

Shedding Light on Mutual Funds and Performance Evaluative Criteria in Iran

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Abstract

This paper aims to analyze how investors evaluate mutual fund performance in Iran, based on both quantitative and qualitative criteria. For that purpose, the modified Delphi method and the analytical hierarchy (AHP) are combined, together with a theoretical framework aimed at analyzing both tangible and intangible key criteria of performance evaluation. The findings of the research underline that the most important criteria of mutual fund performance for investors are the mutual fund style, following up with the market investment environment. Furthermore, based on the findings of the research the article gives recommendations for both academicians and practitioners in order to improve the process of evaluation of mutual funds in a Western Asian context.

Key words

Mutual funds, Evaluating performance, Analytical hierarchy process, Iran

1. Introduction

In every country's economy, evolution is the power that leads it to reforms. Economic development as a positive change has always been the issue of debates within recent centuries, and on the top of this development, we have seen privatization as a challenging point which affects a variety of structures such as monetary markets.

Another requisite for economic development is accumulation of physical capital that requires optimal allocation of capital resources in the generating cycle of economic activities for which the strategies of money market can be applied. Capital market –one of the above mentioned institutions- overtakes a large part of this mission and the apex of which is stock exchange. This very main base has been

intensely reinforced and its role as a generating power of economic development has been established

The stated market requires perpetual innovations, attractions, and security to maintain its dynamic role. To do this, new monetary instrument have appeared as solutions. One of such instruments is mutual fund that supplies and directs perplex liquidity and small savings toward commercial, services and production units in order to pave the way for public participation in economic development of the country. The created effectiveness and multiplication can be the key to productivity and further developed economy of the country. In this case is investigated about Iran capital market and on its top the stock exchange market have not yet achieved adequate power and dynamics to lead the capital to production in spite of its 4-decade life time. Inflation, liquidity, lack of productivity in production, and unemployment are among the factors that highlight our country's need for capital market growth and elevation. On the other hand, our market is not sufficiently strong and stable due to many reasons including price fluctuation, lack of broad information, non responsiveness of admitted companies in the exchange market toward presented information, non professional treatment by investors and their disorganized and aimless practicing, shallow market, lack of correct definition for duties of correspondents, unplanned supplies and soon. The stated reasons reveal the feeling of insecurity in investors and their hesitation to enter this area. However, it is necessary for the government to take anti-inflation policy, collect and leads perplex money to production and productive investments, reduce inflation and unemployment. In develop countries economy, a variety of intermediaries play such roles. In financial literature, some of these intermediaries are referred to as 'mutual fund' under the category of financial instruments. It is stated in I.R. Iran Stock Exchange Market Law (article 1, clause 20): "Mutual fund is a financial institution in stock exchange market where its owners are engaged in the fund profit and loss in proportion with their investment". Therefore, such funds are considered as financial intermediary to collect public finance and place it in a diver's combination of securities. People have always felt anxious to participate directly in money markets. How can they be promoted to do so? One of the answers to this question is mutual fund: People deposit their finance in investment companies which possess fund and then the companies take over the management of such a fund, so that people are not concerned any more to attend at stock market, check the boards or icons, or follow up the news through internet. Rather, they save their time and money as much as possible.

Another significant point for an investor is how to select a company with the highest output from the fund in order to gain more profit. Growth spurt of mutual funds and their diversity have caused investors to be confused in such a world of information and sources, and unable to make an appropriate choice. So, evaluating the funds yield is a complicated process requiring several inputs.

Besides risk and out put two main criteria for assessment other factors should not be disregarded including investment market environment, macroeconomy factors, treatment of the fund manager, investment company background and etc. despite all investigations done so far, such factors have never been tested altogether and ranked in view of their effectiveness. For instance, the effect of the said managers' educational degree on the yield has been studied separately rather than entirely with other criteria. As a result, all effective aspects and factors should be involved in assessment in order to identify and decrease the weaknesses, and improve strengths.

2. Literature Review

This study tries to investigate key criteria using for evaluating mutual fund performance, particularly in relation to develop and assess the objectives of mutual fund performance. Prior studies about fund performance measurement already discussed important factors such as mutual fund style, manager intelligence, stock selection ability and macroeconomic factors. Bauer et al. (2005) found no evidence of a statistically significant difference in returns between ethical and conventional mutual fund returns after controlling for common factors such as size, book-to-market and momentum. Second, ethical mutual funds display very different investment styles to conventional funds. For instance, ethical funds are typically less exposed to market return volatility than conventional funds. Bodson et al. (2011) found evidence of a concave quadratic relationship between mutual-fund performance and size, which implies the existence of an optimal medium size in terms of performance. Xuemin Yan (2008) showed that liquidity is an important reason why fund size erodes performance.

Allen et al. (2016) examined if a floating net asset value (NAV) increases the transparency of risk for investors. Using closed-income fixed income funds. They found little evidence that a floating NAV helps investors better understand the value and risk of a fund when a fund's assets trade infrequently. This potentially informs the debate regarding the adoption of a floating NAV in the money market industry. Results suggests that it is unlikely that the benefits of floating NAV will outweigh the costs. Castaneda and Devoto (2016) solved the model analytically, and estimated its parameters using NAV data from Chilean pension funds. Their results suggests that portfolio managers' decisions from our sample are heavily motivated by the relative performance concerns they face. In particular the point estimates suggest that manages is very reluctant to take almost any bet against the asset allocation of their peers. Gottesman and Morey (2006) found that mean GMAT score of fund manager during their MBA program is positively and related to fund performance. Managers with MBAs from schools ranked in the top 30 of the Business Week rankings of MBA programs display superior

performance to both managers without MBA degrees and those holding MBAs from unranked programs. This study also found that other education variables, for example whether the manager held a CFA designation or either a non-MBA masters-level graduate degree or PhD, are generally not related to mutual fund performance. H Tiao-yan, Z Jie (2010) their results shows that: Tenure, age, certifications of CFA FRM CPA, fund managers origin from fund managers and fund managers assistants significantly positively related to the fund performance of profitability. Li, H. et al. (2011) disclosed that managers from higher-SAT (Scholastic Aptitude Test) undergraduate institutions tend to have higher raw and risk-adjusted returns, more inflows, and take fewer risks. T Hui and Y Chang (2013) they have shown fund manager's Securities business time and with MBA degree have significant positive impacts on fund performance; on risk-adjusted performance; While, differing from our perception, fund manager's overseas experience is significantly negatively related to fund performance. In addition, securities market has significant impact on fund risk-adjusted performance. Bennett et al. (2016) shown stronger evidence of skill amongst boutique firms relative to more institutionalized managers, and they investigated skill across manager types. Alpha for growth-oriented managers is found to stem from selection skill, while that for value managers appears more related to characteristic exposure. Financial statement information comprises a summary of firm performance during a certain period, and can provide effective data which cannot merely diagnose enterprise physique and earning capacity, and help in final decision making. Peltomäki (2013) his study showed that the diversity of derivatives strategy can be related to increased probability of suffering large losses and weaker performance. Romacho and Cortez (2006) found that managers do not display selectivity and timing abilities, and there is even evidence of negative timing. Furthermore, they noted a distance effect on stock selection performance, since fund managers that invest locally appear to outperform those who invest in foreign markets. However, this effect reverts with respect to the market timing skills of fund managers, indicating that international fund managers are more focused on market timing strategies. Carlos Matallin-Saez et. al. (2015) shown changes in beta, which drives timing, has four components; however, just two of these, mean covariance shift and covariance's dispersion map, serve to explain the asymmetric behavior across stocks, also they found that a high percentage of the negative market timing ability identified for mutual funds in the literature could be explained by this bias.

Xin Li and Shawky (2014) found that good market timers are also likely to possess good stock selection skills. Luoma et al. (2006) developed a method of estimating equity risk premium. The earn back period (EBP) has a clear theoretical interpretation and can be used to compare stocks with different earnings growth rates, while the P/E ratio is not useful in situations involving stocks with significantly different growth rates. Since growth is taken into account, differences in EBP are due to

result from risk. Using this property, the risk premium of a stock is obtained from its current P/E ratio and from earnings growth rate. For investors, this offers a practical means of stock evaluation. Cremers (2008) Found a significant dispersion along both dimensions of active management. Active management, as measured by Active Share, significantly predicts fund performance relative to the benchmark. Funds with the highest Active Share outperform their benchmarks both before and after expenses, while funds with the lowest Active Share underperform after expenses. Pastor et al. (2015) found that the active management industry has become more skilled over time. This upward trend in skill coincides with industry growth, which precludes the skill improvement from boosting fund performance. The external overall economic environment can also affect on financial product as mutual fund performance. (Gil-Lafuente and J.M. Merigó, 2006)

Thus, it is necessary to consider not only the internal firm operating situation but also the external overall economic environment tendency. Azeez and Yonezawa (2006) found that four different risk factors significantly influence expected returns during each of the sample periods including money supply, inflation, exchange rate, and industrial production. Although, the number of priced factors and the signs of risk premiums are stable across each period, the absolute risk premiums increase during the bubble and post-bubble periods compared to the pre-bubble period. Furthermore, the variances of macroeconomic factors remain unchanged during the bubble period. The higher risk premiums during the bubble period should be due to result from the increased risk of a bubble induced crash. Wongbangpo and Sharma (2002) recommend that potential investors should pay attention to information emerging from the macroeconomic environment. In addition, the monetary authorities should also benefit from the empirical findings of this study, especially those that implement an inflation-targeting based monetary policy, considering the close tights of the stock market with the macroeconomic environment. Abugri (2006) examined whether dynamics in key macroeconomic indicators such as exchange rates, interest rates, industrial production and money supply in four Latin American countries significantly explain market returns. The MSCI world index and the USA three-month T-bill yield are also included as proxies of the effects of global variables. Using a six-variable vector autoregressive model, this investigation finds that the global factors consistently and significantly explain returns for all markets. Meanwhile, the country variables are found exert variable significance and magnitudes of market impact. Alam (2009) found that interest rate has significant negative relationship with share price and for six countries it is found that changes of interest rate has significant negative relationship with changes of share price. Bodnaruk and Simonov (2015) provided direct evidence on the effect of financial expertise on investment outcomes by analyzing private portfolios of mutual fund managers. They found no evidence that financial experts make better investment decisions than peers, managers do much better in stocks for

which they have an information advantage over other investors. More experienced managers seem to be aware of the limitations to their investment skills as they increase their holdings of mutual fund-related stocks following poor performance of their portfolios. Our results suggest that there are limits to the value added by financial expertise. Fang and Wang (2015) studied establishes a multitier framework to evaluate how fund manager characteristics systematically affect mutual fund performance. In particular, having a degree of Master of Business Administration or a Chartered Financial Analyst qualification is significantly associated with a fund manager's better stock-picking ability, higher excess returns and better comprehensive performance. Abbasi et.al. (2012) show that fund manager's Age, MBA, Gender, and Tenure significantly influence fund performance. Mirmohammad et. al. (2012) found that the network of the service process with its interaction between the actors; in this process customers are only dealing with registrar to enter the fund, leave the fund and receive their investment units profit and do not interact with other fund pillar. Daghani et. al (2011) disclosed that 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.

3. Methodology

AHP is a technique of multi-criteria and complex decision making (MCDM). It is presented by saati (1980). Karen M. Hogan, et al. (2009) described the Analytical Hierarchy Process (AHP), which allows investors to integrate multiple decision criteria, and apply the model to the sector allocation problem faced by managers of endowment portfolios. Rajesh (2013) studied about prioritizing the factors for coordinated supply chain by analytic hierarchy process they studied 23 factors affecting coordination in a supply chain are considered. These factors are grouped under five strategic factors such as top management commitment, mutual understanding, relationship and decision-making, flow of information and organizational factors. It is observed that the global weight age of top management commitment is highest among strategic factors and agreed vision and goal of supply chain members among sub factors. Dwan-Fang Sheu et.al. (2010) they showed applies FAHP as the research method to evaluate the investment decision of ETF and set-up the hierarchy structure which includes investment performance indicator, technical analysis indicator, macro-economic indicator and other risk indicators Based on the questionnaire results, besides learning to judge different evaluation indicators, it will be beneficial by making risk management and gaining related financial knowledge to help the investors on choosing ETFs in the future. Fino et. al. (2010) applies

AHP as a multiple criteria decision making model for production layout. This study constructs indicators based on the evaluations of how to select the mutual fund performance evaluation. The modified Delphi method is then adopted to summarize the expert opinions in order to construct an evaluation model. A. Based on an element of the upper hierarchy is an evaluating standard, going on the pair-wise comparison to each elements. If has the n elements must make $n(n-1)/2$ elements of the pair-wise comparison. Let C_1, C_2, \dots, C_n denote the set of elements, while a_{ij} represents a quantified judgment on a pair of elements C_i, C_j . The relative importance of two elements is rated using a scale with the values 1, 3, 5, 7, and 9, where 1 refers to “equally important”, 3 denotes “slightly more important”, 5 equals “strongly more important”, 7 represents “demonstrably more important” and 9 denotes “absolutely more important”. This yields an $n \times n$ matrix A as follows:

Where $a_{ij} = 1/a_{ji}$ and $a_{ij} = 1/a_{ij}$, $i, j=1,2, \dots, n$. In matrix A, the problem becomes one of assigning to the n elements C_1, C_2, \dots, C_n a set of numerical weights W_1, W_2, \dots, W_n that reflects the recorded judgments. If A is a consistency matrix, the relations between weights W_i and judgments a_{ij} are simply given by $W_i/W_j = a_{ij}$ (for) and matrix A as:

$$A = \begin{matrix} C_1 \\ C_2 \\ \vdots \\ C_n \end{matrix} \begin{bmatrix} 1 & a_{12} & \dots & a_{1n} \\ & \ddots & & \vdots \\ & & 1 & \\ & 1/a_{in} & & 1 \end{bmatrix} \quad (1)$$

Matrix A multiply the elements weight vector (x) equal to λx , that is $(A - \lambda I) \cdot x = 0$, the λ is the eigenvalue (n) of eigenvector.

Owing to a_{ij} be makers' subjective judgment give comparison and appraisal, with the truly value have the some level degree difference, so that $Ax = \lambda x$ cannot to be set up. Saaty (1990) suggested that the largest eigenvalue λ_{max} be:

$$\lambda_{max} = \sum_{j=1}^n a_{ij} \frac{W_j}{W_i} \quad (2)$$

If A is a consistency matrix, eigenvector X can be calculated by $(A - \lambda_{max} I) X = 0$ (3)

Consistency test. The essential idea of the AHP is that a matrix A of rank n is only consistent if it has one positive eigenvalue $n - \lambda_{max}$ while all other eigenvalues are zero. Further, Saaty developed

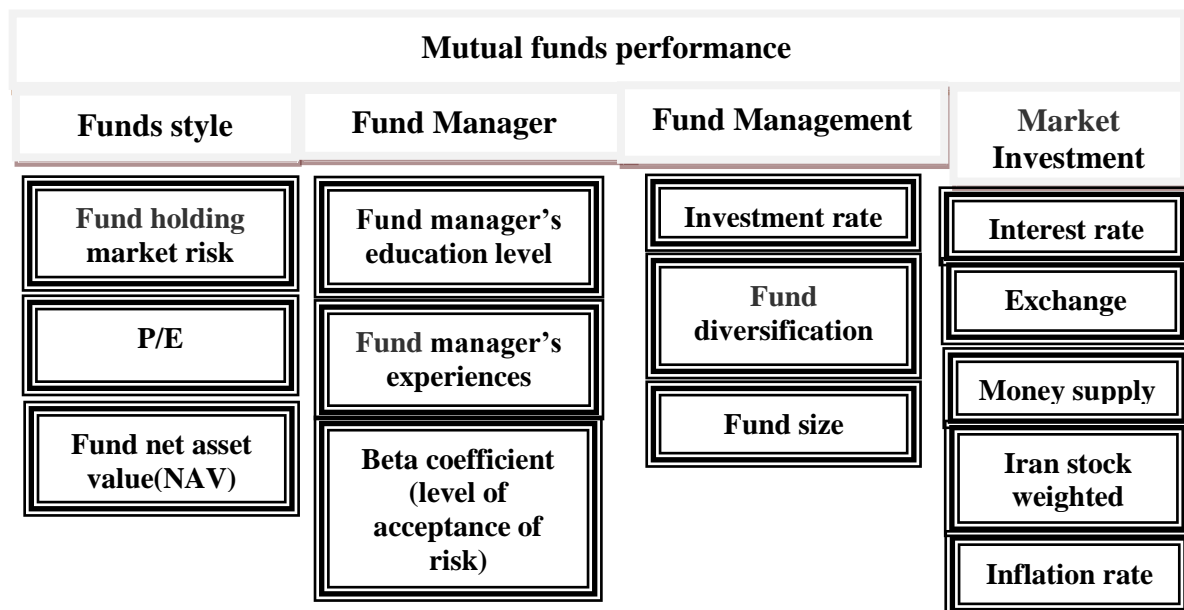
the consistency index (CI) to measure the deviation from a consistent matrix: $CI = \frac{\lambda_{max} - n}{n - 1}$ (4)

The consistency ratio (CR) is introduced to aid the decision on revising the matrix or not. It is defined as the ratio of the CI to the so-called random index (RI) which is a CI of randomly generated matrices:

$$CR = \frac{CI}{RI} \quad (5) \quad (CR \leq 0.1)$$

Applying AHP to select the mutual fund performance evaluation

Here, the modified Delphi method is applied to define the evaluation criteria and sub-criteria. Murry and Hammons (1995) suggested that the modified Delphi method must summarize expert opinions on a range from 10 to 30. Fund manager and researchers are then issued a preliminary questionnaire in which four evaluation criteria (C) and 14 evaluation sub-criteria (CS) are incorporated, and are defined in the defining of operation type out every criterion.



1. The style of fund C₁
Market risk premium of mutual funds (CS₁), P/E of mutual funds (CS₂), NAV of mutual funds (CS₃)
2. Fund Manager Personality (C₂)
Fund manager's education level (CS₄), Fund manager's experiences (CS₅), Fund manager's Level of risk acceptance (CS₆)
3. Fund Management Companies (C₃)
Fund Investment rate (manager's tenure) (CS₇), Fund diversification (CS₈), Fund size (CS₉)
4. Market Investment Environment (C₄)
Interest rate (CS₁₀), Exchange rate (CS₁₁), Money supply (CS₁₂), Iran stock weighted index (CS₁₃), Inflation (CS₁₄)

Based on the modified Delphi method, a general consensus among experts can be reached to establish a hierarchical structure. Pair-wise comparisons are based on the scale of relative importance that assumes values between 1 and 9. Relative importance scale is presented. The decision maker is supposed to specify their judgments of the relative importance of each contribution of criteria towards achieving the overall goal. A questionnaire was devised to find out an expert opinion in the form of a pair-wise comparison. In this study, purposive sampling is applied to sample ten respondents from various investment trust company fund manager and researchers. The weights of level 2 criteria and level 3 sub-criteria are then determined for a sample group of ten individuals matching the above characteristics with each respondent making a pair-wise comparison of the decision elements and assigning them relative scores. The relative scores provided by ten experts are aggregated using the geometric mean method. Each decision maker in domestic fund company makes a pair-wise comparison of the mutual fund performance evaluation under 14 subjective sub-criteria and, then, assigns those relative scores. We use the equations (1) and (2) to calculate the aggregate pair-wise comparison matrix.

4. Results

This chapter explains how to get the data and review them 2012-2014 to date 21 Cash in investment securities prove that two of them have been established. Among the 21 cases, 12 cases have been investigated to date are annuals. During this period, these funds have experienced boom and bust cycles. Following Shallow prosperity, recession peaked at the end of last year. Financial markets, however, lack of foreign investment in Iran and other countries with a high affinity complex was less affected by the crisis. Questionnaire developed by the authors confirm the validity and retest reliability has also. According to the simple model described in Chapter III of the AHP was brought in so doing: The criteria and sub-criteria were defined by the Delphi method, the hierarchical structure of the comments have been formed. Then each pair of paired comparisons based on equations (1) and (2) rating was awarded. After scoring eigenvector and value of each pair by pair comparison of equations (3) and (4) were identified. The inconsistency rate of each pair of equations (5) and (6) were tested and the weight of each of the elements were calculated and the results in the tables are see the 1,2,3,4. The computational steps are performed by the software Microsoft office Excel.

Table I:

Criterion	Weight of cri.	sub-cri.	Weight of sub-cri.
C₁	0.50 (49.8)	SC₁	0.61
		SC₂	0.13
		SC₃	0.19
C₂	0.14	SC₄	0.17
		SC₅	0.20
		SC₆	0.47
C₃	0.08	SC₇	0.09
		SC₈	0.59
		SC₉	0.26
C₄	0.27	SC₁₀	0.20
		SC₁₁	0.23
		SC₁₂	0.36
		SC₁₃	0.04
		SC₁₄	0.07

aggregate pair wise comparison matrix for criteria and sub-criteria

It is shown the most weight belong to criterion Mutual Fund Style and then in second rank, Market Investment Environment.

Rate of importance	Sub cri
1	SC₁
2	SC₈
3	SC₆
4	SC₁₂
5	SC₉
6	SC₁₁
7	SC₁₀, SC₅

Table II: Rate of importance of sub-criteria

It is observed NAV and size have top level in this rate.

	Main criteria	Fund style	Manager personality	Investment company	Environmental company
λ_{max}		3.0183	3.064	3.0458	5.2592
CI		.00097	.0246	.0237	.0647
IR		1.7167	4	4.14	5.8083
CR		.0056	.061	.0057	.0111

Table III. eigenvector and consistency ratio

In this table it is observed that consistency ratio is acceptable. (CR ≤ .1)

5. Discussion

Based on Paretho's Law (20-80), those criteria whose accumulative weight percentage is almost 80% of total weight are sufficient for assessment. So, studying criteria and sub criteria can lead us to better results. Below, the test results of criteria and sub criteria are given:

- 1) Priority of 'fund's features' sub criterion is with risk premium 61% and 19% NAV respectively.
- 2) Priority of 'managerial features' sub criteria and 20% risk facing.
- 3) 'Investment company' sub criterion priority is 59% diversification and 26% size.
- 4) 'Investment environment' sub criterion priority is 36% liquidity, 20% interest rate, 23% exchange rate.
- 5) Priority of sub criteria is fund's type (49%), investment environment (27%).

Considering such fairly small percentages, the following sub criteria can be omitted from assessment for the purpose of simplicity: P/E from 'fund's type', Experience from 'managerial features', Price from 'investment companies', Cash output index and Tehran stock market price from 'investment environment', Inflation rate from 'investment environment'. So, it can be said that the remaining 9 sub criteria will do the assessment as well as before.

Final results of hypothesis analysis:

- 1-** *Fund's feature affects its yield*
 - 1-1- Fund's risk premium affects its yield
 - 1-2- Fund's NAV affects its yield
 - 1-3- Fund's P/E doesn't affects its yield
- 2-** *The features of fund's managers weakly affects its yield*
 - 2-1- Education of fund's manager affects its yield
 - 2-2- Experience of fund's manager affects its yield.
 - 2-3- Fund's manager doesn't affect its yield
- 3-** *Features of investment company weakly affect its yield*
 - 3-1- Fund's diversification affect its yield
 - 3-2- Fund's size affect its yield
 - 3-3- Fund's investment amount doesn't affect its yield
- 4-** *Investment environment of the fund affect its yield*
 - 4-1- Fund's liquidity affects its yield
 - 4-2- Fund's interest rate affects its yield
 - 4-3- Fund's exchange rate affects its yield
 - 4-4- Fund's inflation rate affects its yield
 - 4-5- Cash output and Tehran stock market price don't affects its yield

6. Conclusion

Yield assessment of mutual funds is one of the main activities in financial field. To solve this problem, both qualitative and quantitative criteria can be of great help. In the existing research, Delphi method was used to study the above stated 2 criteria and AHP model was used for planning an assessment method. The first criterions in each table are the most effective sub criteria in the columns of criteria. Among main criteria, the most effective one on the main objective is 'fund's features'. Based on the findings, the most important criteria in fund's yield are 'fund's features' followed by 'investment environment' the results show where the investor's focus shall be place in studying funds' yield. Therefore, when deciding on investment, the investors shall spend more time on collecting data about fund's features and type. On the other hand, investors, also take advantage of such results for the most effectiveness on their customers. Their represented products can vary significantly regarding their features. Such individuals shall try to collect the most information about funds features and investment environment. Moreover fund's features sub criteria such as risk premium can be a convincing point for productivity when investment companies introduce their products to investors. The interesting result of this research is that although 'experience' has always been the leading point in financial and accounting tasks, it is not very significant in funds due to recent appearance of this instrument in financial market. The existing research represents a framework for yield assessment of investment funds by AHP model to find key standards. The main advantage of this method is considering both tangible and intangible criteria. It should be mentioned that in general, the process depends on investor's personal judgment. Since most Iranian, investors lack professional knowledge of optimal investment, they can deposit their capital in such funds that are managed by professionals.

The longest time of activity among Iranian funds belongs to Karafarin mutual fund (with fixed income in stock exchange organization) which is 786 days. This short period restricted researchers to study the funds' influence. However, the existing research applied mutual funds with shares because there exists more of them. In a capital market which is shallow and small, funds are considered newly established instruments for which adequate information is not available. Investment companies are not willing to cooperate in giving data because of the previously mentioned reasons and their short term and unplanned perspectives as well. A majority of mutual funds managers lack financial knowledge and valid degrees in related areas. So, the limitations are as follows: Short life of funds, little knowledge about funds, Small and shallow nature of Iranian capital market, no cooperation from investment companies, unfamiliarity of managers with financial concepts, no

variety in the type of funds and not applying new financial instruments and researchers limitation in studying comprehensively.

The existing research deals with managers personal features. Since the nature of funds is helping real entities, their individual features can also be studied. Qualitative criteria can be studied accurately for example, sensitivity to and interest in investment because they have more impact on investment trends in Iranian capital market. Funds managers can invest in the funds where they work as member of the board of directors. The existing liquidity in the society can be focused by managers as an important item for interest in investment, because the main goal of funds is collecting perplex finance.

The present research studied the vertical link between sub criteria and criteria. Studying horizontal correlation between criteria is suggested; AHP model is suggested for prioritization of financial factors such as NAV, output and risk; diversification in funds and ranking the best diversification can be studied; risk premium as a quantitative factor, and manager's treatment and decisions in facing various risks can be studied in parallel way.

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