



Studying the Adjustment Amount of Ranking the Performance of Mutual Funds Based on Omega Ratio and Real Return

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ABSTRACT

One of the main functionalities of capital market is to enhance liquidity in the market. Mutual funds are modern financial institutions which are designed with the aim of absorbing funds from investors and devote them to buy a variety of securities in order to reduce investment risks, exploit the economies of scale and finally make a reasonable return for investors. Regarding effective role of these funds, the aim of this investigation is to compare the performance assessment of mutual funds based on Omega Ratio and the real return. A sample of 35 mutual funds for the period of 2011 to 2016, in order to make a fair comparison between the omega ratio and real performance. The hypotheses were analyzed through correlation test and by using the two non-parametric statistics of 'Spearman's correlation coefficient' and 'Kendall's rank correlation coefficient'. The analysis results have shown that in Iranian capital market, a joint venture between fund rankings based on omega ratio and real returns.

Keywords:

Mutual Funds, Performance, Ranking Models, Omega Ratio



1. Introduction

Financial institutions are the fundamental components of capital market and their active and powerful presence can reveal that there exists a strong and efficient financial system. Mutual funds exist among these institutions which were made to implement a professional management for bonds' exchanges and to decrease investing risk and finally to create an incentive to develop capital market. Mutual funds can prepare an efficient opportunity based on probable portfolios for every investor who is planning to make various investments considering the risks related with them.

Accordingly various kinds of mutual funds have been designed and set up to gather/attract money from nonprofessional investors and devote it to efficient portfolios in order to decrease the risks and make a prevalent profit. Investment mutual fund is a kind of Investment Company with variable capital structure (also called open-end mutual fund) was founded in Boston state in US, in 1924. (Gremillion & Khand, 2005). These funds were established with the game of running special management for buying and selling securities, decreasing the investors' risks and at last as encouragement for development of capital markets. Having these funds established, attractiveness of these sorts of investments resulted in their progress, so that by the end of 2008, the number of funds in US reached over 8000 funds.

Regarding the existing complexities in managerial structure and also entering and exiting of investors in these funds, it has not been possible to found them until a few years ago. Obviously establishing these funds as a kind of an active financial institution in Iranian capital market required some appropriate statutory infrastructures and regulating practical and supervisory regulations related to its own kind. The basic qualifications of establishing mutual funds were provided after codification of act of securities market in November 2005 by the Islamic Consultative Assembly. Having related regulations enacted in Securities and Exchange Organizations(SEO) board of directors, up to the march of 2007, along with designing structure of activity in these funds, the first permission of activity was issued by SEO in order to provide a chance for mutual funds to attend actively as a new financial institution in Iran's' capital market which could also be an entrance gate for introducing other available institutions and investments from

global capital markets to Iran's capital market. Thus the main purpose of this research is to review the ranking of mutual funds in order to have a better understanding of their performances.

2. Literature Review

Open end mutual funds as one of the most successful financial intermediaries, in aspects of volume of transactions, the amount of capital owned, attracting public investors and professional management of portfolios had been accessed significant progress in advanced financial markets for the last 3 decades. This progress has been phenomenal, particularly in U.S and U.K as the founders and chief innovators of establishing these kinds of funds, as up to 2005, they have provided a suitable place for the investment of 50 percent of American families .Up to the end of 2006, totally there were 59,763 mutual funds in all over the world that united states, Europe and Oceania each, with 53, 35 and 11 percent respectively had the largest proportion in ownership of this funds and that from total amount of assets in these funds more than 47 percent were devoted to marketable stocks and the rest was invested to other securities in money markets or fiscal markets. Just in U.S, mutual funds with the capital of more than 14 trillion dollars had 22 percent of whole public companies stocks, 5.1 percent of whole treasury bonds and treasury notes were issued by the government and 18 percent of whole municipal and local bonds. After U.S, France with more than 1.1 trillion dollars investment in mutual funds has the second largest mutual funds industry. Since the first official permission of mutual funds was issued at March of 2007 by Securities and Exchange Organization (SEO) in Iran and with regard to ever-increasing growth of number and value of said mutual funds in the globe, it is necessary, as well as continuous examining and observing the performance of mutual funds and their effect on Iranian capital market, to deliver facilities of elevating quantitative and qualitative condition of these funds and also accelerating launching of other new financial institutions and instruments perfectly. The research paper published by Harry Markowitz in 1952 considered as the source of the novel portfolio theory. The biggest help by MPT is to establish a risk and return framework for decision making. Markowitz presented a quantitative approach in choosing assets and portfolio management to the investors by

describing investing risk in a quantitative form. The presuppositions of this theory led to lack of satisfaction following modern portfolio theory which is as follows:

- 1) The distribution of all bonds and assets is normal.
- 2) Asset return variance is an appropriate index to measure risk.

Fortunately the recent improvements in financial theories and portfolios along with increasing the capability of carrying out complex calculations have overcome the problems and thus the generalization and development of risk paradigm and return have been posed as post modern theory. Therefore, post modern portfolio theory is a certain state of modern portfolio theory (Rom & Kathleen, 1993).

There are two advances compared to modern portfolio theory in post modern portfolio theory, as:

- 1) The utilization of undesirable risk instead of criterion deviation as a measurement tool.
- 2) Post modern portfolio theory entails abnormal return distributions, too.

In summary the modern portfolio theory can be calculated based on return and risk resulted in criterion deviation while post modern portfolio theory investigates about the behavior of the investor and the optimal portfolio selection criterion based on the relationship between return and undesirable risk (Estrada, 2000). In post modern portfolio theory, the target return rate (t) referred to "minimum acceptable return" or (MAR) which represents the minimum return rate to hinder the loss resulting from the fulfilling of some important financial aims which should be reached. Since minimum acceptable return is used objectively in calculating efficient boundaries in post modern portfolio theory, there is a unique efficient boundary for each minimum acceptable return. Therefore, the efficient boundary of post modern portfolio theory (because of the variable amount of target return rate) compared to the efficient boundary of modern portfolio theory, has a more adjustment capability with the limitations sought by the investors such as the different degrees of risk avoidance of the investors.

Haug et al (2011) in Texas State, at university of Austin brought about a research called "Mutual Funds

performance and risk transition" researchers concluded that risk level in Mutual Funds has had a considerable modification during the ages. Study focused on this subject whether risk alteration level influences funds' performance or not. By using the measurement based on retention of risk transition, they inferred that mutual funds that their risk levels varied during the time and continuously altered from one level to another had much more desperate performance than those with constant risks. These conclusions about mutual funds that continuously altered their risks imply that because of agency conflicts, they came in contact with less ability to conduct their portfolio so they functioned opportunistically; while mutual funds with adept and adroit managers are capable of exploiting opportunities resulting from investment change.

Moghaddasian (2010) accomplished a research about the performance of investing funds in Tehran Stock Exchange regarding the adjusted return based on their risk by using the criteria of Sharp, Triner, Jensen, and Sortino. To do this research the data related to 19 investing funds active between 22/3/2008 and 11/5/2010 were collected and then analyzed. He has used ANOVA analysis method in this research and found out that there is not a significant difference between market return and the return of investing funds after doing the adjustments related to the risk. Also there is not a significant difference between the performance of mutual investing funds regarding the criteria of Sharp, Triner, and Sortino. But Jensen's criterion has not rejected the existence of a significant difference between the performances of different investing funds.

Sortino and Lee (1994) used undesirable risk to assess the performance of investing funds. They used monthly data related to 10 years for 2 investing funds and 6 stock market indexes to show the usefulness of utilizing undesirable risk in assessing the performance of investing funds.

Sortino et al (1999) ranked a sample consists of 18 funds by the help of Sharp ratio and the ratio of desirable performance to design a framework to assess the ratio of desirable potential in order to assess the performance of pension funds. The results have shown that undesirable risk works better than criterion deviation in assessing the performance and appropriating the assets.

Sortino et al (2001) proved in another investigation that an investor who identifies his aim in the form of a

minimum acceptable return should not use Sharp's criterion as a criterion of his performance assessment and desirable potential ratio has a priority in performance assessment. Also they utilized two ratios for assessing the performance of 810 funds in Euro Next markets- the set of stock markets in Belgium, France, and Netherland- and concluded that there is a significant relationship between the two rankings and this relationship is due to the normality of distribution return in Euro Next markets.

Plantinga and Grout (2001) investigated about mutual investing funds over the years 1993 and 1999 by using 5 performance assessment proxies. They concluded that Sharp ratio criterion is more appropriate for those investors who avoid risk less and desirable potential ratio criterion is appropriate for those investors who have an average or a high level of risk avoidance.

Ming and Siok (2010) examined the performance of 311 mutual funds in Malaysia by using 4 factor criteria of Kerhart, 1 factor criteria and 3 factor criteria of Fama-French for the years between 1990 and 2005. They assessed the performance of mutual funds in Asian economy during the time intervals of 1, 3, 5, 10, and 16 years considering different types of funds. In this research, they found out that Kerhart's 4 factor criteria, from among the model mentioned above, supplied better information for assessing funds' performances.

Line (2002) mentioned that positive skewness results in divergence of rankings created by Sortino's ratio and desirable performance compared to the rankings created by Sharp and also each one choose a different portfolio compared to the others.

Bigloa et al (2004) examined all risk measurement tools and noted that Sharp ratio was not as accurate as other tools.

Filip and Pochea (2015) examined Romanian mutual funds flows-performance relationship. Studies on risk-adjusted performance have shown that most of these entities don't add value and are unable to generate superior risk-adjusted returns. This paper using panel data methodology tried to assess the relationship between past performance, market size and equity fund flows. They found that past performance had a meaningful positive influence on the current capital flow of Romanian equity funds.

Pourzamani and Rouhani (2016) examined the relation between financial reporting quality and speed

with composite measures of portfolio performance. They used a sample of the active mutual funds in the Tehran Stock Exchange (TSE) for the period of December 2009 to December 2011. In this study, according to a ranking of the data, through hypothesis testing and correlation using nonparametric statistics, "Kendall's rank correlation coefficient" and "w Kendall statistic." The analysis results reveal that in the Iranian capital market, a joint venture between fund rankings based on Sharpe ratio and the ratio of good potential, Treynor ratio, Fama-French three-factor model, Jensen for real returns.

Pourzamani et al (2012) analyzed the mutual fund performance based on the Sharpe ratio, Upside Potential ratio and real performance. They studied the ability of the downside risk and the upside potential ratio (UPR) in assessing the skewed return distributions. They used a sample of the active mutual funds in the Tehran Stock Exchange (TSE) for the period of 2010 To 2011. In order to make a fair comparison between the Sharpe ratio and UPR, they assumed that MAR in UPR plays the essential role of the risk-free rate in Sharpe ratio. They constructed a ranking based on both criteria, and they found a very high correlation between the Sharpe ratio and the UPR. This had seen to be the result of normal in the return distributions. Therefore, they preferred to use the UPR as an alternative to the Sharpe ratio, as it gave a more adequate evaluation of the forecasting skills.

Chen et al (2016) considered how plan sponsors/providers choose mutual funds for 401(k) plans. They found plan sponsors are probably to choose actively managed growth funds using a hand-collected data set of 401(k) investment options. Also, in their sample more than 50% of the mutual funds of 401(k) plans were chosen from the top 10 fund families in terms of total net assets. On average, plan sponsors choose funds that outperform the funds with the same investment objective and that have low expense ratios. The performance of mutual funds in 401(k) plans only persists in a short horizon. Their analysis shows that the menus of 401(k) investment options do not reflect a effect, indicating that investment options in 401(k) plans do not supply useful information about the future performance of mutual funds for investors in selecting mutual funds

Parida and Tho (2016) analyzed the influence of more portfolio disclosures on performance of mutual funds. Since 2004, U.S. mutual funds have to disclose

their portfolio holdings on a quarterly basis from semi-annual previously, based on SEC requirements. This alternation in regulation provided a natural setting to study the influence of frequency of disclosure on performance of mutual funds. Prior to this policy change, they found that successful semi-annual funds outperform successful quarterly funds by 17-20 basis points a month. After 2004, their performance goes down and they no longer outperform successful quarterly funds. This reduction in performance was higher for semi-annual funds holding illiquid assets. These results supported their hypothesis that the performance of funds with more frequent disclosure, particularly of those holding illiquid assets, suffers more from front running activities. They also found complementary evidence that the profitability of a hypothetical front running strategy based on public disclosures increases with the frequency of portfolio disclosures.

3. Methodology

The present study is correlation type and it is applied regarding the aim. To gather data required for the investigation we have used library studies. In this method, first library resources such as books, journals, dissertations, articles, and internet were used for preliminary studies and the literature review was organized and then the theoretical framework of the research was designed. Then, databases of Tehran Stock Exchange were used. The website of this organization was used in order to collect data to test our hypotheses. This part was carried out in archive format.

The hypotheses were analyzed through correlation tests. On the whole the strength of interdependence of the two variables can be described as correlation. In the present research we have utilized the two non-parametric statistics of Spearman correlation coefficient and Kendall correlation coefficient to test the correlation between the variables due to existence of ranking data.

A sample of 35 mutual funds for the period of 2011 to 2016, in order to make a fair comparison between the Omega ratio and real performance. Regarding the small amount of the population, the total statistical population was selected as our sample. The Main hypothesis investigated in this research was as follows:

"There is a meaningful difference between the performance of investing funds based on Omega ratio and the performance of mutual funds based on real return."

4. Results

Research Variables

Net Asset Value (NAV) of fund daily

Net daily value of each investing unit in a fund is the total market value of assets' basket and bonds minus the debts of fund divided by the number of units belonging to the investors. Investing units are priced daily based on NAV and usually their price is not determined based on market supply and demand. An investing unit is supplied in NAV price (plus any sale cost) and is purchased based on NAV (minus the costs related).

Real return of investing in mutual fund

In fact the earnings of fund investors such as investing in a share which can lead to two types of returns including receivable earnings in cash and earnings in the form of capital resulting from increases in the price of each share are gained from this channel, too. Since mutual funds should distribute all their earnings among the holders of investing units (total earnings residual after the subtraction of expenses), the earnings resulting from the sold investments on changes of assets' price and current inventories are also taken into consideration in calculating the return.

The monthly return of each fund has been calculated as follows:

$$R_t = \frac{NAV_t - NAV_{t-1}}{NAV_{t-1}} \times 100$$

Where,

R_t : fund return during t time period

NAV_t : net daily asset value of fund at the end of the time period

NAV_{t-1} : net daily asset value of fund at the start of the time period

Risk

Risk is the probability of difference in the real return rate and the expected return rate of the investor. Several techniques have been utilized during long years in order to make the theory of portfolio applied, expanded, and developed and we can refer to

undesirable risk tools as an example. Quasi-variance and lower level partial gestalt are among the most common measurement tools of undesirable risk and the former is in a certain state while the latter one has an overall state.

Omega ratio

The monthly return of each fund based on Omega ratio has been calculated as follows:

$$\text{Omega Ratio } \Omega = \frac{\frac{1}{n} \times \sum_{t=1}^{n} \max(r_t - r_T, 0)}{\frac{1}{n} \times \sum_{t=1}^{n} \max(r_T - r_t, 0)} = \frac{\text{Upside Potential}}{\text{Downside Potential}}$$

Where,

RI: portfolio return

RT: minimum expected return rate

n: the number of periods

Research Findings

Regarding the results of Spearman's rank correlation coefficient. in table 1, since the probability value (P-Value) of t statistic of this test is less than 0.05 (0.034), H₀ hypothesis is rejected and the existence of correlation between the two ranking is approved with %95 assurance. Spearman's correlation coefficient between Ulcer ratio and real return equals 0.862.

Table 1- results of Spearman's rank correlation coefficient

			R	Omega
Spearman's rho	R	Correlation Coefficient	1.000	.862**
		Sig. (2-tailed)	.	.034
	Omega	Correlation Coefficient	.862	1.000
		Sig. (2-tailed)	.034	.
**. Correlation is significant at the 0.05 level (2-tailed).				

In Table 2 the results of Kendall's rank correlation coefficient also approve this issue in a way that Kendall's correlation coefficient between the two ranking equals 0.745 and since the probability value (P-Value) of t statistic of this test is less than 0.05 (0.021), it will be meaningful in an assurance level of %95.

Table 2- results Kendall's rank correlation coefficient

			R	Omega
Kendall's tau_b	R	Correlation Coefficient	1.000	.745**
		Sig. (2-tailed)	.	.021
	Omega	Correlation Coefficient	.745	1.000
		Sig. (2-tailed)	.021	.
**. Correlation is significant at the 0.05 level (2-tailed).				

Thus, with %95 assurance it can be said that in capital market in Iran there is a meaningful correlation between rankings of mutual funds based on Omega ratio and real return in a way that in assessing the performances of these funds based on the two criteria above there is not any meaningful difference observed and both criteria present a similar ranking from among investing alternatives.

5. Discussion and Conclusion

Having necessary information and getting acquainted with the nature of this industry for decision making about investments, is one of the most important points in every investing process. Attention to behind philosophy of creating a structure with the name of Securities Exchange, for facilitating and providing opportunities for common investors and applicants. This right could not be taken away from those people under the pretext of lacking specialty in this field. So the best way for these investors who don't have adequate expertise or even don't have enough time for analyzing and examining the possible investment opportunities in the capital market is making investments through adept managements of this profession. Investment mutual funds were founded with the aim of creating expert management for buying and selling securities, mitigating investors' risks and eventually encouraging and driving development of capital markets. Primary qualifications for launching mutual funds in Iran were provided after Securities Market Act was codified in November 2005 by parliament (Islamic Consultative Assembly) of Iran. With regard to importance of this object, the aim of this research was to review the ranking of mutual funds in order to have a better understanding of their performances. Ranking is a useful tool to maker performances transparent in all areas and the present

research has been trying to reach a verified ranking for mutual funds which not only guides the investors to select the most efficient investing fund but also makes the funds' management aware of the strong points and weak points.

In accordance to the study's results, there is significant correlation in Iran capital market between mutual funds ranking based on Omega ratio and real return ratio. In a way all two ratios have been the same and all of them have shown an almost similar ranking average from among the investing alternatives. Thus, based on the findings, there is not a meaningful difference between ranking mutual funds based on two ratios of Omega ratio and real return. In accordance with the findings by Sorinto and others (1994) (1999), the Omega ratio have high flexibility for ranking and also is provided asymmetric return distributions in Iran.

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References

- 1) Biglova, A., Ortobelli, S., Rachev, S., Stroyanov, S. (2004). Different approaches to risk estimation in portfolio theory, *The Journal of Portfolio Management*, 31, 103-112.
- 2) Chen, H., Lai, C., Wu, Sh. (2016). Mutual fund selection and performance persistence in 401(k) Plans, *The North American Journal of Economics and Finance*, 35, 78 – 100.
- 3) Estrada, J. (2000). *The Cost of Equity in Emerging Markets: A Downside Risk Approach*, IESE Business School of (Barcelona, Spain.)
- 4) Filip, A., Pochea, M. (2015). Romanian mutual funds flows-performance relationship, *Procedia Economics and Finance*, 32 , 1377 – 1383.
- 5) Gremillion, L.; Khand, B. (2005). *Mutual Fund Industry*, available on the internet at www.bostonifi.com.
- 6) Haung, J.; Sialm, C.; Zhang, H. (2011). Risk shifting and mutual fund performance, *The Review of Financial Studies*, 24 (8), 2575-2616.
- 7) Lien, D. (2002). A note on the relationship between some risk-adjusted performance measures, *Journal of Future Markets*, 22 (5), 483-495.
- 8) Ming, M., siok, H. (2010). Evaluating mutual fund performance in an emerging Asian economy: The Malaysian experience ,*journal of Asian Economics*, available on the internet at www.ScienceDirect.com.
- 9) Moghaddasian, I. (2010). *Studying the performances of mutual funds in Iran*. MA Dissertation in Financial Management, Iran.
- 10) Parida, S., Tho, T. (2016). The impact of more frequent portfolio disclosures on performance of mutual funds, *Journal of Banking & Finance*, In Press, Accepted Manuscript, Available online 5.
- 11) Plantinga, A., Sebastiaan, D. G. (2001). Risk-Adjusted Performance Measures and Implied Risk-Attitudes,
- 12) Pourzamani, z., Jahanshad, A., Ghanadi, N. (2012). Analysis of the mutual fund performance based on the Sharpe ratio, Upside Potential ratio and real performance, *Financial Engineering and Portfolio Management*, 3(12), 131-146.
- 13) Pourzamani, Z., Rouhani, A. (2016). Examine the relation between financial reporting quality and speed with composite measures of portfolio performance. *The Financial Accounting and Auditing Research*, 8(29), 149-163.
- 14) Rom, B. M., Kathleen F. W. (1993). Post-Modern Portfolio Theory Comes of Age, *Journal of Investing*, 3(3), 349-364.
- 15) Sortino, F., Lee, N. (1994). Performance measurement in a downside risk frame work, *Journal of Investing*, 3(3), 59-64.
- 16) Sortino, F., Plantiga, A., Vandermeer, R. (1999). The Dutch triangle: A Framework to measure upside potential relative to downside risk, *Journal of Portfolio Management*, 26 (1), 50-58.
- 17) Sortino, F., Plantiga, A. Vandermeer, R. (2001). The impact of downside risk on risk-adjusted performance of mutual funds in Euro next markets, working paper