On the Relationship between Stock Price and Dividends per Share among More Active Companies of Tehran Stock Exchange

Mohammad Hassan Gholizadeh¹, Esmaeel Ramzanpoor¹, Laleh Babaie Shalmani²

¹. Assistant Professor, Faculty of Literature and Humanities, Department of Management, University of Guilan
². MA Student of MBA- Finance Major, International Pardis of Guilan University

Corresponding Author email: laleh.babaie@gmail.com

ABSTRACT: One of the main goals of the Tehran Stock Exchange is inform companies properly and timely. If this assumption holds, estimation of stock price will be possible. Rial worth of every share card is called stock price declared by Stock Exchange (capital market). The aim of the rationale investment is that among stock exchange, a stock will be chosen if it has any equal risks than other bonds, has the highest benefit. The realm of the more active companies listed in Tehran Stock Exchange ranged from 86 to 90, through the analysis of financial statements, to achieve a significant correlation between stock price and earnings per share was considered.

Keywords: Capital Market, Dividends per Share, More Active Companies, Price per Share, Stock Exchange.

INTRODUCTION

Achieving greater efficiency and clarity is the main objective of the capital market. Clarity will be achieved only by representing the comprehensive economic and financial information at the appropriate time. But the aim is not only to disclose financial information, but its quality is also important.

Thus one of the main objectives of the Stock Exchange is forcing the companies to represent right information. Accordingly, we can see that representing exact, correct and on time financial information is accurate is one of the most important scales of health and integrity of the market.

Investors can make decisions properly by financial information. If the knowledge is true, the price discovery will be possible and can be sure that resources are allocated to the most efficient uses.

But we can suggest this subject if the information users know the way of using it, this information would be useless. As a result, investors should be trained to have an understanding of the information provided.

The Price per Share and Dividends per Share

Stock Exchange: creating fair, efficient and clear market with various tools and easy access so as to create added value for stakeholders (Anvari Rostami, 2007).

Price per share (Pₚ): Rial value of every share leaf that will be declared by stock exchange to buy or sell (Taghavi, 1990).

Dividends per Share (DPS): It is achieved by the total Rial value of the cash benefit that will be paid to holders of common stock would be issued by the number of ordinary shares. (Janani, 1990).

Dividends per share (DPS) = \( \frac{\text{Dividends per Share to the ordinary}}{\text{The number of issued ordinary}} \)

The Expression and Significance

What is important in economics is the difference between what is actually happening with what was anticipated or expected to happen.

If dividends are declared is equal to the amount that market expects, there was not much changes in the stock price. Market with expecting higher dividend, it will be discounted.

If the dividend is higher than the profit the market expects, the market will begin to review the evaluation. This revised assessment will lead to fluctuating stock prices upward.
Also when the dividends declared is less than future, the market may revise related to its undesirability, this action create undulation that will be appeared in the form of decreasing the stock price and increase investment risk for shareholders.

**Motives of the Study**
The following represent the motives of the study:
- The importance of pricing the share in success of the companies in order to develop and grow the country economy.
- Tendency of the shareholders to invest in stock exchange.
- Increasing the awareness and cultural promotion in the capital market along with development and efflorescence of the country.

**Research Questions**
The way of thinking and behave related to the new information that reaches to the market forms the price fluctuation. According to the importance of the subject, the question provided for the researcher is that:
- Is there any significant relation between Price per Share and Dividends per Share?
- Main hypothesis: there is a significant relation between the Price per Share and Dividends per Share.

**Theories and Trends**
Overview the studies and the effect of dividends on the stock price
- Gordon (1959) believes that divided dividends increase the shareholder wealth. Miller and shulz (1978) believe that the divided doesn't have any effect on shareholder wealth. Litzenberg and Ramasavi (1979) believe that the divided dividend decrease the shareholder wealth.
- Ahorni and Sari (1980) and Kali and Lonstin (1985) concluded that unexpected change in division policy along with reflex, the stock price is in the same direction.
- John Hoo (1998) concluded that setting division benefit is an event related to a special company and it is not mandatory to use it by competitor companies. Marks Lipson (1998) found documents that division benefit is a suitable sign of the future beneficial situation of the company and don’t set up the division benefit till they be sure that it will be kept in this level in the future incomes.
- Litz (1956) believes that increase the shared dividend when the level of company income has been increased continuously. Watts (1973) and Gondz (1978) didn't find any document that have unexpected change in shared dividend having new information concept about future income of the company.

**Determining the Share price**
Securing capital institution should answer these questions for determining the capital and reasonable, suitable and fair price:
- What is the capacity and power of profitability of the company?
- How many enquires are there for this share?
  - It is obvious that the company has issued these bounds will sell them in the highest price and buyers or those who want to invest in stock will buy them in the least price.

Securing capital institution should determine the stock price that is reasonable, suitable and fair for the company who issued them. In one hand attracts the buyers and investors and encourage the desire and tendency for investment in them.

Experiment has shown that if the price of the stock will be determined “reasonable and suitable” its price will increase in the market slowly. If the stock price of this company decreases a little, it means that the early price will be determined in the high level. And if the price of a share increases fast, investors and those who have bought this stock will benefit much and the company issuing this stock will be sad because of not determining the stock price. Syndicate of Securing capital institution determines the price of each share. After determining the price, syndicate members will signature the contract about the way of selling the shares (Porheidari, 2011).

**Dividend share policy and evaluating the share**
Dividing the dividend of the share between cash and added benefit is one of the main financial decisions. The main purpose of financial management of the company is increasing the ordinary share value to the maximum. About this problem the following different opinions will be explained (Khaloozadeh, 2004):

**traditional theory**
According to traditional theory, give more weight to the cash stock dividend than added dividend. Mentioned theory that has been represented clearly by Graham and Dod saying that: “Stock market think extra weight on attracting the free cash dividend against niggardly cash dividend”. They have represented their view in the following evaluation:

\[ P = m \left( D + \frac{E}{3} \right) \quad (1) \]

In which:
- \( P \) = stock price
- \( D \) = cash dividend of each share
- \( M \) = increasing coefficient of the model

Based on this model, in evaluating the stock, the weight related to the cash dividend stock is equal to: four times eight related to the added dividend. This subject will be cleared via the following relation (it is another version of the equation (1) in which \( (D+R) \) had been substituted instead of \( E \)):

\[ P = m \left( D + \frac{D + R}{3} \right) = m \left( \frac{4D}{3} + \frac{mR}{3} \right) \quad (2) \]

The main point of traditional theory is that an attractive pay policy has desired effect on share price (Khalozade, 2004).

**General Model**

Every share creates two cash flows. First, dividend share that will be paid regularly and second the price of selling the share in the time of purchasing. If the share is kept for a long time, present value of the future price will decreases based on time line and the amount of it will be zero for fifty or hundred years (Ahmadpor, 2006).

Therefore, the price of the share in zero time with the present value of the share dividend is for a limited period. So, the share price will be calculated as following relation:

\[ P_0 = \sum_{t=1}^{\infty} \frac{\text{Div}_t}{(1 + r)^t} = \frac{\text{Div}_1}{(1 + r)} + \frac{\text{Div}_2}{(1 + r)^2} + \frac{\text{Div}_3}{(1 + r)^3} + \ldots \quad (3) \]

So that:
- \( \text{Div} \): dividend per share in \( t \) time
- \( P_0 \): the present value of the ordinary share investment
- \( r \): expected output rate

This policy that a company pays the achieved dividend as cash dividend share to the shareholders in most times, it isn’t desirable. Companies have desirable investment opportunities and an efficient manager should use the created opportunity and increase the value of the company.

The price of each share can be based on two factors as the company value and added value. In order to increase the value tow following conditions is necessary:
1. The achieved benefit should be saved so as to invest in the future projects.
2. The projects should have the positive pure current value.

**Walter’s model**

James Walter has suggested a model for evaluating the share that supports the view point that is the strategy of the dividend per share for evaluating the investor share. His model is supposed on the following bases:
1. The saved dividend introduces the financial securing source of the company.
2. The investment cost of the company will be stayed fixed.
3. The capital cost of the company will be stayed fixed.
4. The company has unlimited age.

Walter has represented the following equation based on the above theories:

\[ P = \frac{D + (E - D) \frac{r}{K}}{K} \quad (4) \]

In which:
- \( P \) = each share price
- \( D \) = cash dividend of each share
- \( E \) = accounting dividend of each share
- \( (E-D) \) = saved dividend of each share
- \( r \) = the rate of internal output of company investment
K = capital cost (the rate of the output which is expected by shareholder)

Based on relation (4-3) the price of each share is made up two components:
The first component is the current value of the unlimited flow of the cash dividend of the share meaning:
\[
\frac{D}{(1 + K)} + \frac{D}{(1 + K)^2} + \cdots = \frac{D}{K}
\]
And the second one is unlimited flow of the output of the saved dividend as follow:

Table 1. the output resulted from the first saved dividend (E-D)

<table>
<thead>
<tr>
<th>Time</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output</td>
<td>0</td>
<td>(E-D)r</td>
<td>(E-D)r</td>
<td>(E-D)r</td>
<td>(E-D)r</td>
</tr>
</tbody>
</table>

Table 2. the output resulted from the first saved dividend (E-D)

<table>
<thead>
<tr>
<th>Time</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output</td>
<td>0</td>
<td>0</td>
<td>(E-D)r</td>
<td>(E-D)r</td>
<td>(E-D)r</td>
<td>(E-D)r</td>
</tr>
</tbody>
</table>

And also later flows. As a result, by adding the cash flow of the output caused by saved dividends we will have:
\[
\frac{(E - D)r}{K(1 + K)} + \frac{(E - D)r}{(1 + K)^2} + \cdots = \frac{(E - D)^r}{K}
\]
That in the whole model of Walter we have the following:
1. The proportion optimum paid share dividend for every developing company would be zero \( r > K \). It means that the company managers in order to increase the shareholder wealth should not supply any dividends. \( \frac{D}{E} = 0 \)
2. The proportion of the dividend share for a normal company \( r = K \) is irrelevant. It means that the proportion of supply of lack supply the dividend has no difference.
3. The optimum proportion of the dividend share for a promoting company \( r < K \) is 100%. It means that the company should supply his dividend among the shareholders. \( D = E \)

**Gordon Model**

M.J. Gordon is the most famous scholar that believes the dividend share has effect on the value of stock share and suggests that the company managers increase the rate of the stock by increasing the value of the company (Shojae 2013).

Gordon created a model for evaluating the stocks by using the dividend share. In this model he believe that the value of the share \( V_0 \) is equal to the unlimited current value \((t-\infty)\) of the dividend share \( d \) that is paid for the shareholder and K is: the rate of lowering is proportion with zero company risk in this model that kept benefits increase the future dividend of the company:
\[
V_0 = \sum_{t=1}^{\infty} e_0 (1 - f)(1 + g)^t \frac{d_1}{(1 + K)^t} = \frac{d_1}{K - g} = \frac{e_1 (1 - f)}{K - g}
\]
Where:
- \( e_0 \): proceed
- \( f \): dividend division policy
- \( g \): development rate
- \( k \): the company capital cost

The above relation expresses the relation between proceeds, dividend division, development rate and the company capital cost in determining the value of the stock.

He has represented the following hypothesis based on the dividend division policies:
1. There is not possibility of external financial secure. This model includes no debt variable, benefit cost and issuing new share and because the proceeds are the only source for development, the dividend division policy and investment plans should compete for the company proceeds.
2. The rate of the output investment is fixed.
3. The rate of suitable interest for the company is fixed.
4. The company has unlimited age.
5. There is no tax.
6. Development rate is always fixed.
7. This relation should always be: interest rate proportion with the company risk = development rate (if interest rate is smaller that development rte, the value of the share wouldn’t be determined)
8. Dividend division policy would always be fixed.

In fact Gordon divide the company into three groups according to the way of dividing the dividend (Shoja, 2013).

**Growth firms**

The companies investing their moneys with higher output than investment cost are growth firms. These companies can increase their value by keeping their proceeds and investments based on Gordon model. In fact the companies having $r > \lambda$ (the rate of internal output) should keep all their proceeds and avoid dividing it among their shareholders. Gordon model shows that paying the share dividend would decrease the values of such companies.

**Declining Firms**

The companies which don’t have beneficial investment opportunities are called Declining Firms. Selling of these companies has declining trend and there is not beneficial investment in them. In fact in such companies investment cost is bigger than $(k > r$ and $K$ is interest rate). In such cases the companies can increase their value by paying cash dividend to the shareholders.

**Normal Firms (ordinary)**

These companies have limited number of investments in which $r > k$ and in most projects $r = k$. These companies usually operate in calm environment and dividend division policy doesn’t have any effect on their value based on Gordon model.

Studying the effect of different values $r$, $k$, $d$, and $e$ on determining the value of the companies show that optimum dividend division policy is exactly depended on the relation between internal output rate ($r$) and its interest rate ($k$). The way of paying dividend and or keeping proceeds is inefficient on the company value.

**Bird in the hand**

In other study, Gordon has studied the effect of decreasing his hypothesis and tested his model on the experimental data by using economy meter methods. He concluded that if $r = k$ and his all hypothesis has been kept, and then dividend division policy doesn’t have any effect on the price. When these hypotheses adjust with reality, dividend division policy affect of the share value even if $r = k$. He has opened a way in order to relevant to dividend division policy in the real world by introducing risk and lack of pragmatism.

Gordon believes that risk and lack of pragmatism will be increased by long duration of studying period and dividend share would have less pragmatism. So, the expected output rate ($k$) can’t be considered fixed but by passing the time ($k$) will be increased more. On the other hand, he believes that future dividend share would be low with higher rate related to the current dividend share. Symbolically, because of decreasing the risk and lack of pragmatism in the future payments are for time duration of $t = 1, 2, \ldots, k_t > k_{t-1}$. He expresses his division share by considering $k_t > k_{t-1}$ as follow:

$$V_0 = \sum_{t=1}^{\infty} \frac{d_t}{(1+K_t)^t} = \frac{d_1}{(1+K_1)^1} + \frac{d_2}{(1+K_2)^2} + \frac{d_3}{(1+K_3)^3} + \ldots + \frac{d_t}{(1+K_t)^t} + \ldots \quad (7)$$

The above relation is known as “bird in hand” model and point to a proverb that says: one bird in hand is better than two birds on the tree that here say more pragmatism in current receipt related to the future receipt.

Even if internal output rate is equal to the average low rate $r = k_t$, the value of the share in the above relation is lower than the value of the share in the prior interaction. The following relation expresses this situation (Shoja, 2013):

If $r = k$

$$\sum_{t=1}^{\infty} \frac{rd_1}{(1+K)^t} = \frac{rd_1}{k} = d_1$$

**Modigliani & Miller model**

These two researchers have represented two theories about the company value. Based on the first theory, a trade unit can’t change the total value of the share by changing in the investment structure that is known as null hypothesis too. Also based on second theory, linear function investment cost is related to debt proportion to the capital of a trade unit. According to these two researchers, the value of the company relies on
dividend division policy of the stock. They believed in the complete market and consider the properties of the market for their theories. They firstly express the following relation for confirming their theory:

\[ P_0 = \frac{D_1 + P_1}{1 + r} \]  

(8)

In which

\( P_0 \): the price of each share in zero time
\( D_1 \): dividend of each share in 1 time
\( P_1 \): the price of each share in 1 time
\( r \): interest rate (it is supposed that the rate is fixed) (Janani 1999).

Campbell – Shiller model

This modern model of the share evaluation has been invented by two researchers naming Campbell from Harvard University and Shiller from Yeel University. They achieve the share by using history information. This average for a long time period P/E of market will be achieved. Then the average with proportion of the current dividend o the share will be compared. If the proportion of the price to the dividend is more than that price, the price of the share is more than the price of the real share. The most important objection of this model is that it doesn’t pay attention to the changes in the economy (Weber, Joseph, 1999).

Data Collection, Population, and Research Sample

The necessary data for testing the theory was collected through library resource, site and software related to the organization as Tehran stock exchange. These resources include reports and documents that take us to the data contract, financial statements of the stock exchange companies and the time of occurring the dependent and independent variables. Statistical population includes accepted companies in Tehran stock exchange that are in different industries. To study and analyzing the results of linear regression test was used. Statistical sample of this study was 50 companies which were accepted in Tehran stock exchange that at least were introduced as more active companies in the stock exchange.

Other conditional properties of the statistical sample are:
1. Membership in Tehran stock exchange at least 5 years.
2. Existing the basic financial statement and other financial information of the mentioned companies in time series of 2008 to 2011.
3. Accounting information is prepared during the financial year.
4. Representing financial model and regression based on variables changes

   The price of the stock was selected based on the financial prices of each month in each year and paid benefit of each share was extracted from database of the companies that was based on the decision of the general counsel of the companies at the end of the year.

1. Inflectional statistics and findings

   By using the statistical analysis and SPSS20 software, the hypothesis of the research was tested.

2. Studying the hypothesis by analyzing the regression.

   Regression method (multi-variable) is a simple expansion of two-variable regression. Multiple Regression is a method for studying the contributions of one or more independent variables symbolized as \( x \) to predicting the value of a dependent variable symbolized as \( y \). Independent variables are called “predictors”, and dependent variables are called “covariates”. Independent variables involved in the MR analyses can be consistent, expanded, or both; however, the dependent variable involved in these analyses is typically consistent.

As we want to consider the effect of a predictor on the amount of \( Y \), it is necessary to calculate a value for gradient (B) line of every variable that was added too. So, multiple regression equation with four predictor variables is as follow:

\[ \hat{y} = B_1 X_1 + B_2 X_2 + B_3 X_3 + B_4 X_4 + a \]

the conditions for using regression

By using regression analysis method, the condition should be ready for doing it. These conditions are:

(Norosis 1990)

1. The scale of measuring all variable (at least) be ranking.

2. Supplying dependent variable should be normal that according to a large number of data, supplying the all variable is supposed normal.

There is a linear relation between variables with variance analysis test (ANOVA) and calculating statistic F would be confirmed. Significance of regression contract would be calculated by using the F test.

Coefficient in regression analysis is divided into two sections:

1. Multiple correlation coefficient
2. determining coefficients
Multiple correlation coefficients (R) show the severity relation of independent variables with dependent variable. This amount is between 0 and +1. The amount of determining coefficients ($R^2$) shows that about some percent of changes is related to the dependent variable resulted from independent variables of the research and other are relied on other factors. But this statistics doesn't consider the free degree number so, uses the determining coefficient of standard.

The regression contract coefficients is divided into two section: 1- the standard effect coefficients (Beta) non standard effect coefficients (B)

Nonstandard coefficients means B coefficients are for writing the regression equation. Accordingly the regression equation is written for each phase.

But to demonstrate the importance of independent variables in predicting the dependent variable and overall in predicting regression equation should pay attention to standard values (Beta) because the scale of the independent variables of different units are different and it is not often easy to compare the contribution of each independent variable in explaining the variance in the dependent variable changes or payment. Therefore, the standard effect coefficients help us in determining each independent variable in determining the dependent variable changes.

Testing the hypothesis, regression of the share price and dividend per share.

<table>
<thead>
<tr>
<th>Table 3. ANOVA</th>
<th>[ F ]</th>
<th>[ Significance level ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>The regression equation</td>
<td>1723.160</td>
<td>.000</td>
</tr>
<tr>
<td>Error value</td>
<td>10551376.389</td>
<td></td>
</tr>
<tr>
<td>Sum</td>
<td>47968242938.915</td>
<td></td>
</tr>
</tbody>
</table>

Despite the significance level is lower than 0/01 being linear relation between variables in regression in the 99% level (sig = 0.000) would be significant

<table>
<thead>
<tr>
<th>Table 4. correlation</th>
<th>[ R ]</th>
<th>[ R^2 ]</th>
<th>[ Adjusted R^2 ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ .616 ]</td>
<td>[ .379 ]</td>
<td>[ .379 ]</td>
<td></td>
</tr>
</tbody>
</table>

Multiple correlation coefficient (R) is between 0 and +1. The amount of determining coefficient ($R^2$) indicates that about 38% of changes of dependent variables and rest of them 62% is relied on other factors.

<table>
<thead>
<tr>
<th>Table 5. regression equation</th>
<th>[ T ]</th>
<th>[ Significant level ]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dividend fixed payment ) DPS(</td>
<td>18.793</td>
<td>.000</td>
</tr>
<tr>
<td>1487.815</td>
<td>3.885</td>
<td>.094</td>
</tr>
</tbody>
</table>

\[ Y=1487.815+3.885X \]

According to regression equation we see that every change unit in paid profit variable, the amount of stock price variable is as 3/885 unit change. According to significant level, changing the paid profit in predicting dependent variable has meaningful effect.

**Summary**

Creating necessary fields to answer the needs of the investors and changing Tehran Stock Exchange (TSE) in the region requires numerous scientific studies. In order to attract little capital among the people to the stock exchange it is necessary to prepare the required facilities and infrastructure to prepare an investment and we should not expect that only that part of this process enters to the stock and spend it in investment affairs that in a one dimension glance it is suitable that we do it because entering the capital is only a part of the complimentary process that already developed and developing countries consider this subject. Studying the mechanism that can guide the little investors to the capital market and it is a basic problem of this part. By entering the little capital to the capital market it prevent high prices in the parallel market and also control the liquidity and guide them into the work. In this way field it can empower the confident and aware of the investors in the capital market. As a result it leads to juice the capital market and economy of the country.

**Findings**

According to the hypothesis and research question and study the results of this research we can express the following cases:
Interest payments have significant relationship with the price of a stock. By increasing the interest payments, demand for buying share has been increased and leads to increase the share price. According to the results, share price with 99 percent coefficient with dividends paid stocks is significant.

Figure 1. relation DPS with $P_s$ and its regression line

Suggestions for the Follow-Up

According to the determining role of dividend profit of every share and profit of ordinary share in determining the share price, it is suggested that in pricing the model these two variables are used with each other.

For capability of result confidant, the research in the longer periods for example 10 years.

REFERENCES

Ahmad Pour A, Yahazadeh Far M, Mir block H. 2006 Studying the amount of market rate effectiveness of the shares based on expected price and share price fluctuations (accepted companies in the stock exchange), Publisher, human science, Name Mofid, 51, pp 85 to 104.

Anvari Rostami A, Khatan Loo M. 2005. Study the scale of ranking the higher companies based on profitability and scales of Tehran stock exchange, studies of accounting and account review, 43, pp 25 to 43.


Janani M. 1999. Dividing the share profit, theory and method, publisher, economy, stock, 17, pp 42 to 45.


Pour Heidary A. 2011. Study the determining the changing the share price in Tehran stock exchange, studies of accounting and account review Tehran University, the college of management, 17(60), pp 23 to 40.

Shoja T, Shoja A. 2012. Comparative study between changes of division profit and changes of the share in food companies accepted in Tehran stock exchange, (researcher) management journal ninth year, 26.

