Relationship of Performance Evaluation Indices with Investment Efficiency of Investment Companies

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Abstract

At different levels of economic conditions, investments made in different forms, during recession, may be little investment and in economic prosperity much more investment. In the investment performance’s model, Investments should be able to justify investment opportunities, The error, lack of investment efficiency, The main objective of study is to find relationship between performance evaluation indicators of portfolios with investment efficiency in The 45 companies of investment of Tehran Stock Exchange, in the period of 2008 to 2015, To test the hypothesis used the three multiple regression model with panel data structure, In first model, relationship between Sharp index With investment efficiency, significant and negative, in the second model Trainer index is added to the model The result shows There is no significant relationship between investment efficiency and Trainer index, It is expected investors, to pay attention systematic and unsystematic risk. The third model measures the relationship between Jensen's alpha index and investment performance, this relationship is not significant.

Keyword: investment efficiency, Jensen's alpha index, Sharp index, Trainer index.
Introduction

If consider, economic development, as the set of operations of a country to improve living standards and increase national income, It appears that most important thing in this context is investment and Investment, form the core of economic development; investment, by restoring what costs in production, Can guarantee economic growth and development. on the other hand, Achieving long-term growth and sustainable economic, Requires the mobilization and optimum allocation of resources in the national economy and this without the help of financial markets, in particular the extensive and efficient capital market cannot be (Soleimani Amiri and Abed, 2013).

Question about assets and determining the amount of investment in each of them, known as the portfolio selection problem. This can be the form of a quantitative optimization problem to be examined in general, the analysis of stock prices and investing in financial assets, three are methods to evaluate the performance of the portfolio, which includes the basic method, technique or technical and modern portfolio theory (Fallahpuor and Tondnevis, 2014).

It is believed that, in developing countries and less developed capital market in the form of strong and strong form not efficient and According to research conducted in recent years; found that effective in the Tehran Stock Exchange itself is in poor shape, the main purpose of the stock exchange, optimal collection and allocation of financial resources. For this reason, for success in economic growth, activity and effective will find special importance and sensitivity of the Stock Exchange (Farid, Bordbar and Mansuori, 2009).

Investment in securities either directly or indirectly can be, in any case, investments in Securities, either individually (direct) or via financial intermediaries (indirect) is required to evaluate the performance of the portfolio. Many individual investors don’t have financial resources and expertise necessary to create appropriate portfolios, such as investment firm should them; therefore, it is important to Leave that investment firms; Investment companies are financial intermediaries’ that sells tock to the public and proceeds in a diverse portfolio of investment securities (Khataei and Ziyaeei Bigdeli, 2012).

In general, declare the National Association of Accountants of the United Kingdom, this sentence about of performance evaluation that "Anything that be assessment will improve". (Babajani and Setayesh, 2007); in this study, given the importance of evaluating the performance of the portfolio and the way to achieve an optimal investment necessity of investment efficiency, is examined the relationship between portfolio performance indices white investment performance.

Literature Review

Investment by companies in different fields has been considered always as one of the important ways to develop and prevent stagnation and backwardness. In the meantime, Resource constraints meant that in addition to the development of investment, increase the efficiency of investment is of great importance. In general, investment efficiency is means accepting projects with positive net present value, and purpose of inefficient investment in selected projects with negative net present value (investment, excessive) or deselect investment opportunities (investment less than).

On the other hand, anything that assessment will improve of the course, So evaluate the performance of the portfolio of investment requirements, Now the question is whether this assessment can improve their investments and higher the performance of their investment,
According to the principles of presented, It is assumed that the portfolio performance evaluation indicators can increase or decrease the amount of investment; Due to limitations in resources, necessity of a good investment with acceptable performance that have a minimum return equal to the cost of capital, the important thing is to develop the country.

Forughian Sadeghi (2010), in their study investigation the relationship between conservatism and efficiency of investment And showed that there are negative significant relationship between conservative and over-investment in capital assets And on the other hand results indicate a positive and significant relationship Between the investment performance and is conservative.

Puorzmami, Jahanshad and Ghanadi (2012) compared together Evaluate the performance of mutual funds based on the Sharpe ratio, the optimal potential and actual return sand came to the conclusion that in Iran's capital market, between of the ranking mutual funds based on the Sharpe ratio, the ratio of actual returns and optimal potential there is a significant correlation. Tehrani, Eslami Bidgoli, and Veiszade (2012) Research about performance evaluating of portfolio using criterion Sortino, optimal potential and Omega in the investment firms listed in the Tehran Stock Exchange And concluded that the hypothesis tests of The ranking provided based on Sharpe ratio linked with The ranking provided based on the Sortinoratio, potential optimal and omega And this relationship can be seen in their high correlation coefficient.

Ferruz Agudo and Sarto Marzal (2004), they did analyze the performance of investment funds in Spain, according to their Sharpe ratio. The Sharpe ratio is used as a base, and found that well performance measures and also suggest changes to the Sharpe Ratio And check whether this index, offers consistent evaluation or not; Finally, a way to measure performance by the Sharpe index suggests as measured profit.

Preciado and Recio (2010), Performance of the chosen pension funds with determined portfolios in Columbia evaluated And evaluate the performance of pension funds in the period between 2004 and 2008 were examined And two methods based on principal component to optimize the portfolio, in relation to the assessment of improved performance, in this period, Reviews which can be very important in assessing Performance, the first one suggested by Markowitz (1952) and the second by Reveiz and Leon (2008b).Selected Collection of funds covers as well as all the features, at first of exposure with an increased risk, and then we have observed that these features can lead to higher return.

Omisore, Yusuf and Christopher (2012), investigate Modern portfolio theory, this article is to review the modern theory of portfolio investment is provided as a tool for decision making of investment. The survey, has to review relations and the implementation of modern portfolio theory, it also shows that some of the main shortcomings of the theory, its influence, and despite the theoretical limit, is still widely accepted. Investors can manage their portfolio risk and return. With Postmodern theory, any individual think to maximize the efficient. Postmodern theory is appropriate, because each individual investor to predict a degree of risk associated with the minimum expected return for an asset.

Chung, Wynn and Yi (2013), have done Research in relation to risk, quality accounting and investment performance, the test to effect of risk-adjusted on the relationship between the quality of accounting and investment performance. Was used the data for the period 1998 to 2008 Canada. The research shows that cover companies with a higher premium, low quality accounting, when abnormally low (above) cover, this relationship is strong (weak).Pointed out that there is a condition for quality of accounting to achieve to investment performance, it is risk is identified.
The aim of this researches Study of Relationship of Performance Evaluation Indices with Investment Efficiency of Investment Companies; and hypotheses are formulated as follows to achieve this objective and based on theoretical and research background:

1. There is a significant relationship between Sharp index and Investment Efficiency.
2. There is a significant relationship between Trainer index and Investment Efficiency.
3. There is a significant relationship between Jensen's alpha index and Investment Efficiency.

Research methodology

In terms of aim this study is functional; because the results can lead to a better understanding of the relationship between variables and will be used for capital market participants. Since the objective of this study is to investigate the relationships between variables based on past data, retrospective study among the studies considered from the perspective of the nature and method can be descriptive-correlated.

The dependent variable is investment efficiency; in this study, is used a model based on changes in long-term investments for investment efficiency measurement.

Theoretical Foundations model, based on the fact that the company's growth opportunities must justify new investments (I). So, if the investments couldn’t explain growth opportunities, will show value error, Investment Inefficiency. In the model, the error \( \epsilon_i \) indicates the amount of investment (I) that is not explained by growth opportunities. These amounts could be positive or negative. Positive amounts error, over-investment and negative amounts, invest less than is called.

\[
I_{t+1} \text{Investment index is based on changes in long-term investments}
\]
\[
CFO_t \text{ Cash flow from operations}
\]
\[
L_{t-1} \text{ Long-term investments at the end of the previous financial year}
\]
\[
MTB_t \text{ Tobin's Q index}
\]
\[
SR_{t-1} \text{ Growth sales revenue at the end of the previous financial year}
\]
\[
op\text{ Operating profit divided by total assets}
\]
\[
TA\text{ Total assets}
\]

By placing real value on the estimated model, the error is calculated for each year-company by multiplying the negative a negative error amounts, achieved review criteria of Investment efficiency (Saghafi and Motamedi Fazel, 2011).

Portfolio performance evaluation indicators are independent variables; Portfolio performance evaluation indicators that were evaluated in this study are:

**Sharp index (SHA):** The index represents the excess of portfolio return, against any one unit of total risk. In this index, higher amount indicates better performance. The index is obtained from the following equation:

\[
SHA = \frac{TR_p - R_f}{\sigma_p}
\]
\( \bar{R}_p \) represents the average return on a portfolio, \( \bar{R}_f \) shows the average risk-free return over a period, and \( \sigma_p \) the standard deviation of the portfolio returns.

Trainer index (TRI): such as Sharp index, high rates of Trainer index indicates better performance; the index is derived from the following equation:

\[
\text{Equation 3)} \quad \bar{R}_f
\]

Jensen's alpha index (JEN): To get this index, is used the following formula:

\[
\text{Equation 4)} \quad \alpha = \bar{R}_p - \bar{R}_f - \beta_R \bar{R}_R
\]

\( R_p \) Return on a portfolio, \( R_m \) indicates share market return and \( R_f \) is risk-free return (Soleimani Amiri and Abed, 2013).

Control variables including the size and financial leverage; Company size, equivalent to the logarithm of the book value of the company assets (Kordestani and Majdi, 2007).

\[
\text{Equation 5)} \quad \text{SIZE}_{it} = \log(\text{ASSETBV}_{it})
\]

And financial leverage, the acquired the company's total debts divided by total assets of company (Saeidi, Forugh and Rasaeeyan, 2011).

\[
\text{Equation 6)} \quad \text{LEV} = \frac{\text{Total debt}}{\text{Total assets}}
\]

All investment firms that are listed in the Tehran Stock Exchange Market Watch and in the period of study (between 2007 to 2015) has been specified portfolio is statistical population and is studied Data 45 investment company for 7 years as panel data consists of 315 observed. For data collection, first used the library method and Literature have been collected Persian and Latin books and journals. Research data has been collected from company financial statements and the Tehran Stock Exchange databases and software. In cases where data needs to be calculated, this calculation is done by Excel software; finally, was used for estimation of descriptive statistics, analysis and statistical inference, software Eviews8.

In this study, to test each hypothesis is used of a multiple regression model by using panel. The three regression model is considered as follows:

\[
\text{Equation 7)} \quad \text{INE} = \beta_0 + \beta_1 \text{SHA} + \beta_2 \text{SIZ} + \beta_3 \text{LEV} + \varepsilon
\]

\[
\text{Equation 8)} \quad \text{INE} = \beta_0 + \beta_1 \text{TRI} + \beta_2 \text{SHA} + \beta_3 \text{SIZ} + \beta_4 \text{LEV} + \varepsilon
\]

\[
\text{Equation 9)} \quad \text{INE} = \beta_0 + \beta_1 \text{JEN} + \beta_2 \text{TRI} + \beta_3 \text{SHA} + \beta_4 \text{SIZ} + \beta_5 \text{LEV} + \varepsilon
\]

The above models, INE is investment efficiency, SIZ is size of the company, LEV is Financial Leverage, SHA is Sharp index, TRI is Trainer index, JEN is Jensen's alpha index and \( \varepsilon \) Show the amount of the model error.

Research findings

In this section, first for better understanding of the variables, is provided descriptive statistics. Since if the amount obtained for each of the indexes is higher portfolio performance is indicative of better performance, as shown in Table 1, amounts obtained for the index of Sharp
as greater as Trainer index and Jensen’s alpha index and The average calculated for Sharp index reported index is negative.

Table 1: Descriptive statistics of variables

<table>
<thead>
<tr>
<th>Variable name</th>
<th>Variable type</th>
<th>Standard deviation</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Average</th>
<th>Number (Year × Company)</th>
</tr>
</thead>
<tbody>
<tr>
<td>INE</td>
<td>Dependent</td>
<td>2.197</td>
<td>0.013</td>
<td>29.246</td>
<td>1.891</td>
<td>315</td>
</tr>
<tr>
<td>SHA</td>
<td>Independent</td>
<td>4.392</td>
<td>-50.470</td>
<td>0.470</td>
<td>-1.630</td>
<td>315</td>
</tr>
<tr>
<td>TRI</td>
<td>Independent</td>
<td>70.641</td>
<td>251.23</td>
<td>921.77</td>
<td>5.521</td>
<td>315</td>
</tr>
<tr>
<td>JEN</td>
<td>Control</td>
<td>7.048</td>
<td>-11.199</td>
<td>51.189</td>
<td>3.966</td>
<td>315</td>
</tr>
<tr>
<td>SIZ</td>
<td>Control</td>
<td>1.619</td>
<td>10.125</td>
<td>18.757</td>
<td>14.673</td>
<td>315</td>
</tr>
<tr>
<td>LEV</td>
<td>Control</td>
<td>0.183</td>
<td>0.001</td>
<td>0.879</td>
<td>0.282</td>
<td>315</td>
</tr>
</tbody>
</table>

Initially, we have done Chow test in order to choose between methods and models in Consolidated with the fixed effects or model on panel with the fixed effects.

Table 2: Chowtest results

<table>
<thead>
<tr>
<th>model</th>
<th>The dependent variable in the model</th>
<th>statistic F</th>
<th>d.f.</th>
<th>Sig</th>
<th>The result (the appropriate model)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>investment efficiency</td>
<td>2.633</td>
<td>5 and 166</td>
<td>0.026</td>
<td>Panel data model</td>
</tr>
<tr>
<td>2</td>
<td>investment efficiency</td>
<td>2.587</td>
<td>5 and 166</td>
<td>0.028</td>
<td>Panel data model</td>
</tr>
<tr>
<td>3</td>
<td>investment efficiency</td>
<td>2.684</td>
<td>5 and 166</td>
<td>0.023</td>
<td>Panel data model</td>
</tr>
</tbody>
</table>

In this case, if the surface of significantly is less than 0.05, the method of choice, using panel data and otherwise, the method would be appropriate consolidated data model (normal regression). Based on the results in the above table, we see that significant level for the F-statistic in research models is less error of 0.05, and thus the preferred panel data methods in research models.

In this situation, to choose between two fixed effects model and random effects, is applied the Housman test.

Table 3: Housmantest results

<table>
<thead>
<tr>
<th>model</th>
<th>The dependent variable in the model</th>
<th>Statistic $\chi^2$</th>
<th>d.f.</th>
<th>Sig</th>
<th>The result</th>
<th>Models with random effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>investment efficiency</td>
<td>6.386</td>
<td>4</td>
<td>0.172</td>
<td>Models with random effects</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>investment efficiency</td>
<td>6.221</td>
<td>5</td>
<td>0.258</td>
<td>Models with random effects</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>investment efficiency</td>
<td>6.194</td>
<td>6</td>
<td>0.402</td>
<td>Models with random effects</td>
<td></td>
</tr>
</tbody>
</table>
Observed that Housmantest statistic significant corresponds to the three models is higher of0.05errors. Therefore, it is appropriate to be tested research models with random effects model. After that, used the Lagrange multiplier test, likelihood ratio and normal quintile plot, to investigate and identify the Autocorrelation of error terms, Volatility error terms and Normality of error terms.

Results of Autocorrelation identify test the error terms of the dependent variable is as follows.

Table 4: results of Autocorrelation identify test of terms errors

<table>
<thead>
<tr>
<th>model</th>
<th>The dependent variable in the model</th>
<th>Statistic F</th>
<th>d.f.</th>
<th>Sig</th>
<th>The result</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>investment efficiency</td>
<td>2.368</td>
<td>2 and 168</td>
<td>0.09</td>
<td>The absence of autocorrelation</td>
</tr>
<tr>
<td>2</td>
<td>investment efficiency</td>
<td>2.252</td>
<td>2 and 167</td>
<td>0.10</td>
<td>The absence of autocorrelation</td>
</tr>
<tr>
<td>3</td>
<td>investment efficiency</td>
<td>2.232</td>
<td>2 and 166</td>
<td>0.11</td>
<td>The absence of autocorrelation</td>
</tr>
</tbody>
</table>

According to the results of presented in the above table, test significant level is more of 0.05 errors.

Thus, there is not the problem of autocorrelation in the error terms in the Research models.

For Test of equality of variances in the data panel, is done likelihood ratio test (LR). Base of decision of this test is as follows.

\[ H_0: \text{Variances are equal.} \]
\[ H_1: \text{Variances aren’t equal.} \]

Table 5: LR test results to identify the heterogeneity of variance

<table>
<thead>
<tr>
<th>model</th>
<th>The dependent variable in the model</th>
<th>Statistic ( \chi^2 )</th>
<th>d.f.</th>
<th>Sig</th>
<th>The result</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>investment efficiency</td>
<td>5.629</td>
<td>14</td>
<td>0.975</td>
<td>The absence of heterogeneity of variance</td>
</tr>
<tr>
<td>2</td>
<td>investment efficiency</td>
<td>6.317</td>
<td>20</td>
<td>0.998</td>
<td>The absence of heterogeneity of variance</td>
</tr>
<tr>
<td>3</td>
<td>investment efficiency</td>
<td>7.487</td>
<td>27</td>
<td>1.000</td>
<td>The absence of heterogeneity of variance</td>
</tr>
</tbody>
</table>

Considering the significant achieved in this test for models of research, the level is higher than 0.05. Therefore, there is no problem of heterogeneity of variance.

To review Normality of error terms can be used Normal quintile plot. If the points specified in the normal quintile plot become revolve around of 45 degrees, error terms are normal. For each model, normal quintile plot revolves around 45 degrees and the error terms are normal.

In the first model, study relationship between Sharpe index white investment efficiency.
Amount of F statistic equal to 20.873 and significantly corresponding with the statistic is equal to 0.000, which is less than 0.05 errors, so regression model is significant. Model Coefficient of determination is 0.48 and this indicate that explaining of adjusted model is average. As well as the Durbin-Watson statistic is equal to 2.16. If this statistic is a value between 1 and 5.2 is indicative of lack of autocorrelation of error terms. T-statistic corresponding With the Sharp index is equal to -4.059 and Its significant is equal to 0.000 which is less than 0.05, so it can be stated with 95% confidence that the relationship between sharp index and investment efficiency is significant. Sharp index Coefficient and corresponding t-statistic is negative; this indicates an inverse relationship between Sharp index and the efficiency of investment.

In second model, is studied the relationship between the Sharp index and the Trainer index with investment efficiency.

Table 6: The results of the first model

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>0.598</td>
<td>0.375</td>
<td>1.593</td>
<td>0.114</td>
</tr>
<tr>
<td>SHA</td>
<td>-0.119</td>
<td>0.029</td>
<td>-4.059</td>
<td>0.000</td>
</tr>
<tr>
<td>SIZ</td>
<td>0.086</td>
<td>0.030</td>
<td>2.853</td>
<td>0.005</td>
</tr>
<tr>
<td>LEV</td>
<td>-0.602</td>
<td>0.270</td>
<td>-2.225</td>
<td>0.028</td>
</tr>
<tr>
<td>R-squared</td>
<td></td>
<td></td>
<td></td>
<td>0.48</td>
</tr>
<tr>
<td>Durbin-Watson stat</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F-statistic</td>
<td></td>
<td></td>
<td></td>
<td>20.873</td>
</tr>
<tr>
<td>Prob.(F-statistic)</td>
<td></td>
<td></td>
<td></td>
<td>0.000</td>
</tr>
</tbody>
</table>

Table 7: The results of the second model

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>0.710</td>
<td>0.425</td>
<td>1.672</td>
<td>0.097</td>
</tr>
<tr>
<td>SHA</td>
<td>-0.120</td>
<td>0.029</td>
<td>-4.150</td>
<td>0.000</td>
</tr>
<tr>
<td>TRI</td>
<td>0.000105</td>
<td>0.000259</td>
<td>-0.404</td>
<td>0.687</td>
</tr>
<tr>
<td>SIZ</td>
<td>0.080</td>
<td>0.032</td>
<td>2.479</td>
<td>0.015</td>
</tr>
<tr>
<td>LEV</td>
<td>-0.576</td>
<td>0.282</td>
<td>-2.047</td>
<td>0.043</td>
</tr>
<tr>
<td>R-squared</td>
<td></td>
<td></td>
<td></td>
<td>0.45</td>
</tr>
<tr>
<td>Durbin-Watson stat</td>
<td></td>
<td></td>
<td></td>
<td>2.17</td>
</tr>
<tr>
<td>F-statistic</td>
<td></td>
<td></td>
<td></td>
<td>15.704</td>
</tr>
<tr>
<td>Prob.(F-statistic)</td>
<td></td>
<td></td>
<td></td>
<td>0.000</td>
</tr>
</tbody>
</table>
In this table, the F statistic that focuses on significant of adjusted model is equal to 15.704 and significantly corresponding with this statistic is 0.000 that is less of 0.05, so 95% can be claimed; the fitted regression second model was significant.

Model R-squared is 0.45 so the model is moderate in terms of its predictive power. The Durbin-Watson statistic is equal to 2.17 that is between 1 and 2.5 is indicative of lack of Autocorrelation of error terms.

T-statistic corresponding with the Trainer index is equal to -0.404 and its significant is equal to 0.687 which is higher than 0.05, so it can be stated with 95% confidence that the relationship between Trainer index and investment efficiency is not significant.

In the third model added the alpha Jensen index.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>0.882</td>
<td>0.647</td>
<td>1.362</td>
<td>0.176</td>
</tr>
<tr>
<td>SHA</td>
<td>-0.127</td>
<td>0.040</td>
<td>-3.180</td>
<td>0.002</td>
</tr>
<tr>
<td>TRI</td>
<td>0.000</td>
<td>0.000</td>
<td>-0.242</td>
<td>0.810</td>
</tr>
<tr>
<td>JEN</td>
<td>0.004</td>
<td>0.005</td>
<td>0.861</td>
<td>0.391</td>
</tr>
<tr>
<td>SIZ</td>
<td>0.067</td>
<td>0.042</td>
<td>1.593</td>
<td>0.114</td>
</tr>
<tr>
<td>LEV</td>
<td>-0.525</td>
<td>0.296</td>
<td>-1.778</td>
<td>0.078</td>
</tr>
</tbody>
</table>

The amount of F The statistic is equal to 13.421 and significantly corresponding with this statistic is 0.000 that is less as 0.05 errors, so it can be stated with 95% confidence that the regression is significant for third model.

Model R-squared is 0.45, that's mean that 45% of the changes of dependent variable is explained by the independent variables in the model. As well as The Durbin-Watson statistic is equal to 2.14 that is between 1 and 2.5 is indicative of lack of Autocorrelation of error terms.

T-statistic corresponding with the alpha Jensen index is equal to 0.861 and it’s significant is equal to 0.391 which is higher than 0.05, so it can be stated with 95% confidence that the relationship between alphas Jensen index and investment efficiency is not significant.

**Conclusion and suggestion**

This research was on the basis of 45 investment companies in Tehran Stock Exchange during the period from 2008 to 2015 and been paid the relationship between portfolio performance evaluation indicators with investment efficiency.

In first hypothesis, is examined the relationship between Sharpe index With investment efficiency. According to the results of tests Housman and Chow first model is tested with
random effects by least squares panel. Explanatory power of the model in this hypothesis is equal to 0.48. T-statistics obtained for Sharp index is equal to -4.059 with a significant 0.00, which is less than 0.05 and resulting in there is significant relationship between investment efficiency and sharp index and because the amount of obtained fort-statistic is negative, this relationship is inverse, in other words the first hypothesis is accepted.

The result of this hypothesis is aligned with the results of similar studies that have been done in this direction, such as Puorzamani, Jahanshad and Ghanadi (2012), Ferruz Agudo and Sarto Marzal (2004).

In the second hypothesis, is examined the relationship between trainer index and Sharp index with investment efficiency, this model was tested with random-effects by least squares panel. Explanatory power of the model in this hypothesis is equal to 0.45. T-statistics obtained for Sharp index is equal to -0.404 and its significant is 0.687, which is more than 0.05, resulting in there is not significant relationship between trainer index and investment efficiency and third hypothesis is rejected.

Since there is a difference in the method of calculating the Sharp index and Trainer index and it the difference is Denominator of the fraction the formula used So that the Sharp index consider the total risk but Trainer index consider considers the Only systemic risk, Can be attributed The insignificance on the part of portfolio risk than related to the company and can change.

The third hypothesis, is examined the relationship between Sharpe index, Trainer index and Jensen's alpha index With investment efficiency, According to results of Housman and Chow testes, third models is tested with random effects by least squares panel. Explanatory power of the model in this hypothesis is equal to 0.45. T-statistics obtained for Jensen’s alpha index equal to 0.861 and its significant is 0.391 that is more than 0.05, so third hypothesis will be rejected.

Since Sharp index is an important indicator in assessing the performance of the portfolio and there is significant relationship with investment efficiency; it is suggested to investors to be measured in determining the appropriate portfolios.

It is suggested to investors Given that the relationship between investment efficiency and Sharp index is significant and relationship between investment efficiency and Trainer index were not significant, to stock valuations only do not pay attention to return but to have special attention both types of systematic risk and unsystematic risk.
References


