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Are Greek Mutual Fund Managers Market Timers?

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Abstract

We use a simple non-linear model, that of Treynor and Mazuy, to test the ability of Greek mutual fund managers to time the market. The empirical findings do not reveal any ability of the Greek managers to time the market correctly or select undervalued securities. In contrary ,five out of nineteen mutual funds present a negative statistical significant coefficient of market timing. We attribute this phenomenon to the lack of experience of the managers within the short period of the life of mutual funds in Greece. Recent literature on mutual fund performance has inquired into the qualitative characteristics of mutual fund managers such as age, education, experience, etc. This line of research holds some promise in explaining the results presented in this paper.

Keywords: Mutual Funds, Selectivity, Market Timing
JEL Classification: G14

1. Introduction

The ability to measure the investment performance of fund managers is a great value for potential and commitment investors. The performance of fund managers affects investors' decisions related to the placement of their wealth as well as their choices of fund managers. Obviously it also affects the compensation of the fund managers[1]. Additionally, testing for abnormal performance can be regarded as evidence relating to the validity of the efficient market hypothesis[2].

It is common practice to divide portfolio performance into two main components, market timing and security selection or selectivity3 . The former refers to the macroforecasting ability of managers to anticipate changes in economic conditions by varying the portfolios systematic risk . The later pertains to the microforecasting ability of managers selecting undervalued assets. The purpose of

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1 *see Kershot (1978) ,Smith (1978)*

2 *For an excellent discussion for the efficient market hypothesis see Fama (1970)*

3 see Fama (1972)

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this paper is to evaluate Greek mutual funds using a simple non-linear model for the majority of Greek mutual funds over the period from 1/1/1993 to 31/12/1997.

Section 2 describes the model of Treynor and Mazuy and section 3 relevant empirical studies. Section 4 describes the data used along with the definition of variables employed. In section 5 the empirical results are presented and analyzed. Section 6 concludes the paper.

2. The Treynor and Mazuy model

Jensen (1968, 1969) formulated a return-generated model to measure performance of managed portfolios:

$$R_{pt} = \alpha_p + b_p R_{mt} + u_{pt} \quad (1)$$

Where R_{pt} is the excess return (net of risk free rate) on the p^{th} portfolio, $\underline{R}_{mt}$ is excess return (net of risk free rate) on the market portfolio, α_p is a measure of security selection ability, b_p is the beta coefficient of the portfolio p, u_{pt} is a random error which has expected value of zero and constant variance and t denotes time. This specification assumes that the risk level of the portfolio under consideration is stationary through time and ignores the market timing skills of the managers. Indeed, portfolio managers may shift the overall risk composition of their portfolio in anticipation of broad market movement.

Several methods have been proposed in the literature for the evaluation of the selectivity and timing abilities of portfolio managers, using only the observed time series of realized returns on the managed portfolios[4].

More specifically, market timing deals with shifting funds between two assets, the first being a market index portfolio and the second a riskless asset (such as T bills, or money market funds) depending on whether the market as a whole is expected to outperform the riskless asset. If a manager forecasts a declining market then he/she can position a portfolio properly by adopting one of the following strategies : increasing the cash percentage of the portfolio or decreasing the beta of the equity portion of the portfolio. Conversely forecasting a rising market gives rise to adoption of the following strategies : decreasing the cash position or increasing the beta of the equity portion of the portfolio.

By looking directly at the way that fund returns behave relative to the returns of the market, constitutes one way of assessing the success of managers. If the fund has kept a constant volatility over the years included in the sample then the plotting of fund return against market return would show a linear relationship as illustrated in Figure 1. Figure 2 illustrates the extreme case in which manager is able to outguess the market at every turn. It is clear in this case that the characteristic line is no longer straight. Probably no manager would claim to be able to anticipate the market perfectly. If the manager has some prediction power then the relationship will be like the figure 3.

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[4] For example ,see Treynor and Mazuy (1966), Fama (1972), Jensen (1972) , Kon and Jen (1979), Henriksson and Merton (1981), Bhattacharya and Pfleiderer (1983) ,Kon (1983), Chang and Lewellen (1984) , and Henriksson (1984) among others.

Treynor and Mazuy (1966) added a quadratic term to equation (1) to test for market timing skill. Thus, the portfolio return will be a nonlinear function of the market return as follows:

$$R_{pt} = a_p + b_p R_{mt} + c_p R_{mt}^2 + \varepsilon_{pt} \quad (2)$$

A positive value of cp would imply positive market timing skill because the last term will make the characteristic line steeper as Rm is larger[5].

3. Review of past empirical studies

The only research constructed in Greece that uses the Treynor – Mazuy model for the evaluation of performance for M/F is found in Mylonas (1999). The estimation results refer to 10 M/F of mixed and equity type for the period 1993 – 1994 and 12 M/F of mixed and equity type 1995 – 1996 using as approach for the market portfolio the official ASE index. According to these findings it can not be argued that M/F managers exhibit significant timing ability. Empirical work worldwide with quadratic regressions has been limited and somewhat disappointing. Treynor and Mazuy (1966) using annual returns for 57 open end mutual funds, find that the hypothesis of no market timing ability can be rejected with 95% confidence for only one of the funds.

Work by Grinblatt and Titman (1988) and Cumby and Glen (1990) finds that a large proportion of mutual funds have negative coefficients on the quadratic term. Lehman and Modest (1987) and Lee and Rahman (1990) also examine the Treynor – Mazuy regression, however neither of these papers report whether the significance of the coefficients is due to their being positive or negative. Coggin – Fabozzi – Rahman (1993), using Treynor – Mazuy (1966) and Bhattacharya – Pfleiderer (1983) models, examined the performance for a random sample of 71 US equity pension fund managers for the period January 1983 through December 1990. The results suggest that pension fund managers are on average better stock pickers than market timers.

4. Empirical application

Monthly returns for all Greek mutual funds (balanced and growth type) are examined. To be included, each fund must have existed throughout the 60-month period from January 1993 through December 1997. The final sample consists of 19 mutual funds the assets of which account for 70% of the total assets of the relative categories(6). The return data include dividends as well as capital gains and losses. The official General Index of the Athens Stock Exchange measures the market portfolio. It should be noted that since the official General index does not include dividends, a new index, constructed by us and named Total Performance Index (TPI), is employed that incorporates dividends.

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5 According to Coggin – Fabozzi – Rahman (1993) it is necessary to correct for heteroscedasticity.

6 The relevant data were drawn from «KERDOS» database.

The risk free of return series uses three-month treasury bill rates, appropriately adjusted(7).

In what follows, econometric results pertaining to the model of Treynor - Mazuy are presented and assessed. The results presented in Tables (1) and (2) are obtained form the estimation of the Treynor - Mazuy model employing the Newey - West method. The Athens General Index (Table 1) and the Total Performance Index including dividends (Table 2) approximate the benchmark portfolio. All the beta coefficients are statistically significant, irrespective of the approximations used with respect to the market portfolio. According to empirical results set forth in Table (1), fifteen fund managers had positive selectivity coefficient whereas in four cases the coefficient was negative. Out of the fifteen positive coefficients four are significant at 5%, whereas none of the negative coefficients is significant. As far as the market timing coefficient is concerned, it has been found to be positive in the case of five fund managers (one is statistically significant) whereas it was negative for the rest fourteen (of which four are statistically significant). The use of Total Performance Index has altered the results.

According to table 2, the number of mutual funds with positive selectivity coefficient is drastically reduced a mere five such cases were found in all, of which only one being statistically significant. On the other hand, there are fourteen negative coefficients two of which are found to be statistically significant. Seven mutual funds have rated positive as far as market timing is concerned (one was statistically significant) whereas twelve mutual funds rated negative (five were found to be statistically significant).

These results are consistent with those found by Treynor and Mazuy (1966), Chang and Lewellen (1984), Henriksson (1984), Chua and Woodward (1986), Connor and Korajczyk (1988),Grinblatt and Titman (1988), Sinclair (1990), and Coggin , Fabozzi and Rahman (1993), for USA, Canada and U.K. funds.

5. Conclusions

This paper investigates the performance of nineteen Greek mutual fund managers in terms of «market timing» and «selectivity», for the period January 1993 to December 1997. These issues are analyzed within the framework suggested by Treynor and Mazuy (1966). Additionally the problem of heteroscedasticity is taken into account by using the method of Newey – West (1987). The empirical findings do not reveal any ability of the fund managers to time the market correctly or select undervalued securities, irrespectively of how the returns of the market index are calculated. These conclusions are consistent with those reached by Treynor and Mazuy (1966) ,Chang and Lewellen (1984), Henriksson (1984), Chua and Woodward (1986), Connor and Korajczyk (1988), Grinblatt and Titman (1988), Sinclair (1990) ,and Coggin – Fabozzi – Rahman (1993) among others , for USA, Canada and U.K. funds. It is interesting to note that using the Total Performance Index reduces the ability of managers for selectivity. The existence of five out of nineteen mutual funds with negative statis-

[7] The database used is that of Datastream on line.

tical significant coefficient of market timing is a phenomenon attributable to the lack of experience of their managers within the short period of the life of mutual funds in Greece. 8Recent literature on M/F performance (9) has inquired into the qualitative characteristics of M/F managers such as age, education, experience, etc. This line of research holds some promise in explaining the results presented in this paper.

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8 Philippas, 1999

9 *Chevalier and Ellison (1999).*

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Figures

Figure 1: Fund with constant volatility

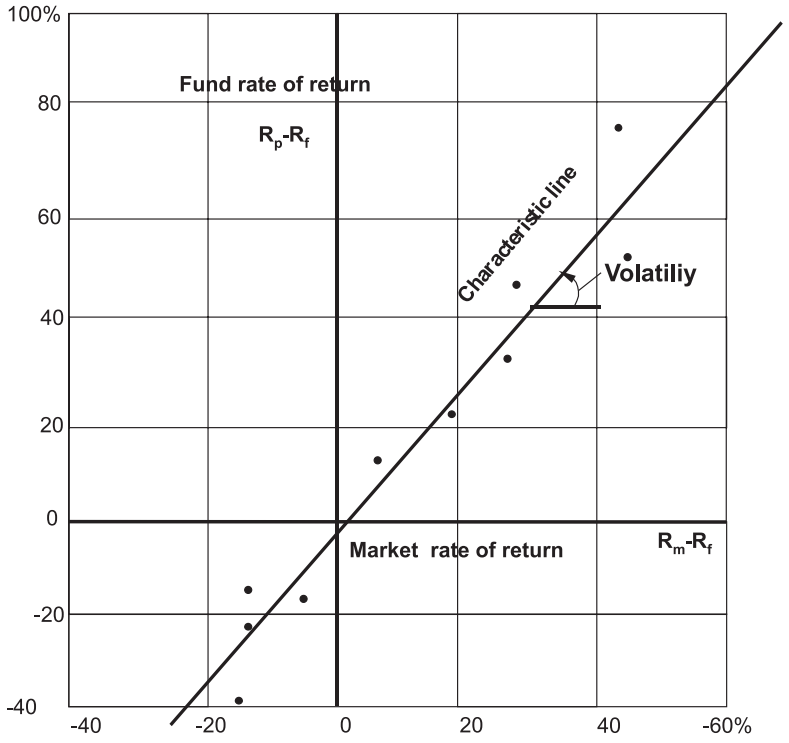


Figure 2: Fund that has consistently outguessed the market

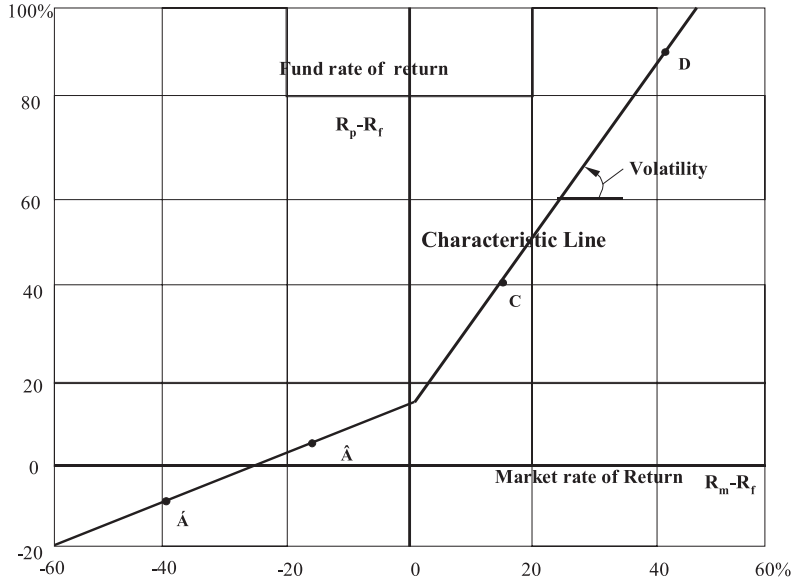


Figure 3: Fund that has outguessed the market with better-than-average success

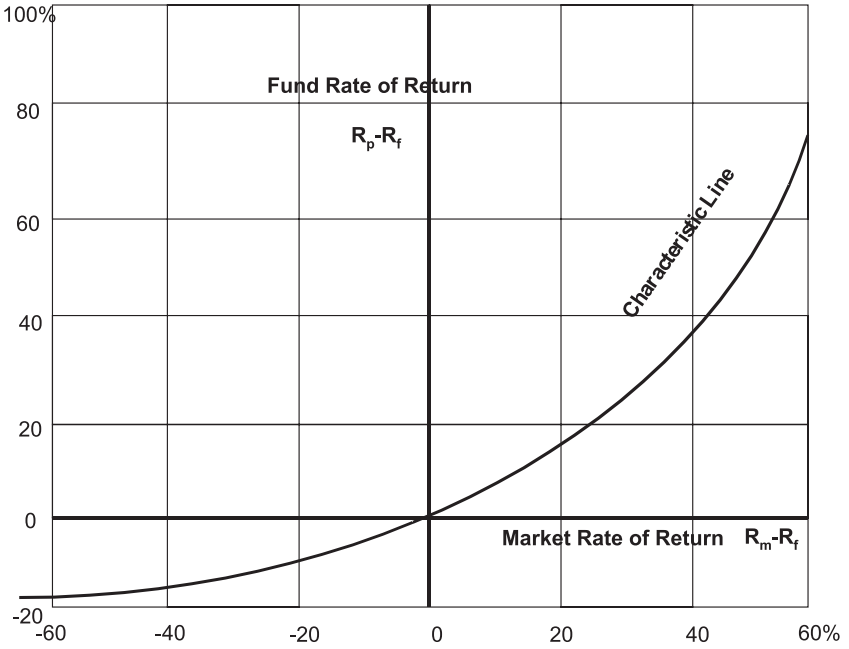
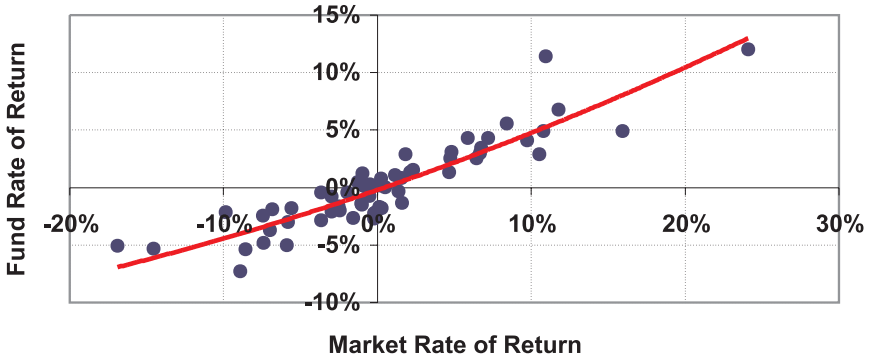


Figure 4: The Characteristic Line of the only fund that has statistically significant positive market timing coefficient



Tables

Table 1: *Summary Results from the Treynor – Mazuy model for the period 1993 – 1997 with correction of heteroscedasticity according to the Newey – West method:* $R_{pt} = a_p + b_p R_{mt} + c_p R_{mt}^{\ 2} + u_{pt}$

Parameter	Positive	Negative	Statistically Significant *		Statistically Insignificant	
			Positive	Negative	Positive	Negative
α_p	15	4	4	-	10	5
b_p	19	-	19	-	-	-
c_p	5	14	1	4	4	10

where:
α_p: Selectivity Parameter, b_p: Beta, c_p: Market Timing measure, R_{mt}: Performance of the official General Index of the Athens Stock Exchange *at 5% level.

Table 2: *Summary results from Treynor – Mazuy model for the period 1993 – 1997 with correction of heteroscedasticity according to the Newey – West method:* $R_{pt} = a_p + b_p R_{mt} + c_p R_{mt}^{\ 2} + u_{pt}$

Parameter	Positive	Negative	Statistically Significant *		Statistically Insignificant	
			Positive	Negative	Positive	Negative
α_p	5	14	1	2	4	12
b_p	19	-	19	-	-	-
c_p	7	12	1	5	6	7

where:
α_p: Selectivity Parameter, b_p: Beta, c_p: Market Timing measure, R_{mt}: Total Performance Index of the Athens Stock Exchange.