Market Timing in Investment Companies and Mutual Funds, Evidence from Iran

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Abstract: This study attempted to examine the variation of the asset allocation and security selectivity as known market timing for funds, which are accepted in the Tehran Stock Exchange. We use parameters of Treynor and Mazuy model and its adjustment such as Ferruz *et al*, about management abilities. Regression analysis is used as similar to previous studies for testing research hypotheses. Results of this research showed that fund management doesn't obtain the excess return for stockholders and there is a negative relation between asset allocation and selectivity in the funds. Moreover, the paper identified investment companies and funds present a favorable picture of performance for future potential investment but couldn't obtain added value to investors.

INTRODUCTION

It is well known that Fund managers always try to detect optimized investing units and to obtain the excess return for stockholder in the capital market, this duty with altering portfolio weights of different fund strategies and selecting the best of them is applicable. Therefore Treynor and Mazoy [3] and Fama [4] analyzed two sources of the value added of portfolio management, asset allocation and selectivity. They found that a large part of the performance of Mutual fund is attributable to allocate and select units. It is continued until the first half of the 1980s saw a resurgence of interest in examining fund performance through decomposition into these two skills. It may be regarded as a management technique in picking assets or units in informing portfolio. Consequently, we try to evaluate these manager skills in two dimensions: fund and market level.

The remainder of this study is organized as follows. Section 2 discusses the Literature -including model and definitions and briefly reviews the standard models and introduces them. Section 4 describes the data and contains the empirical results. Specifically, performance evaluation based on T- M model is likely to be sensitive to the choice of superior funds. Section5 proceeds in elaborate funds with concluding and drawing attentions to a number of problems are clear in this research.

Research Model and This Extension: According to Sharpe [5], Jensen [6] and Admati *et al.* [7-8], a fund manager's turn has taken a dramatic against active management. Treynor and Mazuy [3] suggested that the extent of market timing in fund performances by adopting a nonlinear version of CAPM. Specifically, the arguments presented questions about the performance of managed funds along the lines of their ability to produce sufficient excess returns.

Treynor-Mazuy show market-timing with a regression line as follows:

$$R_{ft} = \alpha_p + \beta_p R_{me} + \gamma_t (R_{mt})^2 + \varepsilon_{pt}$$

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Whereβ : beta of portfolio in the capital market, R_{ft}, R_{mt} are the fund and marketexcess returns respectively, γ_t is asset allocation ability[1] plus selectivity [2]which have active management to contribute to the mutual funds' return.

Treynor and Mazuy [3] argued that $\gamma_t > 0$ indicates market-timing ability. When the market is up the return of mutual fund will be up by a disproportionate amount and when the market is down, this return will be down by a lesser amount. Admati *et al.* [8] show how it can be derived from a timer's optimal portfolio weight, assuming normal distributions and managers with functions. Managers of mutual funds with a superior timing aptitude should be able to predict broad market movements and accordingly adjust their portfolios. An up market is defined as one where market return exceeds the risk-free rate and a down market as that with a market return less than the risk free rate [10].

Previous Studies: Obviously, there are quite a few studies concerned with either market timing. This section presented and summarized previous studies about this measure in the levels of mutual funds. We focus mainly on the evidence prior to the advent of the fund database in the world. Another purpose of this section is to provide a link to common financial assumptions and concepts about market timing that have populated the latter section. First, we list past researches as followed by a gradual development of the theory based on these assumptions. A framework of timing measure incomplete preference is developed. A unifying approach is proposed by considering a classical performance evaluation.

In the following, we discuss more evidence about market timing evaluation in previous studies in several countries that including such as Australia, Canada, Denmark, Greece, Indonesia, Slavonia, Singapore, Switzerland, United Kingdom, Spanish and United State.

Early writings on fund performance can be traced to 1960s in Treynor and Mazoy who analyzed the manger abilities in the market timing. Some research also shows that Canadian and U.S. mutual funds not managed to "timing the market". Meanwhile, Kon [11] studies the timing performance of thirty seven mutual funds over the period 1960-1976. Kon's measure of timing performance

was equal to the sample covariance between the fund's beta and the market return and finds no evidence of significant timing performance. Henriksson [12], in the continued way of Treyner - mazoy and Kon, demonstrate that the timing performance of 116 open-end mutual funds over the period 1968-1980. Consistent with Kon (1983), he finds no evidence of market timing ability.

Cumby and Glen [14] in US based internationally diversified mutual funds, Connor and Korajczyk [14], Coggin, Fabozzi and Rahman [15] in US equity pension fund and Becker *et al*, [16] are found that the average timing measure was negative and poor. Even so, Jiang *et al.* [17], with examining US domestic equity funds have the positive timing ability. The findings of positive market ability by mutual funds had potentially important implications. According to Comer [13] the market timing ability of hybrid mutual funds is significant but poor. In recent years Rodriguez [18] measured the market timing ability of 27global asset allocation funds and obtains following result: fund managers have the poor market timing ability (as evidenced by a negative and statistically significant mean timing coefficient).

While there have been several recent studies on the ex-ante performance of Canadian funds, after Chua and Woodward [19], Athanassakos *et al*, [20] obtain evidence of 295 Canadian mutual funds during the period from 1985 to 1986 and concluded that managers of these funds didn't have abilities to predict market trends and also investor cannot decompose management abilities of market movements.

In Australia, the first, Sinclair [21] to evaluate market timing and stock selection, found that inversely with market timing in mutual funds would reduce the profitability of stock selection and examined the market timing of sixteen funds from January 1981 to December 1987. It is identified fifteen out of the sixteen funds was significantly negative indicating that the timing ability is perverse. In recent years Benson and Faff [22] and Gallagher [23] show that same results.

Cuthbertson, Nitzsche and Sullivan [24] in in United kingdom equity Unit Trusts and Open Ended Investment Companies over the period 1988 to 2002 showed that managers almost don't practice equity market Timing.

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[1] This skill is from the policy asset mix in order to benefit from a state of capital market disequilibrium with respect to the investment fundamentals underlying the policy mix (Brinson *et al*, 1991)[9]. Asset Allocation: [(Wai * Rpi)-(Wpi * Rpi)] where *Wpi = policy weight for asset class i; Wai: actual weight for asset class i; Rpi: market return for asset class i; Rai = actual return for asset class I.

[2] Security selection involves investment decisions concerning the securities within each asset-class-weight series for equity, bonds, treasury bonds, Sukuk papers, cash equivalents and "other financial instruments". It can be showed Security Selection [(Wpi * Rai)-(Wpi * Rpi)].

In the year of 2010 in Barbados, Moore [25] studies two potential sources of fund returns: stock selection ability and market timing between 2003 and 2009. The result of this study identified that the coefficient on the market portfolio was positive and confirmed that excess returns on mutual funds tend to be highly correlated with excess market returns.

In Greece, Soros [26], Philippas [27] and Thanou [10] examined "market timing" and "selectivity" manager abilities respectively thirty three, nineteen, seventeen Greek funds for the period (1995 to 1998), (1993 to 1997) and (1997 to2005). The empirical findings of these researches didn't reveal any general ability of the mutual fund managers to time the market correctly.

In Asian, Ariff and Johnson [28], in Singapore, Gupta [29] and Tripathy [30] in India and Fu,Liu and Cheng [31] in the Taiwan Stock Exchange and Murhadi [32] indicated that the fund managers, under the study period, have not been successful in reaping returns in excess the market rather they are timing the market in the wrong direction.

In Spanish Capital market, Ferruz and Sarto [33] with examination two hundred-twenty five investment funds agreed with the financial literature in favor of passive investment and the lack of timing. In this regard, Matallin [34] resented that there is a negative relation among timing abilities contrary to buy and hold's management strategy.

Research Methodology, Design and Data Analyses: This research can be classified as quasi experimental design in finance and accounting. The initial aim of this study is that successful financial business experiments as management of mutual fund in Market timing. Therefore, we use of the comparative advantages with an experimental approach to determine how, when and why important features of financial accounting settings influence behavior [35]. For data collection in this study, mutual funds and investment companies have been taken from March 2004 to April 2009 and twenty seven of them accompanied with investment companies are selected. In total, we obtain 19,980 year-data observation of different companies. Data collection and calculation do as follows:

The returns of mutual funds are computed based on the Net Asset Values with considering portfolio returns and the market index. To determine market timing, we use of monthly data on financial reports, firm sites and stock exchange database as well as interactive portfolio manager skills. The monthly average asset allocations for each mutual fund across each asset class within the portfolio are used, where we can decompose in surplus return into security selection and market timing components.

Moreover, our empirical results highlight the importance of reasonable steady state assumptions for selectivity and allocation definition. Due to these findings, this study gives guidance for analysts and portfolio management alike.

Experimental Results: The results of T-student tests show that the estimated median coefficient is low and significant at the 5% level. Further poor market ability is evident when the distribution of the timing coefficients is closely examined while 25 timing coefficients (or 92% of the sample) are positive. The positive coefficients are not significant. Only eight of the positive coefficients are statistically significant: timing coefficients that are significant at the 5% level as shown Table (1) Consistent with the majority of the research literature. In Table (2) shows that all the models present average positive gamma coefficients, which might lead us to believe that except few mutual funds, those managers display positive market timing ability but weak. The table below provides the distribution of the t-ratios of the gamma parameter. We can see that all the models have a positive than negative parameters, although the significance levels are low; hence there is weak evidence to support the existence of market timing ability on the part of the managers because there are only eight mutual funds and investment companies with important relationship between market timing coefficient and surplus return of mutual funds. Table (1) depicts that out of twenty seven mutual funds, investment managers of twenty five funds appear to be successful market timers but there are eight mutual funds with important relationship between market timing coefficient and return of funds (Table 2). The observed t-value for their gamma coefficients is found to be negative about 8 percent level (for example: Mines, Petroleum and insurance industries). In other mutual funds, the t-values are significant and positive.

Therefore, in terms of TM formulation, the majority of the mutual fund managers seem to be engaged or to be suitable in market timing activities. However, there are twenty mutual funds with the positive beta. Also among these mutual funds, only eleven mutual funds have the positive market timing coefficients. For more information, please see Table (3).

Table 1: Regression analysis of research Model-Market Timing(T-M)

Characteristic-based Performance				
Weighted Panel Data,	Horizon: 5 years,	Number of funds: 27,	Balanced observations:135	
Description	Coefficient	Residual error, %	T-statistic**	Significant Level*
α	-0.802763	0.387316	-2.072631	0.0406
β	2.341161	0.458109	5.110491	0.0000
γ	10.10873	1.366486	7.397607	0.0000
Regression-based Measures				
R-squared	0.533131	Mean Dep. variable		-0.505136
R-squared Adjusted	0.409807	Std. dev., %		10.39094
Std. dev., %	7.980342	Standard error, %		6750.701
F-Statistic	4.323011	Durbin-Watson statistic		2.131887
F-significant level***	0.000000			

*, ** indicates statistical significance at the 5 percent levels of testing.

The average *t*-statistic for each performance measure is the average of the 27 fund *t*-statistics. Each fund's *t*-statistic is its performance measure divided by the standard error for the fund.

Note: The analysis of the market timing model is provided in Table 1. While these models are able to evaluate whether the fund industry, on average, can anticipate positive swings in the market, they do not provide a comparison of the market timing capabilities of individual mutual funds. However, the table shows that, there are relationship between β, γ and excess return of funds. Data extract of financial reports and Fund Report to stockholder. The data consist of how constructing the fund portfolio such as the number of investment units, Weights of units in funds and markets-equal weighted at the beginning of months 1, 12-Each month from March 2004 through April 2009. After obtained these data, allocation and selectivity to market timing are calculated. Twenty seven stock funds are analyzed whose performance is tracked for five years. The funds are selected without replacement from all Tehran Stock Exchange (TSE) with non missing return data, for each time series of funds' portfolios, 135 observations of the 5-year horizon are done. Portfolio returns are equal-weighted at the beginning of month 1 and every 12 months thereafter. Returns are inclusive of dividends and price changes (with considering adjustment in fund Capital); the average t-statistic for each performance measure is the average of the funds' t-statistics. Each fund's t-statistic is its performance measure divided by the standard error for the fund.

Table 2: the data of TM model in each fund and statistical analyses

		Beta and Gammaparameter	α	t-value	Sig.,%	R Square, %		Beta and Gamma parameter	α	t-value	Sig., %	RSquare,%
Atieh Damavand	β	.038	0.39	.285	.803	.975	Rena	-.039	0.24	-.083	.941	.773
	γ	.967		7.268	.018			.906		1.916	.195	
Etebari melli	β	.722	-0.07	.479	.679	.775	Iran Sakhtemaan	.060	-0.23	.226	.842	.924
	γ	.161		.107	.925			.919		3.453	.075	
Alborz	β	1.201	0.14	2.097	.171	.705	Saypa	.280	0.16	.445	.700	.711
	γ	.651		1.138	.373			1.050		1.668	.237	
Melli bank	β	-.370	-0.18	-2.023	.180	.940	Sepah	.897	0.00	3.139	.088	.838
	γ	1.023		5.594	.030			.125		.439	.704	
BooAli	β	.333	-0.25	.991	.426	.776	Sadid Sanati group	.142	-0.54	.735	.539	.926
	γ	.785		2.334	.145			.960		4.973	.038	
Bahman	β	.666	0.09	1.858	.204	.744	Shahed	-.111	0.26	-.233	.837	.562
	γ	.597		1.665	.238			.763		1.602	.250	
Parstosheh	β	.234	0.19	.492	.672	.779	Pension Fund	.046	0.02	.096	.933	.582
	γ	1.035		2.174	.162			.747		1.554	.260	
Petroshimi	β	.967	-0.13	4.106	.055	.907	Bimeh industry	-1.301	-0.17	-1.667	.237	.730
	γ	-.039		-.164	.885			-.552		-.708	.552	
Tosseh-e-Azarbayjan	β	.870	0.11	4.294	.050	.960	Naft industry	2.871	-0.08	3.678	.067	.872
	γ	.146		.720	.546			2.785		3.568	.070	
Tosseh-e-Sanaati Iran	β	.004	0.19	.051	.964	.993	Sanaat and Madan	-.168	-0.05	-6.248	.025	.999
	γ	.999		13.321	.006			1.056		39.204	.001	
Tosseh maeden va felezat	β	-.083	0.22	-2.361	.142	.999	Ghadir	-.228	-0.09	-1.894	.199	.971
	γ	1.055		29.896	.001			.987		8.205	.015	
Tosseh-e-melli	β	.154	0.05	.220	.847	.030	Behshar Sanayeh Group	.694	0.37	1.176	.361	.463
	γ	.094		.135	.905			.636		1.078	.394	
Tokafolad	β	.026	0.15	.080	.944	.939	Meli iran	.076	-0.08	.943	.445	.987
	γ	.991		3.014	.095			.983		12.247	.007	
Niro	β	.151	-0.05	1.032	.410	.984						
	γ	.027	.869		5.950	.027						

Note: The table shows that the distribution of the t-ratios of the gamma parameter for all of funds in research. We can see that all the models have a higher number of positive parameters, although the significance levels are low; hence there is no real evidence to support the existence of market timing ability on the part of the managers. In this table is presented the coefficients on the higher-order terms inserted into the basic T-M. A significant coefficient implies specification of fund management in the original model definition. It is readily observable that the significance of terms presented in this table suggests a weak possibility market timing management skills.

Table 3: a summary of information obtained of in TM model

Funds	Funds With positive relation between γ and T-M model	Funds With positive relation between β and T-M model	Funds With αp>0	Funds With βp>0	Funds With αp>0 and βp>0	Funds With αp>0 and γ >0	Funds With αp>0 and γ >0 and βp>0
27	8	1	4	1	1	3	0

Note: Table (3), shows a summary of information obtained of in TM model with considering the beta, market timing coefficient and surplus return of funds. In this table you can observe, only eight funds have the positive market timing coefficients, also there are only three funds with the positive excess return and timing coefficients.

Table 4: Number of funds with Positive Beta, Market timing coefficient and Alfa's portfolio

Funds	Funds With αp>0	Funds With γ>0	Funds With βp>0	Funds With αp>0 and βp>0	Funds With αp>0 and γ >0	Funds With αp>0 and γ >0 and βp>0
27	13	25	10	11	13	11

Note:Table (4) shows a summary of data analyses on portfolio managers with Beta, Gama (Market timing coefficient) and Portfolio's Alfa. The selectivity coefficient (áp) estimated using the Official General Index is found to be positive for thirteen mutual funds (statistically significant for ten mutual funds) whereas it was positive but insignificant. Twenty five mutual funds exhibit positive signs for the market timing skills coefficient (γ>0), two of which is found to be statistically significant, whereas two funds exhibit negative coefficients whereas only eleven fund beta were positive.

Table 5: Treynor attribution analyses in funds

Funds	Mean Treynor*	Pearson Sig.,%	Coefficient, %	Funds	Mean Treynor*	Sig.,%	Pearson Coefficient,%
Atieih Damavand	41.68	0.6808	-0.2534	Rena	-18.92	0.0291	-0.9156
Etebari melli	3.56	0.4687	-0.4310	Iran Construction	3.36	0.8029	-0.1555
Alborz	-1.83	0.4568	0.4414	Saiypa	9.38	0.0177	0.9395
Melli bank	0.61	0.1062	0.7972	Sepah	-0.91	0.1462	0.7478
BooAli	-7.58	0.4127	0.4805	Sadid Sanaati Group	24.65	0.2019	-0.6850
Bahman	-1.16	0.7189	0.2226	Shahed	-11.22	0.4944	0.4088
Parstosheh	-2.83	0.3559	0.5322	Keshvari bazneshasteghi (pension Fund)	1.01	0.0002	0.9970
Petroshimi	-22/15	0.5984	-0.3210	Bimeh industry (insurance Fund)	-7.44	0.7740	0.1784
Toseh-e-Azarbayjan	0.19	0.2890	0.5958	Naft Industry (oil Fund)	-6.29	0.6456	0.2821
Tosseh-e-Sanaati Iran	2.80	0.0498	0.8787	Sanaat va Maedan	-57.52	0.1565	0.7357
Toseh maeden and felezat	0.49	0.1192	0.7806	Ghadir	-2.02	0.1623	0.7290
Toseh-e-melli	-11.28	0.6262	0.2981	Behshahr Sanati Group	2.63	0.0341	0.9059
Tokafolad	-1.65	0.4722	0.4280	Melli Iran	2.13	0.5225	0.3848
Niro	-1.57	0.0072	-0.9669				

* Market Treynor measure: 0.052 for 5 years
**To determine Fund's beta, the return of fund was calculated for 48 months and more. Because the validity of this data is important in result presented.
Note: in this table is exhibited: there are only ten funds with mean Treynor better than market. Therefore, it is obvious that performance of investment companies and funds are almost better than market and can forecast fund performance at the current economic condition will be suitable.

Table 6: Treynor Ratios statistical Analysis

Descriptions Characteristic-based Treynor Measures

Research Variable	Number	Mean of Funds	Market	t-value	D.F	Risk Level	Means Difference *
Treynor Ratios	27	0.042-	0.052	-.24	27	0.59	0.56

*The different of Mean fund Treynor with Market Treynor

Table 7: Treynor measure ranking in each year

Year	Mean Ranking	Explanations	
2005	2.59	Number of Fund in each year	27
2006	3.04	k 2 statistic	18.19
2007	2.89	Freedom	4
2008	2.41	Statistical Significant. 001	
2009	4.07		

As discussed, another statistical test of this research is to evaluate mean of mutual funds performance and investment companies with Treynor ratio. The aim of this evaluation is review mutual funds' performance in the capital market to explain the beta of portfolio, if the asset's Treynor ratio is greater than the market's Treynor, then the asset has outperformed on a risk-adjusted basis. With considering mean Treynor in eight years, it is observed that only ten portfolio performances were better than of market and ten mutual funds had beta greater than zero $\beta_p >$.

With regard to the distribution of data was not normal; therefore, we couldn't use parametric test to compare multi dependent mean. In another word, range of changing in observed data was so wide and they had been remote. It is a cause to use of nonparametric test. We also use the Freidman test for comparing the relationship mutual fund and market Treynor.

The results indicate that existence of difference between the ranking mean in variables are not rejected at 95% confidence level. The reason was to explain with T-value statistic as shown in Table (6).

In order to recognize the market and mutual fund Performance trends, change of mean of Treynor measure in each year (2005- 2009) was determined. The results are shown in Table (7). It is obviously that means of Treynor in 2009 and 2006 is higher than means of Treynor in 2005 and 2007. Therefore, the trend of the capital market index in these years is peaky and relative to the market index, it is riskier than of past years. This subject is important in the performance evaluation and should be considered in mutual fund performance evaluation.

CONCLUSION

As a simple example that illustrates the illogical nature of this claim, consider we analyzed twenty four samples of mutual funds with applying the market-timing model - Treynor and Mazuy (T-M). We have reached the following overall conclusion about their performance:

With regard to performance assessment in mutual funds, it is observed that thier managers can conduct investment units adequately with the information available, but they have brought no added value to their investors by the possession an appropriate use of private information. As for timing coefficients, we observed that, in general, positive non-significant coefficients are obtained; hence there is no evidence to support the existence of positive market timing ability on the fund managers. Therefore, mutual fund performance is not determined by the managers' market timing ability to choose best securities.

Compare the Results with Previous Studies: This finding is also in line with the results obtained of recent studies in United kingdom as Comer [13], Cuthbertson *et al.* [24] and Rodriguez [18], also in Australia such as Gallagher [23], Barbados as Moore [25], in Greece as Thanou [10], Asian such as Tripathy [30], Fu, Liu and Cheng [31] and Murhadi [32] and in Spain as Matallin [34] which finds scarcely any empirical evidence of significant timing, but

in this research case, management skills are similarly moderate as mutual fund management strategy and to be conservative to select and hold units in the present economic condition.

Naturally, we shouldn't forget the current financial crisis in the world which is continued in six years later and its effect on data in this research, because management for preventing of this financial risk, choice passive investment strategies. So the results indicated here do not support the hypothesis that mutual funds managers are able to move along with apparent in the trends of the capital market correctly. There is only one scheme where the market timing ability of the mutual fund managers was to some extent. These results are also similar with earlier studies have obtained in the developed and professional capital markets. Therefore, we can tell: if our assessment of measures in portfolio undertaken to date is accurate, then it becomes clear that a solution to our condition woes must be focused on market timing.

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