is -0.603. This suggests that managerial selection skill deteriorates as the fund risk increases. It is shown that fund size has a modest correlation of -0.244 with managerial selection ability. Market timing performance is highly and positively correlated with fund risk with a correlation coefficient of 0.700, as opposed to the coefficient of -0.603 observed for selectivity performance. This suggests that managers of high beta funds have good market timing performance. As with selectivity, fund size is also modestly correlated with timing measure but in a positive direction. The correlation structures among fund characteristics variables are modest. Fund size is negatively and significantly correlated with portfolio turnover, expense ratio, and fund age. The correlation coefficients are -0.337 and -0.367 for portfolio turnover and expense ratio respectively. Such correlations suggest that larger funds trade less frequently and have lower expense ratio. The correlation coefficient of -0.427 between fund size and fund age suggests that older funds are smaller in size. Older funds have less trading activities as shown by a significant correlation coefficient of -0.285.

In Table 3, Panel A and B report the cross-sectional results of selectivity and market timing performances as represented by Equation [3A] and [3B] respectively. The White's (1980) test results show no problems of heteroskedasticity and misspecification of the models'

functional forms. Given the potential problems of multicollinearity among the fund attributes variables, a diagnostic check was performed using variance inflation factors (VIFs). The results show that none of the fund characteristics variables has a value greater than 10.

In Panel A, fund characteristics variables explain almost 43 percent of the cross-section variations in managers' selectivity performance. The findings show that managerial selection skill is inversely related fund size, risk, and expense ratio. The significant negative coefficient of fund size suggests that when the size of the fund becomes larger, it becomes more difficult for portfolio manager to find worthwhile investments alternatives and this has the effect of diminishing managerial selectivity performance. For this reason, large funds lead to inferior security selection decisions. Such finding is consistent with the argument of Ferreira et al. (2006) that the effects of managerial skills become diluted as fund size increases. On fund risk, there is strong evidence that it is negatively and significantly related to selectivity performance, suggesting that risky fund seems to present managers with some challenges in selecting under-valued securities. The negative relation implies that the effect of managerial selection skill diminishes as the risk level of the fund increases. High risk fund comprises securities with high exposure to market risk and it may be more difficult for manager to correctly identify under-valued stocks from a pool of securities with high beta values. As shown, fund expense ratio is negatively and significantly related to selectivity performance, implying that fund with higher (lower) expense ratio has lower (higher) selectivity performance. Such finding possibly suggests that funds have over-invested in information for security analyses and research activities, resulting in high expense ratio. That is, managerial effort in searching for and trade on new information may not be well worth the money spent if resources are not utilized efficiently. In

other words, high research expenditure does not necessarily contribute to improving managerial selectivity performance.

Panel B presents the cross-sectional results for timing performance. The reported R^2 of 0.600 indicates that fund attributes explain 60 percent of the variations in market timing performance, which is higher than that reported for selectivity performance. Managerial timing ability is shown to be positively related to fund size, risk, and expense ratio. The directions of the relationships are the opposite of those found for managerial selection ability. This evidence reinforces previous findings that if a portfolio manager is engaged in both stock selection and market timing activities, there exists a trade-off between the two activities. The coefficient of fund size is positive and significantly related to timing measure, suggesting that larger funds have better timing performance than smaller funds. That is, when the fund is large in size, portfolio manager is in a better position to exploit the predictability of market returns and thus is able to increase fund returns. This evidence possibly reflects the efficiencies of large funds in responding to changes in broad market movements. That is, whenever a change in market trend is anticipated by portfolio manager, it cost less to make adjustment to portfolio holding due to the existence of economies of scale among large funds. Accordingly, this contributes to increasing fund returns from the market timing activities of portfolio managers.

The result strongly suggests that high risk funds as measured by fund's beta have better market timing performance than low risk funds. In other words, managers managing funds with higher exposure to market risk seem to exhibit better market timing skill as opposed to the negative relationship found for stock selection skill. This implies that managers of high beta funds should concentrate their activities on forecasting future market movements instead of selecting undervalued securities. While expenses incurred do not seem to improve managerial

selectivity performance, there is weak evidence that expense ratio enhances a manager's market timing performance. Money and resources expended on research are shown to be useful in predicting broad market movements. This evidence suggests that it may be relatively easier for portfolio manager to time the broad market movements than to pick undervalued stocks. In addition, there is also weak evidence that the growth in fund size is negatively correlated with timing performance. This somewhat supports the arguments of Ciccotello and Grant (2001) that growth in fund size causes strain in the capabilities of manager, and of Indro et al. (1999) that high growth rate in fund assets reflects the implicit costs associated with uncontrolled growth in fund size. The number of years that funds have been in existence is shown to have no significant relation to a manager's stock selection and market timing skills. Similarly, selectivity and timing performances of a portfolio manager are not driven by portfolio turnover. On fund objective, the finding reveals that investment objective of fund plays no significant role in influencing selectivity and market timing components.

5. Conclusions

Since it is important that portfolio managers be evaluated on both market timing and stock selection abilities, this study examines the separate performance components and investigates to what extent a fund's fundamental characteristics are related to manager's selectivity and market timing skills. The cross-sectional results show that managerial selection ability relates negatively to fund risk, fund size, and expense ratio as opposed to the positive relationships found for market timing ability. Fund risk remains a dominant factor in explaining both the stock picking and market timing skills of portfolio managers. High risk funds do relatively better than low risk funds with respect to market timing. However, selectivity performance is found to be

negatively related to fund risk. On fund size, portfolio managers of large funds are able to better exploit the predictability of broad market movements, reflecting the cost efficiencies associated with economies of scale of large funds. Nevertheless, as the size of the funds becomes larger, portfolio managers have more difficulties in finding worthwhile investments, resulting in diminishing managerial selectivity. While there is weak evidence that expense ratio is positively related to timing measure, high research expenditure is shown to contribute negatively to managerial selectivity performance, suggesting that portfolio managers may have over-invested resources in finding under-valued securities. In addition, the findings also reveal a weak positive relation between growth in fund size and timing measure, reflecting the implicit costs associated with uncontrollable growth in fund size. The selection and market timing skills of portfolio managers are shown to have no significant relations with a fund's investment objective, age, and turnover.

Table 1: Summary statistics for unit trust performance

	Jensen's Model (1981)	Henriksson and Merton's Model (1981)	
	α_J	α_S	β_2
Mean	-0.0024	-0.0041	0.0713
Standard Deviation	0.0038	0.0074	0.3434
Minimum	-0.0103	-0.0262	-0.7168
Maximum	0.0102	0.010	1.4966

Table 2: Pairwise correlation coefficients

	Selectivity	Timing	Risk	Turnover	Exp	Size	Growth	Age
Selectivity	1.000							
Timing	-0.881**	1.000						
Risk	-0.603**	0.700**	1.000					
Turnover	-0.018	-0.102	0.035	1.000				
Exp	-0.124	0.008	-0.006	0.298**	1.000			
Size	-0.244**	0.327**	0.035	-0.337**	-0.367**	1.000		
Growth	0.178	-0.193	-0.027	0.215*	-0.002	-0.074	1.000	
Age	0.174	-0.200	-0.012	-0.285**	0.117	-0.427**	0.009	1.000

Notes: ** and * denote statistical significance at the 0.05 and 0.10 levels respectively.

Table 3: Cross-sectional regression results

Panel A

Dependent variable: Selectivity Performance

$$\alpha_{Sj} = b_o + b_1 \text{ OBJECTIVE}_j + b_2 \text{ RISK}_j + b_3 \text{ TURNOVER}_j + b_4 \text{ EXP}_j + b_5 \text{ SIZE}_j + b_6 \text{ GROWTH}_j + b_7 \text{ AGE}_j + \in_j$$

Variable	Coefficient	t-Statistic	Pr>|T|	VIF
Constant	2.470	2.94**	0.005	0.000
OBJECTIVE	0.054	0.34	0.730	1.269
RISK	-1.823	-6.15**	0.000	1.051
TURNOVER	-0.044	-0.25	0.800	1.709
EXP	-0.539	-2.17**	0.034	1.216
SIZE	-0.140	-2.25**	0.028	1.801
GROWTH	0.004	1.54	0.129	1.062
AGE	0.095	0.60	0.550	1.790
F Value = 7.88	Prob>F=0.000	Adjusted R^2= 0.429		N=65

White's (1980) Test of First Moment and Second Moment Specification:
DF =34 χ^2 =28 Prob> χ^2 =0.717

Panel B

Dependent variable: Market Timing Performance

$$\beta_{2j} = b_o + b_1 \text{ OBJECTIVE}_j + b_2 \text{ RISK}_j + b_3 \text{ TURNOVER}_j + b_4 \text{ EXP}_j + b_5 \text{ SIZE}_j + b_6 \text{ GROWTH}_j + b_7 \text{ AGE}_j + \in_j$$

Variable	Coefficient	t-Statistic	Pr>|T|	VIF
Constant	-1.039	-3.19**	0.002	0.000
OBJECTIVE	-0.098	-1.59	0.118	1.269
RISK	1.015	8.84**	0.000	1.051
TURNOVER	-0.068	-1.02	0.314	1.709
EXP	0.161	1.67*	0.100	1.216
SIZE	0.066	2.76**	0.008	1.801
GROWTH	-0.002	-1.68*	0.099	1.062
AGE	-0.087	-1.43	0.159	1.790
F Value = 14.74	Prob>F=0.000	Adjusted R^2= 0.600		N=65

White's (1980) Test of First Moment and Second Moment Specification:

DF =34 χ^2 =34.36 Prob> χ^2 =0.4506

Notes: ** and * denote statistical significance at the 0.05 and 0.10 levels respectively.

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