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Comparing the Effect of Profit Increase Criteria with the Cash Recovery Rate of Companies Listed on Tehran Stock Exchange Using the Stepwise Regression

A. Khosropoor[1], M. T. Rahmati[2], E. Azizpoor[2]

[1]Department of Mathematics, Islamic Azad University, Firozabad Branch, Firozabad, Iran
[2]Department of Economics, Islamic Azad University, Ilam Branch, Ilam, Iran

ABSTRACT

So far, two groups of performance evaluation criteria have been introduced for the companies listed on stock exchange. The first group contains the criteria based on the accounting profit and the second one contains the criteria based on the cash recovery rate (CRR). The quality condition of performance evaluation criteria including their information content in the comparison situation has particular importance. In the other words, the indicator, which has more information content, will have higher priority in the performance evaluation. This study studies whether the assessment criteria of company performance based on the cash recovery rate have better information content in order to explain the economic performance of company compared to the performance evaluation criteria of company based on the profit. In this research, the return on assets (ROA), as the agent of evaluation performance based on the profit, and the estimated internal rate of return (EIRR), as the performance evaluation criteria based on the cash recovery are tested empirically. Furthermore, two benchmark patterns of stock return and Q Tobin are used in order compare two above performance criteria. Information content of EIRR and ROA has been tested in two short time period as the transverse section of corporate performance for two separated years and long term period as the time series of multiple consecutive years.
KEYWORDS: Cash recovery rate (CRR); Q Tobin; Performance Evaluation

INTRODUCTION

Nowadays, in our country the stock is considered as the organized money market which is able to direct the financial and monetary resources for comprehensive development and provide the capital needs of small and large companies listed in it as well as preventing from the invasion of wandering capital for gaining the higher profit and return. In the other words, the stock is considered as the reliable and fundamental support for the country cultural and social economic development. Therefore, the performance of companies listed on stock exchange and their performance rating have special importance from the stock attendants' viewpoints including the micro and macro investors and CEOs. Investors, creditors, government and CEOs need to know the condition of corporate comparative performance and the basis of many decisions inside and outside the organization are done based on it. Therefore, having the knowledge of performance evaluation criteria of companies and achieving a criterion, which includes the further and more important information for comparing the companies, are the financial experts' today concerns.

The economics, accounting and financial researchers are interested in measuring and defining the best economic performance evaluation method of active firms on the stock market. In fact, the most appropriate criterion for measuring the economic performance of firms is the internal rate of return which is naturally invisible based on the accounting data and we should replace this criterion. Based on the traditional methods of corporate performance evaluation, the accounting rate of return has been used as the representative of invisible internal rate of return (IRR). Thus the information available in the accounting data has had an important role in the experimental tests.

Research history

Data of income flow and cash flow, which are obtained from the published accounting data, are used for the performance measurement and evaluation. Based on the studies conducted by "Christine Andrew, 2010; Are Volkan, 2010" and unlike the widespread studies, which are conducted about the information content of accounting rate of return, the response to this question whether the criteria of performance evaluation based on the income flow are superior than the performance criterion based on the cash flow still has been remained without any result. "A. Draghma and Zahran M. 2010" compared these two criteria with the panel method in Palestine. "Satish Kumar, A. Sharma, 2011" proved the superiority of operating cash flow about the companies listed on India stock exchange.

Cash recovery rate (CRR) is a newer approach to estimate the economic performance of companies. Like the criteria for performance evaluation based on the income flow, CRR is also estimated using the financial and

***Corresponding Author:** A. Khosropoor, Department of Mathematics, Islamic Azad University, Firozabad Branch, Firozabad, Iran, Email: a.khosropour@gmail.com

accounting data. Chen and Lee (1999), who first used the correlation analysis of performance evaluation criterion for CRR and ROI with the benchmark "Q Tobin", found that the criterion CRR has shown greater superiority and accuracy than the ROI.

The experimental results of previous studies have shown that the estimated internal rate of return (EIRR) has higher explanatory power than ROI for the benchmarks of Q Tobin and stock returns. Moreover, the strength tests of performance evaluation criteria show that the EIRR has higher relative and growing power than the ROA for predicting (Francis (2010) and Milian (2010)). Information content of EIRR and ROA has been the researchers and analysts' another topic of interest. Performance evaluation criteria based on the income and cash flow have been widely used in the financial analysis. Despite the fact that the previous studies suggest that the EIRR and ROA measurement criteria have both additional information, which are very helpful for private and public decision-makers, this information helps the legislators and governors to differentiate the stronger companies from other companies and support and encourage them. In addition, receiving the information surplus of dividends and gained revenue, the shareholders will be able to make the more profitable decisions.

Accounting Rate of Return

The accounting rate of return has been used as the alternative and non-visible indicator for the performance evaluation of alternative enterprises. During the past years, serious discussions have been suggested about the information content of accounting rate of return in the experimental research. The researchers, who believe that the accounting rate of return contains little information about the economic performance of firms, are divided into two groups. The first group includes those who have succeeded in distinguishing the aspects of economic and accounting rates of return. (Kay (1976), Livingston and Salomon (1970) and Peisnel (1982)) Based on the view of this group, there is a simple relationship between the accounting and internal rate of return and it can simply extracts the internal rate of return based on the accounting data. The second group believe that the invisible internal rate of return can be used in the form of cash recovery rate and as the alternative to the accounting rate of return (Gordon and Hummer (1988), Griner and Stark (1988), Ijiri (1978) and Stark (1987 and 1989).

Cash Recovery Rate (CRR)

Kans (2010) and Leip (2010) created a new method for evaluating the performance based on the cash flow. These two suggested that the economic performance of a company can be evaluated by the estimated cash recovery rate as the estimation of the economic efficiency rate. Ijiri first defined the cash recovery rate compared to the cash flow from the operations, cost of profit, capital sales, asset sales, machinery and equipment to the whole company assets.

Billing (2009) notes that is it possible the cash recovery rate to be estimated from published financial and accounting documents when a company has several investment sources? Lee and Stark (1987) indicated that the cash recovery rate introduced by Ijiri (1978) is conceptually considered as a good indicator for the company internal rate of return, but the information gained from the published financial documents are not a good source of cash recovery rate. Therefore, the experimental results of calculated cash recovery rate are not consistent with the theoretical principles presented by Ijiri. Thus, Lee and Stark (1987) suggested that a cash flow conversion should be used for calculating the cash recovery rate. So the cash recovery rate is equal to the total ratio of cash flows to the total stable and gross assets of company. Therefore, two approaches have been formed by two groups of researchers in order to calculate the cash recovery rate. The first group of Ijiri followers included Gordon and Hummer (1988) and Salomon (1982), who used the capital with the concept proposed by Ijiri and the discrete period of time, and the second group included Lee and Stark (1987) who used the concept of active investment and continuous period of investment.

Relative and incremental information content of the performance evaluation criteria

Unlike numerous empirical studies, which have been conducted in order to calculate the cash recovery rate, few studies have been compared the information content of cash recovery rate with the accounting rate of return. Chen and Lee's study (1995) is the first study which evaluates the information content of cash recovery rate measurement criterion based on the cash flows. Using the correlation coefficient, this study measures the information content of stock rate of return with other criteria of cash recovery rate on a benchmark Q-tobin in time period 1985- 1978. The results of their research indicate that the cash recovery rate has more information content than the stock rate of return. Hejazi and Jafari (1385) has also determined the information content of accounting variables in companies listed on Tehran Stock Exchange in the period 1383-1397. They have applied the dependent variables of net profit, operating profit, operating cash flows and the dependent variable, the annual returns of stock as the effective factors. The results of the research indicate that compared to two other variables the operating profit has relative more information content and the operating and net profit have more incremental information content information than each other. However, the operating cash flow does not have the incremental information content compared to two other variables.

Time period is one of the effective factors on measuring the indicators which determine the performance. Decu (1994) suggested that in the short-term the measuring indicators based on the income are superior that the

measuring indicators based on the cash flows. He also stated this is because of the fluctuations in the cash flows arising from the operations, investing and financing sources. In the other words, the cash flows will be different from factors such as the accounting corrections, payments maturity, and other similar factors in the short and long term.

Research Hypotheses

The main hypothesis: the information content of estimated internal rate of return (EIRR) is higher than the return on assets (ROA) criterion for evaluating the performance of companies.

Null hypothesis: the information content of EIRR is less than the ROA criterion for evaluating the performance of companies.

First hypothesis: the information content of EIRR is higher than the ROA criterion for evaluating the performance of companies.

Subsidiary hypothesis: the information content of EIRR is higher than the ROA criterion for evaluating the performance of companies in the long term.

Null hypothesis: the information content of EIRR is less than the ROA criterion for evaluating the performance of companies in the long term.

First hypothesis: the information content of EIRR is higher than the ROA criterion for evaluating the performance of companies in the long term.

By arising this hypothesis this issue is discussed whether the EIRR provides more information compared to the ROA for evaluating the performance of companies? By confirming this hypothesis, the criteria based on the cash recovery rate of EIRR compared to the ROA based on the profit helps the investors to make decisions.

Research variables and the way for measuring them

Q-Tobin Index

This indicator was presented by James Tobin in 1968 and indicates the value of company. Q Tobin is the ratio of market value of company to the book value or the replacement value of company assets. Since obtaining the replacement value of company assets is difficult and often impossible according to the information contained in the financial statements and stock reports, the book value* of company assets is used in the denominator and the company market value†, which obtained from the sum of market value of stock and book value of debit, is used in the numerator. Hence, Q-Tobin is calculated from the following formula:

$$1 - \quad TQ = \frac{M.V.S + B.V.D}{B.V.A}$$

In which:

Market value of stock (M.V.S) = is the Market value of common stock which is calculated from multiplying the stock price by the amount of common stock.

Book value of debit (BVD) = is the book value of debits and is consistent with the value of debits in the financial records.

Book value of asset (BVA) = is the Book value of Assets which is consistent with the value of assets in the financial records.

In this study, the Q Tobin index is used as a benchmark for comparing two criteria of EIRR and ROA.

Return of Stock (RET)

Return of Stock is one of the dependent variables, which are applied in measuring the company performance like the profitability ratios, and is calculated as follows:

The price of common stock in the first-period / received cash dividend + (price of common stock in the first period - price of common stock at end of period) = RET

Return on Assets (ROA)

ROA indicates the amount of management efficiency at applying the existing resources in order to obtain the profit and is one of the profitability ratios. This ratio is applied in order to evaluate the company performance and is obtained according to the following formula:

Net profit divided by total asset = return of asset

$$ROA = \frac{\text{Net profit}}{\text{Total Asset}}$$

*- Book value: is one of the accounting concepts by which the value of each of the asset items are determined based on the historical data recorded in the financial records.

†- Market value: is the price of selling the assets in the market.

Estimated internal rate of return (EIRR)

Estimated internal rate of return is a criterion for evaluating the corporate performance and the cash recovery rate (CRR) is used in order to calculate it; in fact the EIRR is derived from the CRR. According to the studies conducted by Ijiri (1980-1978) it is calculated from the following formula:

Gross Assets / cash recovery = CRR

Interest cost + revenues from sales of long-term assets + Funds from operations = cash recovery + decline in current assets (if possible) + average of beginning and end of period (accumulated depreciation + total assets) = Gross Assets

We need the annual growth rate (G) of investment in the company and the active investment period (T) in order to extract the EIRR from the CRR. Based on the Salomon's findings, T is calculated as follows:

T = Gross Assets / Depreciation expense

Based on the studies conducted by Lee and Stark (1987), G is calculated by the following formula:

G = log (Gross fixed Assets at the end of period / Gross fixed Assets in the beginning of period) / Study period

Now, in order to obtain the EIRR from the CRR based on Griner and Stark model (1988) we have:

$$\frac{CRR(G^2T^2+\pi^2)(1-e^{-GT})(e^{-iT}+1)}{G(e^{-GT}+1)(i^2T^2+\pi^2)}=1$$

CRR = Cash recovery rate

G = Annual growth rate of investment in the company

π = 22.7

i = EIRR

T= Active investment period

e^{-GT} = Natural logarithm of growth rate in the active investment period

e^{-iT} = Natural logarithm of internal rate of return

RESEARCH METHODOLOGY

Since this research focuses on the relationships among the variables, it is a kind of correlation and post-event studies. The evaluation of relationships among the variables is the objective of these kinds of research and data are collected and analyzed from the environment, in which they have been existed naturally, or from the past events which have been occurred without the researcher's direct interference. The model for predicting the stock return and way of entering the short-term and long-term fluctuation variables of operating cash flows are described below.

Research Model

In many statistical studies, two or more independent variables are considered except one variable. Since in this research, the study of two or more independent variables is considered, the multiple regression models are used in order to analyze the results as follows:

The following models are used in order to test the hypothesis.

$$TQ_i \text{ or } RET_i = \alpha_o + \alpha_1 EIRR_i \text{ or } ROA_i + \beta_2 LEV + \beta_3 Size + \beta_4 Risk + \beta_5 Reg + \beta_6 TQ_{-1} + e_i \qquad (1)$$

$$TQ_i \text{ or } RET_i = \alpha_o + \alpha_1 EIRR_i + \alpha_2 ROA_i + \beta_2 LEV + \beta_3 Size + \beta_4 Risk + \beta_5 Reg + \beta_6 TQ_{-1} + e_i \qquad (2)$$

In which, TQ_i is the Q Tobin for the company i in the study course; $\mathbf{ROA_i}$ is the Return on assets for the company i in the study course; $\mathbf{EIRR_i}$ is the estimated internal rate of return which is derived from CRR for the company i; $\mathbf{RET_i}$ is the return on stock for the company I in the study course; and the control variables are the variables which affect the corporate performance. In this study, the variables for controlling the leverage power (LEV), Size of company and risk, regulations effective on the relative industry (Reg), and the delay variable which is the dependent variable with the delay of a period (TQ_{-1}) are considered.

Statistical population, sampling method, and sample size

Statistical population of this research contains the companies listed on Tehran Stock Exchange. In order to determine the sample size first it should be examined whether the information of this company is available or not. After the surveys conducted about the sample selection, 53 companies were selected as the samples for a 9-year period (2001-2009) in a best condition. In the next steps, the following conditions have been implemented:

1 - End of financial period should be ended on 12/29.

2 – It should not be one of the investment companies.

3 - It should be listed on Tehran Stock Exchange before 1998.

4 - It should not have fiscal changes during the studied period.
5 – The transactions should be non-stop during the studied period.
6 – The stock should be traded in a four-month period after the end of year.

Information Collection and Analysis Method

The library method has been used in this study in order to develop the research literature and background. Data needed for testing the model by a library method are provided from the information databases of Rahavard Novin and Tadbir Pardaz and the required data are collected from the archive of Tehran Stock Exchange.

In order to identify the influence of independent variables on the dependent variable, the correlation coefficient Pearson and significance test of correlation among the variables and the ANOVA method and t-statistics have been used. In addition, for testing the hypotheses the Linear Regression Model by the Ordinary Least Squares (OLS) method have been used. The stepwise method is used in order to select the variables in the regression model. This method is used because in case that there are a large number of independent variables, using the methods, which consecutively determine the presence of independent variables in the model, is very useful. This method is more cost effective than all possible regressions based on the calculations. Moreover, it specifies a good set of independent variables which should be existed in the model. This method essentially develops a sequence of regression models, so that in each step it is determined that which variable is removed from or added to the model. The criterion for removing from or adding the variable to the model can be obtained by reducing the total square error of partial correlation coefficients and Fisher statistics.

DATA ANALYSIS

Data Analysis is provided in two sectors of descriptive and inferential statistics. In the sector of descriptive statistics, the central indicators (Maximum, Minimum, and Mean) and the distribution index including the variance and standard deviation have been studied. Moreover, according to the importance of data normality, the normality of all dependent variables has been studied using the Kolmogorov Smirnov test. The results indicate that the distribution of research variables has been normal and at an acceptable level.

Table 1: Descriptive statistics of research variables

Variable	Samples count	Minimum	Maximum	Average	Deviation	Variance
EIRR	477	-2.71	5.04	1.57	1.22	**1.50**
ROA	477	0	0.67	0.2	0.12	**0.016**
RET	477	-73.47	820.16	32.55	82.40	**6790**
Q-tobin	477	0	12.53	2.11	2.02	**4.08**
RISK	477	0.2	242	10.64	12.79	**163.6**
SIZE	477	4.26	7.95	5.58	0.61	**0.38**
LEV	**477**	**0.06**	**10.35**	**2.19**	**1.48**	**2.21**

Table 2: Kolmogorov Smirnov test for evaluating the normality of variables

	RET	Q-Tobin
Total samples	477	477
Average	32.55	2.11
Standard deviation	82.40	2.02
Absolute value of difference	0.06	0.05
Positive value of difference	0.06	0.05
Negative value of difference	-0.04	-0.05
Test statistic	1.26	1.08
Significant level	0.09	0.19

RESEARCH FINDINGS

First, we consider two following models in order to compare the criterion EIRR with the criterion ROA on the dependent variable Q-Tobin:

- First model

$$Q_{it} = \beta_o + \beta_1 EIRR_{ii} + \beta_2 LEV + \beta_3 Size + \beta_4 Risk + \beta_5 Reg + \beta_6 Q_{t-1} + e_i$$

Table 3: Correlation coefficients among the variables of first model

		EIRR	RISK	SIZE	LEV	REG	Q-tobin (t-1)
Q-tobin	Correlation coefficient	0.170	0.169	-0.109	-0.023	-0.369	0.592
	Significant level	0.0	0.0	0.017	0.609	0	0.0
	Total samples	477	477	477	477	477	477

Table 4: Stepwise regression results for the first model

Significant level	T-statistics	Standard error	Coefficient	Variable
0.058	1.89	0.205	0.389	Constant
0.0	4.33	0.057	0.248	EIRR
0.0	3.77	0.010	0.037	RISK
0.666	-0.431	0.021	-0.016	SIZE
0.798	-0.256	0.033	-0.009	LEV
0.0	3.80	0.156	-0.595	REG
0.0	14.21	0.037	0.519	Q-tobin (t-1)
	85.896	F statistics	0.421	Coefficient of determination
	0.0	Significant level	0.416	Adjusted coefficient of determination
	1.721	Durbin-Watson	1.544	Standard error

- Second model

$$Q_{it} = \beta_o + \beta_1 ROA_i + \beta_2 LEV + \beta_3 Size + \beta_4 Risk + \beta_5 Reg + \beta_6 Q_{t-1} + e_i$$

Table 5: Correlation coefficients among the variables of second model

		ROA	RISK	SIZE	LEV	REG	Q-tobin (t-1)
Q-tobin	Correlation coefficient	0.404	0.169	-0.109	-0.023	-0.369	0.592
	Significant level	0.0	0.0	0.017	0.609	0	0.0
	Total samples	477	477	477	477	477	477

Table 6: Stepwise regression results for the second model

Significant level	T-statistics	Standard error	Coefficient	Variable
0.196	1.269	0.203	0.263	Constant
0.0	5.81	0.575	3.33	ROA
0.0	3.77	0.010	0.037	RISK
0.200	-1.28	0.021	-0.047	SIZE
0.852	0.187	0.033	-0.007	LEV
0.0	3.80	0.156	-0.595	REG
0.0	14.21	0.037	0.519	Q-tobin (t-1)
	92.02	F statistics	0.438	Coefficient of determination
	0.0	Significant level	0.434	Adjusted coefficient of determination
	1.858	Durbin Watson	1.522	Standard error

Then, we consider two following models for comparing the criterion EIRR with the criterion ROA on the variable RET:

- Third model

$$RET_{it} = \beta_o + \beta_1 EIRR_i + \beta_2 LEV + \beta_3 Size + \beta_4 Risk + \beta_5 Reg + \beta_6 Ret_{t-1} + e_i$$

Table 7: Correlation coefficients among the variables of third model

		EIRR	RISK	SIZE	LEV	REG	RET (t-1)
RET	Correlation coefficient	0.275	0.231	-0.027	0.309	0.264	-0.034
	Significant level	0.0	0.0	0.551	0.0	0.0	0.442
	Total samples	477	477	477	477	477	477

Table 8: Stepwise regression results

Significant level	T-statistics	Standard error	Coefficient	Variable
0.0	-7.53	8.28	-62.36	Constant
0.0	4.69	2.11	9.89	EIRR
0.0	5.49	0.45	2.45	RISK
0.164	-1.39	1.21	-0.058	SIZE
0.0	7.85	2.06	15.39	LEV
0.0	6.15	6.65	40.91	REG
0.275	-1.09	0.51	-0.044	RET (t-1)
	40.47	F statistics	0.255	Coefficient of determination
	0.0	Significant level	0.249	Adjusted coefficient of determination
	1.86	Durbin Watson	71.40	Standard error

- Fourth model

$$RET_{it} = \beta_o + \beta_1 ROA_i + \beta_2 LEV + \beta_3 Size + \beta_4 Risk + \beta_5 Reg + \beta_6 Ret_{t-1} + e_i$$

Table 9: Correlation coefficients among the variables of fourth model

		ROA	RISK	SIZE	LEV	REG	RET (t-1)
RET	Correlation coefficient	0.440	0.231	-0.027	0.309	0.264	-0.034
	Significant level	0.0	0.0	0.551	0.0	0.0	0.442
	Total samples	477	477	477	477	477	477

Table 10: Stepwise regression results

Significant level	T-statistics	Standard error	Coefficient	Variable
0.0	-10.58	8.02	-84.94	Constant
0.0	10.32	12.55	222.89	ROA
0.0	5.33	0.415	2.197	RISK
0.144	-1.50	1.21	-0.058	SIZE
0.0	7.79	1.93	10.02	LEV
0.0	6.29	6.12	38.51	REG
0.144	-1.46	0.55	-0.054	RET (t-1)
	67.54	F statistics	0.364	Coefficient of determination
	0.0	significant level	0.359	Adjusted coefficient of determination
	1.90	Durbin Watson	65.99	Standard error

In the last step, we study the above models for the first year and last year of study. Beginning of 2001 is the first year of study:

Table 11: First model for the year 2001

Durbin Watson	coefficient of determination	Significant level	Coefficients of variables	Significant level	correlation coefficient	Model variables	Dependent variable
2.08	0.084	0.036	0.496	0.036	0.289	EIRR	Q-tobin
		0.107	0.220	0.057	0.263	RISK	
		0.918	0.014	0.846	-0.027	SIZE	
		0.636	0.064	0.646	0.065	LEV	
		0.629	0.070	0.782	-0.039	Q-tobin (t-1)	

Table 12: The second model for the year 2001

Durbin Watson	Coefficient of determination	Significant level	Coefficients of variables	Significant level	Correlation coefficient	Model variables	Dependent variable
2.21	0.139	0.006	5.321	0.006	0.373	ROA	Q-tobin
		0.107	0.220	0.057	0.263	RISK	
		0.918	0.014	0.846	-0.027	SIZE	
		0.636	0.064	0.646	0.065	LEV	
		0.629	0.070	0.782	-0.039	Q-tobin (t-1)	

Table 13: Third model for the year 2001

Durbin Watson	coefficient of determination	Significant level	Coefficients of variables	Significant level	correlation coefficient	Model variables	Dependent variable
1.68	0.083	0.037	18.689	0.037	0.287	EIRR	RET
		0.985	-0.003	0.569	0.075	RISK	
		0.131	0.206	0.075	0.246	SIZE	
		0.353	0.128	0.244	0.177	LEV	
		0.487	0.069	0.774	0.040	RET (t-1)	

Table 14: Fourth Model for the year 2001

Durbin Watson	coefficient of determination	Significant level	Coefficients of variables	Significant level	Correlation coefficient	Model variables	Dependent variable
1.63	0.149	0.004	231.86	0.004	0.386	ROA	RET
		0.422	0.105	0.569	0.075	RISK	
		0.656	0.059	0.075	0.246	SIZE	
		0.240	0.153	0.244	0.177	LEV	
		0.822	0.030	0.774	0.040	RET (t-1)	

Finally the year 2009 is considered as the first year of study:

Table 15: First model for the year 2009

Durbin Watson	coefficient of determination	Significant level	Coefficients of variables	Significant level	Correlation coefficient	Model variables	Dependent variable
1.88	0.264	0.107	0.170	0.119	0.217	EIRR	Q-tobin
		0.918	0.039	0.643	-0.065	RISK	
		0.636	-0.024	0.239	-0.164	SIZE	
		0.713	-0.045	0.422	-0.122	LEV	
		0.0	0.589	0.0	0.514	Q-tobin (t-1)	

Table 16: Second Model for the year 2009

Durbin Watson	coefficient of determination	Significant level	Coefficients of variables	Significant level	correlation coefficient	Model variables	Dependent variable
1.88	0.264	0.218	0.153	0.059	0.261	ROA	Q-tobin
		0.918	0.039	0.643	-0.065	RISK	
		0.636	-0.024	0.239	-0.164	SIZE	
		0.713	-0.045	0.422	-0.122	LEV	
		0.0	0.589	0.0	0.514	Q-tobin (t-1)	

Table 17: Third Model for the year 2009

Durbin Watson	coefficient of determination	Significant level	Coefficients of variables	Significant level	correlation coefficient	Model variables	Dependent variable
2.15	0.082	0.037	19.712	0.037	0.286	EIRR	RET
		0.267	0.150	0.298	0.146	RISK	
		0.334	0.045	0.888	0.020	SIZE	
		0.198	0.174	0.194	0.181	LEV	
		0.213	-0.169	0.306	-0.143	RET (t-1)	

Table 18: Fourth Model for the year 2009

Durbin Watson	Coefficient of determination	Significant level	Coefficients of variables	significant level	Correlation coefficient	Model variables	Dependent variable
1.94	0.093	0.025	162.02	0.025	0.305	ROA	RET
		0.267	0.150	0.298	0.146	RISK	
		0.334	0.045	0.888	0.020	SIZE	
		0.198	0.174	0.194	0.181	LEV	
		0.213	-0.169	0.306	-0.143	RET (t-1)	

Conclusion

Several groups including the investors, financial supporters, managers, banks and policy makers are willing to evaluate the company performance. The evaluation criteria are defined as two different groups based on the views of two groups including the accountants and economists. First group includes the corporate performance evaluation criteria based on the cash recovery rate and the second group includes the corporate performance evaluation criteria based on the profit. The objective for preparing these indicators is to explain the economic performance of company which has the information content of these indicators. The present study has examined the increasing and relative content of two evaluation competing criteria for explaining the performance of company in the form of two variable of stock return and Q Tobin by using the data of 56 companies listed on the Stock Exchange about the above evaluation criteria and by applying the time series data during 2001-2009 and cross sectional data in two periods of 2001 and 2009. Particularly, the information content of these two indicators is examined by using the variable of return on assets, which is a performance evaluation criterion based on the income, and the estimated internal rate of return criterion which is a criterion based on the cash recovery rate. In the descriptive test of data, the shocking behavior in the variables of estimated internal rate of return and risk in 2005 and also the variables of financial leverage and stock returns for the year 2006 are identified. The behavior of first two variables is the evidence for the presence of a systemic change, which is affected by an exogenous variable, on the stock market. This change was the presidential election in 2005. However, in 2006 the secondary effect of elections was the change in macro-economic management of country and its effect was on the stock return and financial leverage. Change of this process and affecting the model was done by a dummy variable for the time period after 2006.

Two benchmark models of stock return and Q-Tobin were used in order to compare two above performance criteria. Present study approves all research hypotheses based on the effectiveness of asset rate of return compared with the estimated internal rate of return in the long term. But in the short-term the hypotheses based on the incremental information content of income index or asset rate of return compared with the estimated internal rate of return were not confirmed. In order to compare the evaluation criteria of listed companies on the stock exchange, two dependent variables of stock return and Q-Tobin have been used in two regression equations. Moreover, the controlling variables were used for increasing the validity of model and improving its specification. These variables include the financial leverage, risk, size of company, dummy variable, and delay variable (dependent variable with a time delay period). The dummy variable was used in order to consider the structural failure in the data process and the effect of changes in macro management system of country including the changes in the management of stock exchange and more importantly the president election in 2005 and its effects on the performance of companies listed on the Stock Exchange in 2006.

However, all the control variables in the estimated model became significant by using the long term time series data and with the positive expected sign, except the variable of financial leverage in the model with the Q-Tobin variable; the control variable of firm size and the dependent variable with a delay period were not significant compared to the dependent variable of stock return and were eliminated from the model. However, in the short term the dependent variable with a delay period became significant in the short and only for the year 2001 and in the model with dependent Q-Tobin, and for other models and also for the year 2009, none of the control variables were not significant. The results of research confirm all the hypotheses and indicate that the information content of evaluation criterion based on the income is incremental and has more informative compared with the criterion of cash recovery rate.

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