Original Article

Studying the Relationship Between the Sizes of Firms Accepted in Stock Exchange and Their Operating Performances Emphasizing at Industry Agent: Evidence from Iran

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ABSTRACT

The size of a company shows different perspectives of it in several studies. The present research is going to study the effect of the sizes of firms accepted in Tehran Stock Exchange on their operating performances. Our statistical sample includes 66 firms during the time period between 2006 and 2010. The statistical method used in this research includes the independent t test and a bidirectional variance analysis method. The findings of the research show that the size of the firms affects criteria such as ROA, ROE, REVA, MVA, P/E, M/B, and Q statistically and it does not affect criteria such as EPS, ROI, RI, and EVA. Also regarding EPS and EVA, we can say that firms with big sizes affect these criteria the most and small firms have the least effects on ROI and RI criteria.

Also in studying the simultaneous effects of the type of the industry and the sizes of firms on operating performances of them each of operating performance approaches (accounting, financial, value added and integrative approaches) is affected by the industry agent.

Keywords: Firm Size, Operating Performance Based On Accounting, Financial, Value Added, And Integrative Approaches.

Introduction

Today firms are trying to recognize each of the effective factors on their development to achieve their predetermined goals. Firm size is one of the factors which are efficient in achieving these goals (Dastgir & Mohammadi, 2010; PP: 73 & 79). In several studies firm size has revealed different aspects of the company (Shororozi & Pahlavan, 2010; P: 71). Thus the present research is trying to study the effect of firm sizes of companies accepted in Tehran Stock Exchange (in two levels of big and small) on operating performance approaches of firms [accounting approaches (return of assets, return on owners' equity, and earning per share), financial approaches (return on investment and residual income), value

added approaches (economic value added, refined economic value added, and market value added), and integrative approaches (price/earning ratio, market value/book value ratio, and Tobin's Q)]. The question is whether there is a relationship between firms' sizes and their operating performances? Or whether the differences in firm sizes affect their operating performances? And which of the sizes (big or small) is more effective on better operating performances of the firms? By gaining the answers to these questions we would be able to carry out more effective activities in order to improve firms' performances. Thus it can be stated that the main goal in this research is to study the effects of the sizes of firms accepted in Tehran Stock Exchange on their operating performances. The importance of the present research lies in the experimental results for managers, investors and other decision makers to see how the sizes of firms affect performances in firms with different sizes.

The study of the related literature:

Some examples of the researches carried out about firm size and operating performance are as follows:
Albert & Richardson tested firm size along with the industry type (axial and perimeter) in relation with profit management and found out that in axial sector industry firms which are big there is a more smooth profit compared to big firms in perimeter industry sector.
Watts & Zimmerman (1978), Zimsky & Hagerman (1979), Dikin (1979), Lihen & Pastena (1982), Dawal, Salamon & Smith (1982) and Daloo & Wigland (1983) all found out that there is a meaningful and negative relationship between firms' sizes and conservativeness.
Babong studied the relationship between firm size and data content of the net profit and concluded that there is a reverse relationship between data content of the profit and firm size.
Ahmad & et al. (2002) showed that big firms use more conservative methods compared to other companies. Howard Chan, Robert Phaph and Allen Ramzi studied the relationship between firm size and data content of the profit. They found out that firm size does not have any effects on the reaction of the market to profit announcement in the time period of 3 days.
Shahira Shahid studied 90 selected companies in Egypt in Kario and Alexandrio Stock Exchange and showed that the relationship between the type of ownership and stock market's performance (P/E and P/BV) is not meaningful, but there is a meaningful relationship between the type of ownership and accounting performance of a firm (ROA and ROE). He found out when managers and governmental sectors are the main stockholders, they have a negative effect on firms' ROE. On the contrary holding companies and private sector have a positive effect on firms' ROE.

Research Methodology:

Research Method

The research method used in this paper is applied regarding the method and causation research regarding the nature. It is a research trying to study the relationships between cause and effects. Also we will try to find the effect of an independent variable on a dependent variable in this research (Khaki, 2009; P: 230).

Population and statistical sample

The population used in this research includes all firms accepted in Tehran Stock

Exchange during the time period between 2006 and 2010 regarding the characteristics of the sampling statistics which are presented below (we have used purposeful or systematic deletion sampling method to select our sample). From among the total firms, 66 companies from 11 different industries were selected as our statistical sample with the following characteristics:

To achieve a convergent sample from among the firms under investigation and also due to the reliable data and covering the research period, the sample companies should have been accepted in Tehran Stock Exchange before 2006.

The transaction stop of the sample companies should be 3 months at most.

To have a similar reporting dates and increase the comparability of the data the financial period should end in Esfand (20th of March).

The sample companies should not include investing, holding, banks and financial mediators because their activities are different from those of other industries.

Sample companies should have profits which entail taxation, thus losing companies are not in the realm of our research.

Companies should not have changed their activities or their fiscal years during the years between 2006 and 2010.

During these years and in each year the selected firms should be fixed and should not change.

The data of the companies should be accessible through the present resources (databases of Stock Exchange).

The instruments and methods of data collection

The review of the related literature collection of the present research has been carried out by using library studies. In other words, books, dissertations, local and international journals related to the subject of this paper have been utilized to form the review of literature.

Also financial statements of the companies under investigation have been utilized to collect data related to firms' sizes. Databases and related software such as "Rahavard-e-Novin" were used to extract data related to operating performances of the firms such as return of assets, return of owners' equity, earning per share, return of investment, residual income, economic value added, refined economic value added, market value added, price earning ratio (P/E), market value/ book value ratio (M/B), Tobin ratio and other data needed. EXCELL spreadsheet program has been used to categorize the data and research variables have been extracted from it.

Data Analysis Method

In the present research regarding the independent variable to be qualitative and bidirectional and the dependent variable to be qualitative, the aim of the research is to compare the averages of independent variables and study the effects of each of them on operating performances of firms under investigation. Thus, the best method to measure the amount of effects of the independent variables on operating performances of the firms is to use the equality of two means tests (the independent t test). Statistically we can say that if the posed theory compares the means of the two populations (e.g. how an independent variable affects a dependent qualitative variable) equality of two means test should be used to investigate the rightness or wrongness of it. To compare the means of several populations (i.e. studying the effect of an independent categorization variable on a qualitative dependent variable) we should use analysis of variance (ANOVA). Thus, in the level of studying the effects of an

independent two state variable (firm sizes) on the operating performance we used an independent t test and in the level of studying the two variables concurrently (firm size and industry agent), on operating performances of firms we have used two-way Anova variance analysis method (two agents or bidirectional). When we consider the average of the two populations, we can state our null hypothesis and the encountering assumption statistically as follows:

$$\begin{cases} H_0 : \mu_1 = \mu_2 \\ H_1 : \mu_1 \neq \mu_2 \end{cases}$$

H_1: (the means of the two populations)
By using the independent t test we can conclude whether the means of ROA, ROE, EPS, ROI, RI, EVA, REVA, MVA, P/E, M/B, and Q differ much in two groups of firm sizes (big and small) or not? If this difference is meaningful we can conclude that the working group is affective on the operating performances of the companies. Also to determine the most or the least effects of each of the groups (big or small firms) we can use means' amount comparisons.

In studying the effects of the industry controlling agent, we have used a two-way variance analysis test (two agents or two ways) to identify the role of firm sizes on their operating performances regarding the type of the industry. First the grades of firms' operating performances in each of accounting, financial, value added, and integrative approaches are standardized due to the lack of sameness of these grades and then the algebraic sum of the standard grades in each of the approaches above study the simultaneous effects of the type of the industry and the type of ownership on firms' operating performances in the form of the four approaches mentioned above.

An independent qualitative categorization variable affects a dependent quantitative variable when Sig. is less than the amount of a test error level (a=0/05) and this can be a reason to reject the null hypothesis.
It should be noted that the amount of significance is an amount of error which will occur in H_0 rejection and we use Sig. which is known to be the P-Value.
α is an error level which is considered by the researcher and usually it is %5. If

$$\begin{cases} Sig < \alpha \rightarrow H_0 : \mathrm{Re}\, ject \\ Sig > \alpha \rightarrow H_0 : Not\, \mathrm{Re}\, ject \end{cases}$$

(α) is the presupposed error level and Sig is the calculated error and it shows the rejection of H_0 hypothesis.
It should be noted here that SPSS software has been used to process the data and analyze them.

Variables' Descriptions and the methods to calculate them:

The independent variable

Firm size is a criterion to recognize the bigness or smallness of the firms. To measure it we can use criteria such as assets' value, sales amount, stock's market value and the number of stocks (Shourvarzi & Pahlavan, 2010, P: 75). To determine the size of firms in this study, we calculated the logarithms of the total assets of each company. Then the mean of the logarithms of the assets of different firms which have been bigger than the related mean were considered to be as large scale firms and those with logarithms of companies with amounts less than the related means were considered to be small firms.

The dependent variables

Performance measurement is a duty of the managers through which the performances of different parts are

measured by them and there are several different approaches to assess the performances of the entities. Some researchers have used performance assessment measures regarding the type of the data used to calculate it and they have categorized this issue into the followings; these measures are used as the dependent variables in the present research:

Operating performance assessment criteria based on an accounting approach

In assessing the performance by using this approach usually the data content of financial statements are used. The most important measures in this approach are as follows:

Return of Assets

Return of Assets (ROA) shows the efficiency of using the assets and the amount of profit per Rial regarding the invested funds of the firm.

$$ROA = \frac{NI}{TA}$$

In the above equation:
ROA: Return of assets
NI: Net Income
TA: Total Assets

Return of Owners' Equity

Return of Owners' Equity (ROE) shows the efficiency of using common owners' equity and the firm's profit for each Rial of Stockholders' equity.

$$ROE = \frac{NI}{SHE}$$

In the above equation:
ROE: Return of Owners' Equity
NI: Net Income
SHE: Stockholders' equity

Earning Per Share

Earning Per Share (EPS) shows the profit a firm has earned in a certain period of time per every common share; if a corporation has a number of outstanding shares, the profit appropriated to this type of share will be subtracted from the figures of profit after subtracting the tax and then the profits will be appropriated to the common stocks.

$$EPS = ROE \times BVPS$$

In the above equation:
EPS: Earning Per Share
ROE: Return of Owners' Equity

Operating performance assessment criteria based on financial approach

In this approach we mostly use financial theories and the concepts of risk and return. The most important measures in this approach are as follows:

Return of Investment

Return of investment (ROI) in common stocks is gained from the earnings resulted from the ownership in a certain period of time regarding the start and end of the period. This criterion is calculated by dividing operating profit into the average investment amount.

$$ROI = \frac{OI}{I(A)}$$

In the above equation:

ROI: Return of investment

OI: Operating Income

I(A): Investment (Average)

Residual Income

Residual Income (RI) shows the profit after subtracting the expected return of investment resulted from operating income.

$$RI = OI - \left[Ke \times I(A) \right]$$

In the above equation:
RI: Residual Income
OI: Operating Income
Ke: The Expected Return Rate
I(A): Investment (Average)

Operating performance assessment criteria based on value added approach

In this approach mostly we use economic concepts. In this approach the firm's performance is assessed by emphasizing at the profitability power of the assets and regarding the return rate and the cost of the capital utilized. The most important measures in this approach are as follows:

Economic Value Added

Economic Value Added (EVA) is a criterion in assessing the internal performance and it stands as the economic profit and is calculated as follows:

$$EVA = (ROIC - WACC) \times IC$$

In the above equation:

EVA: Economic Value Added

ROIC: Return of Invested Capital. This number is calculated by dividing operating net income after subtracting the tax (NOPAT) into invested capital.

WACC: Weighted Average Cost of Capital, which is calculated as follows:

$$WACC = \frac{L}{L+E} Kd(1-t) + \frac{E}{L+E} Ke$$

In the above equation:

L/L+E: Weight of Liabilities

E/L+E: Weight of Common Owners' Equity

Kd: Debt Cost Rate

Ke: Common Owners' Equity Cost Rate

T: the effective taxation rate which has been considered to be based on the direct taxation laws of 22/5.

IC: It equals the Invested Capital or the utilized Capital

Refined Economic Value Added

Refined Economic Value Added (REVA) is one of the newest performance assessment criteria which shows the residual income after subtracting the capital cost (Market Capital Value*Market Return Rate) from the income resulted from operation.

$$PEVA = NOPAT - (C \times MCapital)$$

In the above equation:

REVA: Refined Economic Value Added

NOPAT: Net Operating Performance after Taxation

C: Capital Cost Rate, which is the same as capital cost in the market.

Mcapital: Market Capital Value which is the same as the market value of the firm's assets which is calculated as follows:

Mcapital = (market value of common stocks + market value of outstanding stocks + book value of liabilities – current liabilities without interest)

Based on accounting equation, the assets are considered to be equal with the total liabilities and owners' equity, in the above formula.

Market Value Added

Unlike Economic Value added, Market Value Added (MVA) is a criterion to assess the external performance and the type of assessing the firm's performance in the market is compared based on market value of liabilities and market value of stocks with the invested capital in the firm.

MVA = MVSHE (A) – BVSHE (A)

In the above equation:

MVA: Market Value Added

MVSHE(A): Market Value of Stockholders Equity (Average)

BVSHE(A): Book Value of Stockholders Equity (Average)

Operating performance assessment criteria based on integrative approach

In this approach we try to use information and outstanding values besides the data in financial statements to make the assessments more related. The most important measures in this approach are as follows:

Price To Earning Ratio

Price to Earning Ratio (P/E) is one of the most common and important assessment criteria which are calculated based on

market price of the stocks of a firm and the income per share:

$$P/E = \frac{MPS}{EPS}$$

P/E: Price to Earning Ratio
MPS: Market Price of Stock (transacted)
EPS: Earning Per Share

Market Value/Book Value Ratio

Market Value/Book Value Ratio (M/B) is used to measure the worthiness of the firm to use the credit and also it is used as a method to relative assessment of different types of business entities.

$$M/B = \frac{MPS \times EN}{EVSHS}$$

M/B: Market Value/Book Value Ratio
MPS: Market Price of Stock (transacted)
EN: Number of Common Stocks Issued
BVSHE: Book Value of Stockholders Equity

Tobin Ratio

Tobin Ratio (Q) is one of investment concepts in financial economics which is used as one off the constituents of performance assessment of the firms in the market. This ratio is calculated as follows:

$$Q = \frac{MVS + BVD}{BVA}$$

Q: Tobin Ratio
MVS: Market Value of Common Stocks
BVD: Book Value of Debts
BVA: Book Value of assets

Controlling variable

Because firms' operating performances are affected by a lot of internal and external factors such as the type of ownership, the lifespan of the firm, the sales amount and the industry, in this research we have controlled the industry agent. The samples under investigation in different steps which are extracted from the statistical population (Tehran Stock Exchange) were categorized into 11 different industries as: pharmaceutics industry, automobiles and the instruments, chemical products, food industry except sugar and sugar cube, cement and plaster, principle metals, machinery and equipments, metal products, metal and non-metal quarries, ceramics, rubber and plastic industry.

Research Hypotheses:

Major Hypothesis 1: The size of firms accepted in Tehran Stock Exchange affects performance assessment criteria based on accounting approach.
Minor Hypothesis 1: The size of firms accepted in Tehran Stock Exchange affects their Return of Assets.
Minor Hypothesis 2: The size of firms accepted in Tehran Stock Exchange affects their Return of Owners' Equity.
Minor Hypothesis 3: The size of firms accepted in Tehran Stock Exchange affects their Earnings per Share.
Major Hypothesis 2: The size of firms accepted in Tehran Stock Exchange affects performance assessment criteria based on financial approach.
Minor Hypothesis 1: The size of firms accepted in Tehran Stock Exchange affects their Return of Investment.
Minor Hypothesis 2: The size of firms accepted in Tehran Stock Exchange affects their Residual Income.
Major Hypothesis 3: The size of firms accepted in Tehran Stock Exchange affects performance assessment criteria based on value added approach.
Minor Hypothesis 1: The size of firms accepted in Tehran Stock Exchange affects their Economic Value Added.
Minor Hypothesis 2: The size of firms accepted in Tehran Stock Exchange affects their Refined Economic Value added.
Minor Hypothesis 3: The size of firms accepted in Tehran Stock Exchange affects their Market Value Added.

Major Hypothesis 4: The size of firms accepted in Tehran Stock Exchange affects performance assessment criteria based on integrative approach.

Minor Hypothesis 1: The size of firms accepted in Tehran Stock Exchange affects their Profit to Earning Ratio per Share.

Minor Hypothesis 2: The size of firms accepted in Tehran Stock Exchange affects their Market Value to Book Value Ratio per Share.

Minor Hypothesis 3: The size of firms accepted in Tehran Stock Exchange affects their Tobin Ratio.

Research Findings:

The summary of testing the research hypotheses is as follows:

The size of firms accepted in Tehran Stock Exchange affects their Return of Assets.

The statistical hypotheses of H_0 and H_1 can be written as follows:

H_0: The average of return of assets (ROA) based on firms' size, is almost the same?

H_1: The average of return of assets (ROA) based on firms' size, is different.

As it can be seen in table (1), the amount of Sig. is 0/606; thus, we can accept null hypothesis (H_0) with 95 percent assurance level that the average of return of assets (ROA) based on firms' size, is almost the same. It means that firms' sizes do not affect their return of assets. Table (1) shows the test results of ROA in the two groups of firms' sizes.

The size of firms accepted in Tehran Stock Exchange affects their Return of Owners' Equity.

The statistical hypotheses of H_0 and H_1 can be written as follows:

H_0: The average of return of owners' equity (ROE) based on firms' size, is almost the same?

H_1: The average of return of owners' equity (ROE) based on firms' size, is different.

As it can be seen in table (1), the amount of Sig. is 0/347; thus, we can accept null hypothesis (H_0) with 95 percent assurance level that the average of return of owners' equity (ROE) based on firms' size, is almost the same. It means that firms' sizes do not affect their return of owners' equity. Table (1) shows the test results of ROE in the two groups of firms' sizes.

The size of firms accepted in Tehran Stock Exchange affects their Earning per Share.

The statistical hypotheses of H_0 and H_1 can be written as follows:

H_0: The average of earning per share (EPS) based on firms' size, is almost the same?

H_1: The average of earning per share (EPS) based on firms' size, is different.

As it can be seen in table (1), the amount of Sig. is 0/018; thus, we can accept hypothesis (H_1) with 95 percent assurance level that the average of earning per share (EPS) based on firms' size, is different. It means that firms' sizes affect their earning per share. Also by comparing earning per share of each of big and small firms we can conclude that it is big firms which have the most effects on earning per share (EPS), because earning per share of big firms which is 0/982 is bigger than earning per share of small firms which is 0/002. In other words we can say that earning per share of big firms is more than earning per share of small firms and they have a better performance. Table (1) shows the test results of EPS in the two groups of firms' sizes.

The size of firms accepted in Tehran Stock Exchange affects their Return of Investment.

The statistical hypotheses of H_0 and H_1 can be written as follows:

H_0: The average of return of investment (ROI) based on firms' size, is almost the same?

H_1: The average of return of investment (ROI) based on firms' size, is different.

As it can be seen in table (1), the amount of Sig. is 0/013; thus, we can accept hypothesis (H_1) with 95 percent assurance level that the average of return of investment (ROI) based on firms' size, is different. It means that firms' sizes affect their return of investment. Also by comparing earning return of investment of big and small firms we can conclude that it is small firms which have the most effects on return of investment (ROI), because return of investment of small firms which is 0/382 is bigger than return of investment of big firms which is 0/188. In other words we can say that return of investment of small firms is more than return of investment of big firms and they have a better performance. Table (1) shows the test results of ROI in the two groups of firms' sizes.

The size of firms accepted in Tehran Stock Exchange affects their Residual Income.

The statistical hypotheses of H_0 and H_1 can be written as follows:

H_0: The average of residual income (RI) based on firms' size, is almost the same?

H_1: The average of residual income (RI) based on firms' size, is different.

As it can be seen in table (1), the amount of Sig. is 0/025; thus, we can accept hypothesis (H_1) with 95 percent assurance level that the average of residual income (RI) based on firms' size, is different. It means that firms' sizes affect their residual income. Also by comparing residual income of big and small firms we can conclude that it is small firms which have the most effects on residual income (RI), because residual income of small firms which is -5723.775 is bigger than residual income of big firms which is -295922.626. In other words we can say that residual income of small firms is more than residual income of big firms and they have a better performance. Table (1) shows the test results of RI in the two groups of firms' sizes.

The size of firms accepted in Tehran Stock Exchange affects their Economic Value Added.

The statistical hypotheses of H_0 and H_1 can be written as follows:

H_0: The average of economic value added (EVA) based on firms' size, is almost the same?

H_1: The average of economic value added (EVA) based on firms' size, is different.

As it can be seen in table (1), the amount of Sig. is 0.026; thus, we can accept hypothesis (H_1) with 95 percent assurance level that the average of economic value added (EVA) based on firms' size, is different. It means that firms' sizes affect their economic value added. Also by comparing earning economic value added of big and small firms we can conclude that it is big firms which have the most effects on economic value added (EVA), because economic value added of big firms which is 23174652.464 is bigger than economic value added of small firms which is 6792955.573. In other words we can say that economic value added of big firms is more than economic value added of small firms and they have a better performance.

Table (1) shows the test results of EVA in the two groups of firms' sizes.

The size of firms accepted in Tehran Stock Exchange affects their Refined Economic Value Added.

The statistical hypotheses of H_0 and H_1 can be written as follows:

H_0: The average of refined economic value added (REVA) based on firms' size, is almost the same?

H_1: The average of refined economic value added (REVA) based on firms' size, is different.

As it can be seen in table (1), the amount of Sig. is 0.279; thus, we can accept null hypothesis (H_0) with 95 percent assurance level that the average of refined economic value added (REVA) based on firms' size, is almost the same. It means that firms' sizes do not affect their refined economic value added. Table (1) shows the test results of REVA in the two groups of firms' sizes.

The size of firms accepted in Tehran Stock Exchange affects their Market Value Added.

The statistical hypotheses of H_0 and H_1 can be written as follows:

H_0: The average of market value added (MVA) based on firms' size, is almost the same?

H_1: The average of market value added (MVA) based on firms' size, is different.

As it can be seen in table (1), the amount of Sig. is 0/293; thus, we can accept null hypothesis (H_0) with 95 percent assurance level that the average of market value added (MVA) based on firms' size, is almost the same. It means that firms' sizes do not affect their market value added. Table (1) shows the test results of MVA in the two groups of firms' sizes.

The size of firms accepted in Tehran Stock Exchange affects their Price/Earning Ratio of each Share.

The statistical hypotheses of H_0 and H_1 can be written as follows:

H_0: The average of price/earning ratio of each share (P/E) based on firms' size, is almost the same?

H_1: The average of price/earning ratio of each share (P/E) based on firms' size, is different.

As it can be seen in table (1), the amount of Sig. is 0.136; thus, we can accept null hypothesis (H_0) with 95 percent assurance level that the average of price/earning ratio of each share (P/E) based on firms' size, is almost the same. It means that firms' sizes do not affect their price/earning ratio of each share. Table (1) shows the test results of P/E in the two groups of firms' sizes.

The size of firms accepted in Tehran Stock Exchange affects their Market Value/Book Value Ratio per Share.

The statistical hypotheses of H_0 and H_1 can be written as follows:

H_0: The average of market value/book value per share (M/B) based on firms' size, is almost the same?

H_1: The average of market value/book value per share (M/B) based on firms' size, is different.

As it can be seen in table (1), the amount of Sig. is 0.769; thus, we can accept null hypothesis (H_0) with 95 percent assurance level that the average of market value/book value per share (M/B) based on firms' size, is almost the same. It means that firms' sizes do not affect their market value/book value per share. Table (1) shows the test results of M/B in the two groups of firms' sizes.

The size of firms accepted in Tehran Stock Exchange affects their Tobin Ratio.

The statistical hypotheses of H_0 and H_1 can be written as follows:

H_0: The average of Tobin ratio (Q) based on firms' size, is almost the same?

H_1: The average of Tobin ratio (Q) based on firms' size, is different.

As it can be seen in table (1), the amount of Sig. is 0/289; thus, we can accept null hypothesis (H_0) with 95 percent assurance level that the average of Tobin ratio (Q) based on firms' size, is almost the same. It means that firms' sizes do not affect their Tobin ratio. Table (1) shows the test results of Q in the two groups of firms' sizes.

Table1. T test and dependent variables average in the two groups of firm sizes

T test result And Meaning fullness level		Big firms 35		Small firms 31		Firm and Number
Sig	t Test	Criterion deviation	Average	Criterion deviation	Average	factor
0.606	0.517	0.873	0.305	0.350	0.266	ROA
0.347	0.94	0.392	0.562	0.109	0.168	ROE
0.018	2.386	0.504	0.982	0.004	0.002	EPS
0.013	2.486	0.129	0.188	0.026	0.382	ROI
0.025	2.249	1590744.612	-295992.626	236477.076	-5723.775	RI
0.026	2.238	71166319.048	23174652.644	60274689.257	6792955.573	EVA
0.279	1.085	1459463.0311	-136491.309	77365242.981	6206432.570	REVA
0.293	1.052	2076968.530	-32241.431	942556.294	158702.854	MVA
0.136	1.496	12.310	10.286	12.066	8.274	P/E
0.769	0.294	1.228	0.999	1.416	1.041	M/B
0.289	1.063	7.910	3.029	33305.299	2677.703	Q

Studying the simultaneous effects of industry factor and firms' sizes:

The samples under investigation in our study were extracted from the total statistical population in different steps from among 11 different industries. In this study we have used a bidirectional (two agents or two ways) variance analysis test. The results of variance analysis in table (2) show that in studying the simultaneous effect of the type of the industry and the firms' sizes on operating performances based on accounting approach, the type of industry affects the performances based on firms' accounting approach because the amount of Sig. of the type of industry (0.017) is less than 5 percent. Also firms'

sizes do not affect the performances based on firms' accounting approach because the amount of Sig. of firms' sizes (0.275) is more than 5 percent. Finally the types of industry and firms' sizes have a reciprocal effect on each other. This result is achieved due to the less amount of Sig. of the type of industry and the firms' sizes (0.043) with 5 percent. Also in studying the simultaneous effect of the type of industry and firms' sizes on operating performances based on financial approach, the type of industry affects the performances based on financial approach of the firms because the amount of the Sig. of industry (0.000) is less than 5 percent. Also firms' sizes affect firms' performances

based on financial approach because the amount of Sig. of firms' sizes (0.008) is less than 5 percent and finally the types of industry and firms' sizes have a reciprocal effect on each other. This result is due to the less amount of Sig. of the type of industry and firms' sizes (0.000) than 5 percent. Also in studying the simultaneous effect of the type of industry and firms' sizes on operating performances based on value added approach, the type of industry affects the performances based on value added approach of the firms because the amount of the Sig. of industry (0.000) is less than 5 percent. Also firms' sizes do not affect firms' performances based on firms' value added approach because the amount of Sig. of firms' sizes (0.179) is more than 5 percent and finally the types of industry and firms' sizes do not have a reciprocal

effect on each other. This result is due to the larger amount of Sig. of the type of industry and firms' sizes (0.856) than 5 percent. Also in studying the simultaneous effect of the type of industry and firms' sizes on operating performances based on integrative approach, the type of industry affects the performances based on integrative approach of the firms because the amount of the Sig. of industry (0.000) is less than 5 percent. Also firms' sizes do not affect firms' performances based on integrative approach because the amount of Sig. of firms' sizes (0.059) is more than 5 percent and finally the types of industry and firms' sizes have a reciprocal effect on each other. This result is due to the less amount of Sig. of the type of industry and firms' sizes (0.000) than 5 percent. Table (2) shows the results of the related test.

Table 2. variance analysis of the averages of performances based on each of accounting, financial, value added and integrative approaches in different groups of the types of industries and firms' sizes

	Accounting Approach		Financial approach		Value Added Approach		Integrative Approach	
	F	Sig.	F	Sig.	F	Sig.	F	Sig.
Type of industry	2.211	0.017	4.160	0.000	6.517	0.000	8.347	0.000
Firms' sizes	1.195	0.275	7.137	0.008	1.818	0.179	3.598	0.059
Type of industry *firms' sizes	2.024	0.043	3.634	0.000	0.500	0.856	5.254	0.000

Conclusion and Discussion

The present research has studied the relationship between firms' sizes and their operating performances of firms accepted in Tehran Stock Exchange and the main findings are as follows:

Firms' sizes do not affect their return of assets.
Firms' sizes do not affect their return of owners' equity.
Firms' sizes affect their earning per share and big firms have more earning for each

share compared with small firms and they have better performances.
Firms' sizes affect their return of investment and small firms have more investment return compared with big firms and they have better performances.
Firms' sizes affect their residual income and small firms have more residual income compared with big firms and they have better performances.
Firms' sizes affect their economic value added and big firms have more economic value added compared with small firms and they have better performances.

Firms' sizes do not affect their refined economic value added.

Firms' sizes do not affect their market value added.

Firms' sizes do not affect their price/earning ratio of each share.

Firms' sizes do not affect their market value/book value ratio of each share.

Firms' sizes do not affect their Tobin ratio.

In studying the simultaneous effect of the type of industry and firms' sizes on the performances based on accounting approach, the type of the industry does not affect the performances based on accounting approach but firms' sizes do not affect the performances based on this approach; finally the type of industry and firms' sizes have a reciprocal effect on each other. In studying the simultaneous effect of the type of industry and firms' sizes on the performances based on financial approach, the type of the industry affects the performances based on financial approach and also firms' sizes affect the performances based on this approach; finally the type of industry and firms' sizes have a reciprocal effect on each other. In studying the simultaneous effect of the type of industry and firms' sizes on the performances based on value added approach, the type of the industry affects the performances based on value added approach but firms' sizes do not affect the performances based on this approach; finally the type of industry and firms' sizes do not have a reciprocal effect on each other. In studying the simultaneous effect of the type of industry and firms' sizes on the performances based on integrative approach, the type of the industry affects the performances based on integrative approach but firms' sizes do not affect the performances based on this approach; finally the type of industry and firms' sizes have a reciprocal effect on each other.

Considering the results of testing first and second minor hypotheses related to the first major hypothesis, the second and third minor hypotheses related to the third major hypothesis and the minor hypotheses related to the fourth major hypothesis, to a great extent and in most cases, our results were similar to the results of researches carried out by Haward Chan, Robert Phaph & Allen Ramzi, Khalegh-e-Moghaddam & Ahmad Khan Beighi (2011) which shows the lack of the effectiveness of the firms' sizes on the factors under our investigation.

Considering the results of testing the third minor hypothesis related to the first major hypothesis and the first minor hypothesis related to the third major hypothesis, to a great extent and in most cases, our results were similar to the results of researches carried out by Albert and Richardson, Ahmad & et al. (2002), Shourvarzi & Pahlavan (2010), Bani Mahd & Baghbani (2009) which show that there is a positive and direct effect between firms' sizes and the factors under our investigation. And finally considering the results of testing first and second minor hypotheses of the second major hypothesis, to a great extent and in most cases, our results were similar to the results of researches carried out by Watts & Zimmerman (1987), Zimmsky & Hagerman (1979), Dikin (1979), Liman & Pastena (1982), Dawal, salamon & Smitch (1982), Daloo & Wigland (1983), and Babong, Pourheidari & Hemmati which shows the reverse effectiveness of the firms' sizes on the factors under our investigation.

Regarding the results of the present research, it is suggested that the investors and economists take into consideration the factor of firms' sizes and the type of the industry in Iranian capital market due to effectiveness, simple calculations, having enough accessible data, and simplicity of

understanding these factors. Finally regarding that different economic, social, cultural, and political factors which are effective in firms' values, it is suggested that Tehran Stock Exchange should increase the insights and appropriate economic analysis in assessing the firms and perform the required and more appropriate operations.

Suggestions for future researches in the field:

1- Use other novel performance assessment variables in studying the effect of firms' sizes on their operating performances;

2- Study debt ratio, capital ratio, macro-economic variables' effects on the relationships between firms' sizes and their operating performances;

3- Do similar investigations in a time period of 10 or 15 years;

4- Limit the similar investigations in one or some certain industries.

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