

The Investigation of the Relation between Distributed Dividend and Returns on Shareholder's Equity (Case Study: Companies Accepted in Tehran Stock Exchange)

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ABSTRACT

Being acquainted fully and scientifically and based on experimental tests with the association between distributed dividend and returns on shareholder's equity (ROE) has a tremendous impact on decision-making process of shareholders, potential shareholders (would-be shareholders) and managers of companies. Therefore, in the following research the association between ROE and the distributed dividend of the companies in Tehran Stock Market from 2007 to 2011 is analyzed.

In order to test and examine the research hypotheses under the name of "the analysis of the association between ROE and the distributed dividend of the companies in Tehran Stock Market", the required data, including data about the distributed dividend and ROE concerning the above-mentioned years have been collected from monthly and annual reports by the Stock Exchange and financial reports and statements of companies, and analyzed by the correlation coefficient and the T-student test. Moreover, the Fisher-F test was used to identify and analyze any possible linear relationship among the variables. The results show a significant relationship between distributed dividend and returns on shareholder's equity (ROE), and clarify another aspect of dividend distribution process and occupy a substantial role in completing the information required by investors and analysts.

KEYWORDS: Distributed dividend, returns on shareholder's equity (ROE), priced at the book value of each share, returns on capital for owners, investment income, companies admitted into stock exchange

INTRODUCTION

Increasing diversifications and expansions in economic activities, trade and business units and emergence of independent legal personalities, and the necessity to supply accurate and precise information, and more importantly, the approach and attitude towards this information, these units and personalities concerning decision-making inside and outside the company, have led to invention and implementation of new techniques for assessment and analysis of companies from different perspectives [1].

These methods and techniques have expanded and evolve alongside the development of accountancy profession and have been handed to financial analysts and decision-makers. Alongside this remarkable progress, scholars' and researchers' roles are undeniable and obvious to everyone. Alongside researchers' efforts, the necessity of meeting the users' needs for better and more scientific information led the accountancy profession to exceed users' traditional expectations, which is registration and report of financial events and activities, and be utilized as a base in decision-making processes and provision and allocation of capital in an optimized way to fulfill its significant role in development of the country. Stock market is the main source of capital for companies. Selling companies' shares offers marvelous investment opportunities. The disposition to boost capital and maximize wealth through enhancing investment returns and increasing share price, alongside the caution and risk from decrease or dramatic fall in investment have caused investors and security¹ buyers to largely and exclusively focus on analyzing companies, managers and change in share price. Companies' and industrial units' profit and loss represent their final stretch. If their final stretch is positive, then there is profit (not loss), and it is a must to share and split it all among shareholders. According to the regulations of the commercial law, companies is obliged to share at least 10 percent of their annual profits, if any, among shareholders, and following the approval of shareholders and allocating sufficient fund, this percentage may increase up to 100 percent. In some cases, companies avoid sharing profits due to liquidity crisis (lack of cash) or increase in profit-earned capital, which causes retained earnings (cumulative profits). Dividends (EPS) are of three types: Cash dividend, non-cash dividend and bonus share [2].

¹Bonds and stocks (shares)

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Since the decisions that are made on investments aim at making profits, and investors intend to achieve their expected investment returns, anything that poses an obstacle to this goal, is strongly avoided and prevented. Therefore, in order to make people ready and willing to invest, positive returns on their potential investment and capital must be guaranteed.

It is worth pointing out that the investors interested in investment returns feel well disposed towards companies with high dividend payment and distribution. Investors are interested in predicting their capital gains and investment returns. Therefore, companies intend to preserve and maintain their distributed dividends' stability in relation to the amount of the returns and interest paid and the time of payment. Companies that fail to relatively preserve this stability will go down in share price and lose their attraction to investors.

One of the things that really matter to managers is dividend distribution which is expected to bear a close and direct relation to companies' profits [3]

Companies often apply a single method to dividend distribution. However they might sometimes bring about changes in their policy. Dividend distribution is generally handled in three different ways: fixed dividend distribution policy, variable dividend distribution policy and fixed dividend distribution plus extra dividend policy. Additionally, companies might reserve a part of their annual net revenues and earnings as optional savings and reserves for implementation of future plans, and the remainder is distributed among shareholders, which is called residual income (dividend) policy[4].

It is clear that companies adopt different distribution policies, but it must be taken into consideration that, irrespective of specific policy of every company, managers, considering information and predictions about their company's future, should manage and distribute dividends in a way that prevent distribution changes from negatively affecting shareholders and their enthusiasm towards investment[5]

In order to encourage people to invest, companies must instill and foster positive attitude towards investment and assure investors of their absolute profit and guaranteed returns. This way, investors will be more willing to expand and broaden their partnership with company and will consequently enjoy more opportunities and facilities. Thus, it is expected that the returns and dividends make investors postpone unlocking and expending their capital. Basically, one of the purposes of investing is to yield profits and returns. One of the information that investors are provided with in Tehran Stock Exchange is the amount of companies' distributed dividends. Now the question is, "Is there a possible link between a company's distributed dividend and its stock returns and earnings?" The goal of this study is to analyze the link and relationship between the variables "distributed dividend" and "stock returns"[6].

Research Track record

Dividend distribution is one of the oldest and most controversial topics of discussion in financial management, to the extent that Mr. Fisher Black calls it "Dividend Puzzle".

One of the most a well-known and groundbreaking piece of research which has been conducted out of Iran is briefly as follows:

According to Modigliani–Miller theorem, assuming that company's investment distribution is fixed and stable, the type of dividend distribution policy doesn't affect shareholders' wealth [7]. Contrary to Modigliani–Miller theorem, according to the study conducted by Walter and Gordon, dividend payment increases share value, and shareholders prefer receiving dividends to probable increase in share price (Walter 1995, Gordon 1994). Some other pieces of research done on this area are: "Fame & Babied, 1991" and "Linter, 1992".

Some pieces of research are also conducted in Iran on dividend distribution policies and their impact on companies' share price and share value that are published or issued as MA theses and scholarly research papers, as follows:

- Samad-zadeh (1993) did a piece of research on dividend distribution policies and their impact on companies' share price in stock exchange. He concluded that of 84 companies under study, 6 percent use the distribution policy of fixed dividend in Rails, 27 percent use fixed and variable policy, 11 percent use fixed (constant) ratio distribution policy and the remaining 56 percent use unknown policies. It was also concluded that in Tehran Stock Exchange, in the time of study, no specific policies were adopted by companies, and most companies distributes their dividends based on their short-lived and changing requirements and investments [8].
- Mehrani's MA thesis entitled "A pattern for the relation among dividend, distribution and investment", (1994)
- Gholi-pour's MA thesis entitled "An analysis of the impacts of dividend distribution policies on share value of companies admitted into Tehran Stock Exchange", (1995)
- Imani Pour Moqaddam's MA thesis entitled "An analysis of links between changes in distributed dividend and changes in future returns and profits in companies admitted into Tehran Stock Exchange", (1994)
- KhademMo'akharShahrReza's MA thesis entitled "An analysis of the relation between dividend distribution policy and changes in share price in the companies admitted into Tehran Stock Exchange", (2001)

- Abdollah-pour's MA thesis entitled "An analysis of dividend distribution policy in the companies admitted into Tehran Stock Exchange", (1997)
- Amaani's MA thesis entitled "An analysis of the relation between distributed dividend and share price in the companies admitted into Tehran Stock Exchange", (1997)
- Asadi's MA thesis entitled "An analysis of changes in share price after dividend distribution and calculation of the rate of taxes for shareholders"
- The results from Mr. SasanMehrani's& Mr. KavehMehrani's study (2003) show that returns on assets (ROA) and ROE bear a significant relation to returns on stocks. Moreover, the results from Mr. Khosh-teenat's& Mr. Saarebanha's study show that there is a direct correlation between distributed dividend and share price [1].

RESEARCH METHODOLOGY

This is a practical type of research which is carried out based on library research method. The required information for the research itself has been collected from books, articles, journals and websites such as Islamic Research Management website and Tehran Stock Exchange website, and the required information for hypothesis testing has been gathered from weeklies, yearbooks, computers and other information sources in Tehran Stock Exchange Organization. Then the SPSS software is used to analyze and test the hypotheses[9].

The population (statistical society), considering the above three limitations, consists of 229 qualified companies, from which 85 companies were selected and their required information was collected for hypothesis testing. The selection procedure of 85 companies from 229 qualified companies is as follows:

First, companies were selected and classified on the basis of types of industries. Then, a specific and adequate number of samples of each industry were chosen on the basis of number of companies in each industry. Therefore, the type of sampling method utilized in this study is Classified Random Sampling Method.

Research Hypotheses

Our hypothesis entitled "There is a significant relation between returns on shareholders' equity and dividend distribution [policy] in the companies admitted into Tehran Stock Exchange."

This hypothesis undergoes a 6-period testing:

First period: "There is a significant relation between dividend distribution and changes in returns on shareholders' equity in 2007"

Second period: "There is a significant relation between dividend distribution and changes in returns on shareholders' equity in 2008"

Third period: "There is a significant relation between dividend distribution and changes in returns on shareholders' equity in 2009"

Fourth period: "There is a significant relation between dividend distribution and changes in returns on shareholders' equity in 2010"

Fifth period: "There is a significant relation between dividend distribution and changes in returns on shareholders' equity in 2011"

During the sixth period, the hypothesis testing is done for the whole period from 2007 to 2011. Therefore the hypothesis will be: "There is a significant relation between dividend distribution and changes in returns on shareholders' equity from 2007 to 2011"

Since these hypotheses aim to determine and clarify the relation between two variables, first the correlation coefficient (r) between two variables is calculated for each year, then Student's t -distribution is used to test and assess the significance of the correlation coefficient (r). To do this, we use the calculated t -statistic to calculate the probable equivalent amount.

Now since the confidence level is considered 95%, if the probable equivalent amount is less than 5%, the hypothesis is rejected. Otherwise it will be confirmed and proven.

Hypotheses Testing

Hypothesis testing for 2007

"There is a significant relation between dividend distribution and changes in returns on shareholders' equity in 2007"

Hypothesis H_0 : There is not a significant relation between distributed dividend and returns on shareholders' equity.

Hypothesis H_1 : There is a significant relation between distributed dividend and returns on shareholders' equity.

The correlation coefficient between independent variables and dependent variables at 5% error level equals 0/614, which shows a direct and incomplete relation between variables. Considering the determination

coefficient that equals 37/7 percent, it is clear that the 37-percent changes in dependent variable are presented by the independent variable. The t-test is used to make the calculated correlation coefficient significant. Since the calculated amount of t-statistic, which is 5/919, is more than the amount mentioned in the table, (that is, $n-2$ and $t\alpha / 2$ or $58=1/96$ and $t/025$), so the correlation coefficient is significant. That is, Hypothesis H_0 is rejected at the confidence level of 0/95. In other words, since the probable equivalent amount (sig) is less than significance level of 0/05, therefore H_0 is rejected. It means that there is a significant relation between distributed dividend and returns on equity (ROE). The Regression model of 2007 is modified as:

$$Y=0/301 + 0/614x$$

In order to verify the proposed model and see if it is proper, we do the hypothesis testing on the following hypotheses being linear or non-linear:

H_0 : $B=0$ (No linear relation)

H_1 : $B \neq 0$ (Linear relation)

In order to test the above hypothesis, F-test has been applied. According to the below table, since the calculated F (=35/03) is more than the amount of F in the table (=4), therefore the presented model is a good and standard one. That is, a linear relation exists between the variables. In other words, the H_1 hypothesis is confirmed and the H_0 hypothesis is rejected.

The above results can be summed up in the following table:

Number of Samples	Correlation coefficient	T statistic	Significance level	Probable equiv. amount
85 companies	0/614	5/919	0/05 %	0/000

Hypothesis testing for 2008

"There is a significant relation between dividend distribution and changes in returns on shareholders' equity in 2008"

Hypothesis H_0 : There is not a significant relation between distributed dividend and returns on shareholders' equity.

Hypothesis H_1 : There is a significant relation between distributed dividend and returns on shareholders' equity.

The correlation coefficient between independent variables and dependent variables at 5% error level equals 0/817, which shows a direct and incomplete relation between variables. Considering the determination coefficient that equals 66/7 percent, it is clear that the 66-percent changes in dependent variable are presented by the independent variable. The t-test is used to make the calculated correlation coefficient significant.

Since the calculated amount of t-statistic, which is 10/77, is more than the amount mentioned in the table, (that is, $n-2$ and $t\alpha / 2$ or $58=1/96$ and $t/025$), so the correlation coefficient is significant. That is, Hypothesis H_0 is rejected at the confidence level of 0/95. In other words, since the probable equivalent amount (sig) is less than significance level of 0/05, therefore H_0 is rejected. It means that there is a significant relation between distributed dividend and returns on equity (ROE). The Regression model of 2008 is modified as:

$$Y=0/182 + 0/817x$$

In order to verify the proposed model and see if it is proper, we do the hypothesis testing on the following hypotheses being linear or non-linear:

H_0 : $B=0$ (No linear relation)

H_1 : $B \neq 0$ (Linear relation)

In order to test the above hypothesis, F-test has been applied. According to the below table, since the calculated F (=116/059) is more than the amount of F in the table (=4), therefore the presented model is a good and standard one. That is, a linear relation exists between the variables. In other words, the H_1 hypothesis is confirmed and the H_0 hypothesis is rejected.

The above results can be summed up in the following table:

Number of Samples	Correlation coefficient	T statistic	Significance level	Probable equiv. amount
85 companies	0/817	10/77	0/05 %	0/000

Hypothesis testing for 2009

"There is a significant relation between dividend distribution and changes in returns on shareholders' equity in 2009"

Hypothesis H_0 : There is not a significant relation between distributed dividend and returns on shareholders' equity.

Hypothesis H_1 : There is a significant relation between distributed dividend and returns on shareholders' equity.

The correlation coefficient between independent variables and dependent variables at 5% error level equals 0/645, which shows a direct and incomplete relation between variables. Considering the determination coefficient that equals 41/6 percent, it is clear that the 41-percent changes in dependent variable are presented by the independent variable. The t-test is used to make the calculated correlation coefficient significant.

Since the calculated amount of t-statistic, which is 6/425, is more than the amount mentioned in the table, (that is, $n-2$ and $t\alpha / 2$ or $58=1/96$ and $t/025$), so the correlation coefficient is significant. That is, Hypothesis H_0 is rejected at the confidence level of 0/95. In other words, since the probable equivalent amount (sig) is less than significance level of 0/05, therefore H_0 is rejected. It means that there is a significant relation between distributed dividend and returns on equity (ROE). The Regression model of 2009 is modified as:

$$Y=0/225 + 0/645x$$

In order to verify the proposed model and see if it is proper, we do the hypothesis testing on the following hypotheses being linear or non-linear:

H_0 : $B=0$ (No linear relation)

H_1 : $B \neq 0$ (Linear relation)

In order to test the above hypothesis, F-test has been applied. According to the below table, since the calculated F (=41/284) is more than the amount of F in the table (=4), therefore the presented model is a good and standard one. That is, a linear relation exists between the variables. In other words, the H_1 hypothesis is confirmed and the H_0 hypothesis is rejected.

The above results can be summed up in the following table:

Number of Samples	Correlation coefficient	T statistic	Significance level	Probable equiv. amount
85 companies	0/645	6/425	0/05 %	0/000

Hypothesis testing for 2010

There is a significant relation between dividend distribution and changes in returns on shareholders' equity in 2010"

Hypothesis H_0 : There is not a significant relation between distributed dividend and returns on shareholders' equity.

Hypothesis H_1 : There is a significant relation between distributed dividend and returns on shareholders' equity.

The correlation coefficient between independent variables and dependent variables at 5% error level equals 0/785, which shows a direct and incomplete relation between variables. Considering the determination coefficient that equals 61/6 percent, it is clear that the 61-percent changes in dependent variable are presented by the independent variable. The t-test is used to make the calculated correlation coefficient significant.

Since the calculated amount of t-statistic, which is 9/656, is more than the amount mentioned in the table, (that is, $n-2$ and $t\alpha / 2$ or $58=1/96$ and $t/025$), so the correlation coefficient is significant. That is, Hypothesis H_0 is rejected at the confidence level of 0/95. In other words, since the probable equivalent amount (sig) is less than significance level of 0/05, therefore H_0 is rejected. It means that there is a significant relation between distributed dividend and returns on equity (ROE). The Regression model of 2010 is modified as:

$$Y=0/218 + 0/785x$$

In order to verify the proposed model and see if it is proper, we do the hypothesis testing on the following hypotheses being linear or non-linear:

H_0 : $B=0$ (No linear relation)

H_1 : $B \neq 0$ (Linear relation)

In order to test the above hypothesis, F-test has been applied. According to the below table, since the calculated F (=93/231) is more than the amount of F in the table (=4), therefore the presented model is a good and standard one. That is, a linear relation exists between the variables. In other words, the H_1 hypothesis is confirmed and the H_0 hypothesis is rejected.

The above results can be summed up in the following table:

Number of Samples	Correlation coefficient	T statistic	Significance level	Probable equiv. amount
85 companies	0/785	9/656	0/05 %	0/000

Hypothesis testing for 2011

There is a significant relation between dividend distribution and changes in returns on shareholders' equity in 2011"

Hypothesis H_0 : There is not a significant relation between distributed dividend and returns on shareholders' equity.

Hypothesis H_1 : There is a significant relation between distributed dividend and returns on shareholders' equity.

The correlation coefficient between independent variables and dependent variables at 5% error level equals 0/812, which shows a direct and incomplete relation between variables. Considering the determination coefficient that equals 65/9 percent, it is clear that the 65-percent changes in dependent variable are presented by the independent variable. The t-test is used to make the calculated correlation coefficient significant.

Since the calculated amount of t-statistic, which is 10/576, is more than the amount mentioned in the table, (that is, $n-2$ and $t\alpha/2$ or $58=1/96$ and $t/025$), so the correlation coefficient is significant. That is, Hypothesis H_0 is rejected at the confidence level of 0/95. In other words, since the probable equivalent amount (sig) is less than significance level of 0/05, therefore H_0 is rejected. It means that there is a significant relation between distributed dividend and returns on equity (ROE). The Regression model of 2011 is modified as:

$$Y=0/194 + 0/812x$$

In order to verify the proposed model and see if it is proper, we do the hypothesis testing on the following hypotheses being linear or non-linear:

$$H_0: B=0 \text{ (No linear relation)}$$

$$H_1: B \neq 0 \text{ (Linear relation)}$$

In order to test the above hypothesis, F-test has been applied. According to the below table, since the calculated F (=111/858) is more than the amount of F in the table (=4), therefore the presented model is a good and standard one. That is, a linear relation exists between the variables. In other words, the H_1 hypothesis is confirmed and the H_0 hypothesis is rejected.

The above results can be summed up in the following table:

Number of Samples	Correlation coefficient	T statistic	Significance level	Probable equiv. amount
85 companies	0/812	10/576	0/05 %	0/000

Hypothesis testing for 2007-2011

There is a significant relation between dividend distribution and changes in returns on shareholders' equity in the period from 2007 to 2011"

Hypothesis H_0 : There is not a significant relation between distributed dividend and returns on shareholders' equity.

Hypothesis H_1 : There is a significant relation between distributed dividend and returns on shareholders' equity.

The correlation coefficient between independent variables and dependent variables at 5% error level equals 0/735, which shows a direct and incomplete relation between variables. Considering the determination coefficient that equals 54/7 percent, it is clear that the 54-percent changes in dependent variable are presented by the independent variable. The t-test is used to make the calculated correlation coefficient significant.

Since the calculated amount of t-statistic, which is 8/669, is more than the amount mentioned in the table, (that is, $n-2$ and $t\alpha/2$ or $58=1/96$ and $t/025$), so the correlation coefficient is significant. That is, Hypothesis H_0 is rejected at the confidence level of 0/95. In other words, since the probable equivalent amount (sig) is less than significance level of 0/05, therefore H_0 is rejected. It means that there is a significant relation between distributed dividend and returns on equity (ROE). The Regression model of 2007-2011 is modified as:

$$Y=0/224 + 0/735x$$

In order to verify the proposed model and see if it is proper, we do the hypothesis testing on the following hypotheses being linear or non-linear:

$$H_0: B=0 \text{ (No linear relation)}$$

$$H_1: B \neq 0 \text{ (Linear relation)}$$

In order to test the above hypothesis, F-test has been applied. According to the below table, since the calculated F (=79/492) is more than the amount of F in the table (=4), therefore the presented model is a good and standard one. That is, a linear relation exists between the variables. In other words, the H_1 hypothesis is confirmed and the H_0 hypothesis is rejected.

The above results can be summed up in the following table:

Number of Samples	Correlation coefficient	T statistic	Significance level	Probable equiv. amount
85 companies	0/735	8/669	0/05 %	0/000

DISCUSSION AND CONCLUSION

The results from the above hypothesis testing procedures, which were implemented and carried out in the fourth season of the research, for the period from 2007 to 2011, show that the Hypothesis H_0 concerning the nonexistence of any significant relation between distributed dividend and returns on shareholders' equity is rejected and Hypothesis H_1 concerning existence of a significant relation between distributed dividend and returns on shareholders' equity in companies admitted into Stock Exchange is proved and confirmed. Therefore, with 95 percent certainty, it can be claimed that ROE of various industries and companies which are admitted into Tehran Stock Exchange, is directly affected by distributed dividend of each share and changes in amount of distributed dividend of each share. It is worth pointing out that in this study, the distributed dividend is considered to be the independent variable, and the ROE is regarded as the dependent variable.

This can be concluded that the more distributed dividend gets, the more ROE grows, and vice versa. According to the results from the study, this claim has been proved that any changes in distributed dividends can have an impact on share price and ROE. That is, the ROE of companies which pay high dividends increase, and vice versa. Therefore, those investors who look for big returns are recommended to invest in shares of companies which, according to predictions, distribute more dividends.

According to the results, since any abrupt and unexpected changes of distribution policy towards reducing dividends will convey the idea that the company is in poor conditions, managers of companies are strongly recommended to adopt a coherent and specific distribution policy [10].

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