

Examination the Relationship between Share Price and the Effective Delivery Date of Dividend in Listed Companies through Tehran (IRAN) Stock Market

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ABSTRACT

In this paper we analyzed the behavior of share price in an effective delivery date of dividend in Tehran stock market. The tested sample contains 41 companies from totally 436 listed companies in Tehran stock market in the period of 2001 to 2006. To find the answer of the main question from this paper that "Does the reducing rate of share price after the effective delivery date of dividend is the sum of share dividends or not?" we tested 4 relationships which are explained in the shape of 4 hypothesis. In this paper the observed values for 4 variables are compared with their expected values. The variables include drop ratio of share price to the share dividend, the drop ratio of equilibrium share price to the share dividends, the drop ratio of share price to the price before the effective date, the drop ratio of equilibrium market price to the price before the effective date, the observed difference between real values and the expected values was examined by the sample t-test and the results include:

1- The real value (RPR) is less than the single expected value.

2- The real value (MAPR) is less than the expected value.

3-The real value (RPD) is less than 0/127.

4-The real value (MAPD) is less than 0/127 expected value.

The results of studying 4 relationships show that the drop rate in the share price after the effective date isn't the same as share dividends and is even less than it.

KEYWORDS: dividends, share dividends, the effective delivery date of dividends, the equilibrium price of stock exchange.

1-INTRODUCTION

Stock market as an organized market provides the necessary facilities for stock buyers and sellers, as if they can exchange their money to securities and vice versa every day. Stock exchange as a company to provide saves and move them to the productive and useful investments for society and economy of the country. Investors in stock exchange as investing in ordinary share s should have expanding study. In other words they should consider several factors to invest. If the investors invest disregarding some factors, so the proper results won't be achieved. This is more in the countries in which the stock markets are ineffective. These countries don't need expanding studies about securities, because the price of stock exchange approaches to its intrinsic (real) value. A factor that investors consider to invest is getting the yield, as it can be said that the main purpose of investors, especially the investors of ordinary shares is getting the yield. The shares yield relates to two factors: changing the shares price at the end of period and rate of the received cash profit. The cash profit is the most common yield distribution for shareholders by the companies, but the companies don't have the same performance to distribute the cash profit and have different policies. These policies can include a spectrum of unpaid cash profit to all paid incomes of the company. In this paper a meaningful level about %5 is used to accept or disprove the hypothesis; and also each difference is examined using t-test. This paper aims to study weather the drop rate of shares price after the delivery effective date of dividends equals to the shares dividends. The shareholders who intend to hold their share to the last day deserving to receive the dividend, their property as a result of holding the share after the deliver effective date of dividends includes: share price (P_{t0}) as well as the sum of share dividends (D).

Assume that the capital market is perfect and there are no chances to get uncommon profit. So the share value should be equal to the share price in the last day before the effective date in which the share deserving receive the dividends. This can be explained by equation (1):

$$P_{t-1} = P_{t0} + D \quad (1-1)$$

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If P_{t0} is omitted from both sides of the equation, and divide two sides of equality on share dividend (D) so the raw price ratio will be concluded:

$$RPR = \frac{P_{t-1} - P_{t0}}{D} = \left[\frac{P_{t0} + D - P_{t0}}{D} \right] = 1 \quad (1-2)$$

Assume that according to what is in the financial theory, the drop in share price is equal to share dividend. So the expected value of raw price ratio (RPR) should be equal to the unit. However, this value is on condition of the market effects between both days (the days before and after the effective date), so it is necessary to account the market adjusted price ratio.

This equation can be explained by dividing the price after the effective date of dividends delivery (P_{t0}) on daily yield in equation (2) which concludes equation (3):

$$MAPR = \frac{P_{t-1} - \left[\frac{P_{t0}}{1+rm} \right]}{D} \quad (1-3)$$

Where rm is daily income on market index, which is estimated according to the market share index of Tehran stock market.

The expected value MAPR in the methods similar to RPR, is also equal to the unit. The price difference shown in equation (2), can be shown as the fraction of price in the last day before the effective day (P_{t-1}). This variable is known as the raw price drop rate.

$$RPD = \frac{P_{t-1} - P_{t0}}{P_{t-1}} = \frac{D}{P_{t-1}} \quad (1-4)$$

In equation (4) it can be observed that the fraction in the right hand of equation is equal to the yield on dividend. So in a perfect competition market in which there is no unusual effective chance, the expected value of raw price drop should be equal to the yield of dividend. In this way, the expected value of drop ratio in market adjusted price is accounted like this equation

$$MAPD = \frac{P_{t-1} - \left[\frac{P_{t0}}{1+rm} \right]}{P_{t-1}} \quad (1-5)$$

Similar to equation (4), MAPD theoretical value is also equal to dividend yield. Totally the presented theorems to test in this study include:

- 1) The expected value of drop ratio in the raw price E (RPR) isn't equal to the unit.
- 2) The expected value of market adjusted price ratio E (MARPE) isn't equal to the unit.
- 3) The expected value of raw price drop E (PRD) isn't equal to the dividend yield.
- 4) The expected value of market adjusted price drop E(MAPDE) isn't equal to the dividend yield

2) THE IMPORTANCE AND NECESSITY OF DOING THIS RESEARCH

2-1 THE IMPORTANCE OF THE RESEARCH

Understanding of the relationship between share dividends and changing the dividend price as well as maintaining the investors profits cause to grow the company and finally increase the possibility of its effectiveness. From managers' point of view, usually relating to share dividends two opposite decision can be taken: 1) Maintaining the yields in company and lack of share dividends in order to devote it to paying the root and branch of liabilities and financial supplement of investment projects 2) Distributing the profits as cash dividends among the investors. Each above decision has different effects on company value and its share price, as if lack of share dividends and maintaining the yields is considered as the most comfortable financial resource for the company (Jahankhani, 1994)

But, is the maintained profit in the company devoted to the effective investments properly? In other words, investors expect that the maintained profit in the company be equal to the yield rate of investments that they could perform in other place. So pressures resulted in demanding cash dividends by investors and preferring it to share dividends incite company management to present an optimal solution in this field.

So this paper and similar papers can present the useful information to managers and investors to decide well.

2-2 THE NECESSITY OF DOING THE RESEARCH

Investors buy the share to receive the income of dividend, the yields of increasing share price or both of them. If the investor intends only to receive the dividend, so He buy the share that has expected good dividend than its market value. Daily movement of prices in exchange market means the possibility of receiving more profit if the share is bought timely. To maximize the investors yield it is necessary that investor anticipates the price movement and intend to buy them in the best time. Anticipating the time of maximum price is also necessary for sale (Anvari Rostami, 1999)

When someone decides to invest in share, the first faced matter is choosing the noticed share. In Tehran stock market, the retail investors decide more according to informal and incorrect information, causing their losses and excluding them from capital market. To continue the presence of investors as the main elements in stock market, it is necessary to support the rights of investors specially the retail investors by some instruments.

Some measures need to be provided in stock market by financial researches, so investors can decide properly and immediately using them. However in this paper by studying the tested models in stock markets of china, London and Greece and comparing the results with results in Iran some useful information is presented for investors and analysts to examine the manner of share price regarding its relationship with the effective date of dividends delivery.

3- BACKGROUND

Zila Anaqo & kenedeta (2007) in a research as “studying the behavior of share price in effective date of dividend delivery” examine the share price before the effective date of dividend delivery and share price after the effective date of dividend delivery on 80 active companies in London stock market during a six year period from 2001 to 2006. Testing the research theorems concludes that drop ratio in share price after the effective date of dividend delivery is a sum less than share dividends (Zillah & et al,2007).

Hajian(2007) in his study with the subject of “ The effect of share interest on investors behavior” has studied the investors response following the announcement of the share interest rise by the company. In this study the stock transaction rate for different periods of time after the announcement of rise in sharing the interest of those companies which were accepted in Tehran stock market, during 2000- 2004 was studied. The assumptions of this study are:

- 1- The announcement of rise in share interest can affect the stock transaction rate.
- 2- The percentage of share interest rise has relationship with the percentage of variations in stock transaction rate.

In first assumption the effect of share interest rise on transaction rate was examine by using the test of mean comparison with invariable amount. And in the second assumption the relationship between the percentages of variation in transaction rate was examined by the fast of correlation and regression. The results show that the share interest rise affects the stock transaction rate. They also show that the investor’s response to the announcement of the share interest rise is a short response (Hajian, 2008).

Gholamreza kordestani (2009) in his study “the examination of the assumptions of cash interest broadcasting in Tehran stock market” has studied the relationship between the percentages of cash interest variations with unexpected interest on a sample consist of 60 companies which were accepted in Tehran stock market in an eight-year period since 1999 to 2006, in order to provide empirical evidence about cash interest broadcasting.

The research assumption is examined based on integrated and localized data. The assumption is: there is a meaningful and positive relationship between unexpected interest and cash interest variations. Its results show that there is a positive, meaningful relationship between the percentage of cash interest variation and unexpected interest (future interest’s variations). This relationship remains meaningful after controlling the investor’s yield. The results confirm the assumption of the cash interest broadcasting in Tehran stock market. This finding facilitates the prediction of future profitability of companies for investors, because it is assumed that cash interest increase results in the increase of future profitability (Kordestani,2010).

Elem (1999) in her research aimed to study that is the drop rate in share price after the effective date of dividend delivery as the same as share dividends or not? In this research which considered the above matter includes other minor matters such as conditions of gaining the profit. The standard data was collected based on the information of the Swedish companies in which the dividends were paid in stock exchange during 1994-1998. He studied the difference between the prices before and after effective date of dividends delivery and compared that difference with paid dividend. Among 837 companies 30 ones were observed. Elem used t-test in her research to test her hypotheses and concluded that the drop of dividend rate in share price is the sum less than paid share dividend (Kristopher & et al,1999).

4) RESEARCH METHOD AND HYPOTHESES

4-1 RESEARCH METHOD

To collect the information this research used library and squared methods. In library part some research theoretical bases were extracted from special Latin and Persian books and magazines. In research squared part, to collect data from management software, financial information bank of listed companies in Tehran stock exchange, the data presenting by management development research and Islamic study of Tehran Stock Exchange Company and Tehran stock exchange site are used. In order to analyze, they were classified using data excel software in the form of separated files.

4-2 RESEARCH HYPOTHESES

According to explained theoretical bases and background, the research hypotheses include:

1) Main hypotheses

The price share drop rate after the effective date of share delivery in Tehran stock market isn't as the same as share dividends.

2) Secondary hypotheses

Secondary hypothesis1: The expected value of change ratio in share price to the share dividends (RPR) isn't equal tone.

Secondary hypothesis 2: The expected value of change ratio in share market adjusted price to share dividends (MAPR) isn't equal to one.

Secondary hypothesis3: The expected value of change ratio in share price to share price before the effective date (RPD) isn't equal to dividend yield.

Secondary hypothesis 4: The expected value of change ratio in share market adjusted price to share price before the effective date (MAPD) isn't equal to dividend yield.

5) SOCIETY AND STATISTICAL SAMPLE

The research statistical society includes the listed companies in Tehran stock exchange during a four year period 1379-1382, that are chosen regarding the following measures to test the hypotheses:

1- Were listed in Tehran stock exchange during 1379 to the end of 1382.

2- Have dividable profit in the studied period of company.

3- Decide about share dividends in public committee of studied periods.

4- The company share is dealt before the holding normal public committee and after that (about two months before and after that) in bourse.

5-The end of financial year for all selected companies is the end of March.

Among 436 active companies in the studied period regarding mentioned conditions, 41 ones were selected to test the research hypotheses.

Table1: Exhibition of sample choice method

Numbers	Numbers	Sample choice standards
436		Listed companies in Tehran Stock exchange
	180	Stopped companies
	4	Banks and Financial Institution
	179	Companies that had no share dividends during studied period
	17	Companies that weren't present around dealt committee
	15	Companies whose end of financial year wasn't March
41		Choice sample to test

6) DATA ANALYSIS

Table 2 presents the information related to descriptive statistics for observed values in share dividends (D), dividend yield, the price of the last day before the effective date, drop ratio in share price to the share dividends (RPR), and drop ratio in market adjusted price to the share dividends (MAPR), drop ratio in share price to the price before the effective (RPD) and drop ratio in market adjusted price to the price before the effective date (MAPD).

As it is observed , the observed value is for share dividend1/082 (D), the observed value is for dividend yield 0/127.The observed values for RPR, MAPR, RPD, MAPD, are 0/486 , 0/503 ,0/0813,0/0829 respectively and the observed value for price in the last day before the effective date is 8/92. The observed values for 4 variables PRP, MAPR, RPD, MAPD and also their theoretical values and observed difference between the observed values and theoretical values are presented in table 3.

The observed value for RPR (raw price ratio) is 0/486, that according to the first hypothesis which is equal to the unit is less about 0/513. The observed value for MAPR, (market adjusted price ratio) is 0/503, that according to the second hypothesis which is equal to the unit is less about 0/497. Also the observed value for RPD (raw price drop) is less about 0/0813 that is 0/127 and less about 0/045 of its theoretical rate which is equal to dividend in the third hypothesis. Finally the observed value for MAPD (market adjusted price drop) is 0/0829, which of theoretical rate in which the fourth hypothesis is equal to dividend yield and 0/127 is less about 0/044.

Based on the information in tables 2 and 3 all observed values for 4 explained variables with their theoretical values are different

Table 2: descriptive statistics of research variables

Variable	Numbers	Lower	Upper	Average	Standard deviation
Change ratio In The Price to Share dividends(RPR)	131	-2/8	2/8	0/4868	0/92495
Change ratio in market adjusted price to share dividends(MAPR)	131	-2/6	2/82	0/5035	0/92099
Change ratio in the price to the price before effective date (RPD)	164	-1/6	0/8	0/0813	0/28534
Change ratio in market adjusted price to the price before effective date(MAPD)	164	-1/59	0/8	0/0829	0/28478
Share dividends of every share	164	6	7500	1/0823	1035/02317
Dividend yield	164	0/01	0/66	0/1271	0/07278
Price in the last day before the effective date	164	1	48	8/9268	8/62054
Difference between the price before and after the effective date	164	-826	900	1/0647	282/26519
Valid N(List wise)	119				

Table3: The table of descriptive statistics of real and expected values of defined variables to test the hypotheses

Variable	Real values	Expected values	Observed difference
Change ratio in the price to the share dividends (RPR)	0/486	1	-0/0513
Change ratio in the market adjusted price to the share dividends (MAPR)	0/503	1	-0/496
Change ratio in the price to the price before the effective date (RPD)	0/0813	0/127	-0/045
Change ratio in the market adjusted price to the price before the effective date (MAPD)	0/0829	0/127	-0/044

7) Hypotheses test and results description

7-1 First secondary hypothesis test

The first secondary hypothesis explains that the resulted number for RPR ratio isn't equal to unit:

$$(H_0): RPR=1 \quad (H_1: RPR \neq 1)$$

Table 4: Results of one-sample t-test performance for the first hypothesis test

Variable	Number	Average	Standard deviation	Mean standard error		
RPR	131	0/4868	0/92495	0/8081		
Variable	Expected value=1					
	t	Freedom degree	Meaningful level	Average difference		
				Credit level%95 of difference		
			Lower	Upper		
RPR	-6/351	130	0	-0/51322	-0/6731	-0/3533

Table 5: shows the statistical results of one –sample t test for the first secondary hypothesis.

As shown in above table the observed sum for price share drop ratio after the effective date on share dividend of every share (RPR) is 0/486, which is less about 0/153 than theoretical sum that is equal to unit. Regarding the resulted meaningful level for t- statistics as (P-value =0) sig< 0/05, so zero hypothesis (H₀) is rejected and the opposite hypothesis(H₁) is accepted. However supposing inequality of RPR with the unit which is explained in the first hypothesis is accepted.

In one sample t-test regarding the upper and lower sums it can be said that:

- 1) When both lower and upper sums are positive, the average will be larger than the tested sum.
- 2) When both lower and upper sums are negative, the average will be smaller than the tested sum.
- 3) When the lower sum is negative and the upper sum is positive, the average has no meaningful difference with the tested sum (Momenni & et al,2007).

Regarding above explanations, the observed upper sum is -0/353, and the observed lower sum is 0/673 for RPR. So it is concluded that RPR is less than the tested sum, unit.

7-2 secondary hypothesis test

The second secondary hypothesis explains that the resulted sum from MAPR ratio isn't equal to unit:

The drop ratio in share price to the price before the effective date isn't equal to dividend yield:

$$(H_0): MAPR=1 \quad H_1:MAPR \neq 1$$

Table 6: Results of one-sample t-test performance for the second hypothesis

Variable	Numbers	Average	Standard deviation	Mean standard error		
MAPR	131	0/5035	0/92099	0/08047		
Variable	Expected value =1					
	t	Freedom degree	Meaningful level	Mean difference	Standard deviation	Credit level %95 of difference
					Lower	Upper
MAPR	-6/17	130	0	-0/49646	0/6557	-0/3373

Table 7: shows the statistical results from t-test for the second secondary hypothesis.

As shown in above table the observed sum for drop ratio of market adjusted price to the share dividend (MAPR) is equal to 0/503, that is less about 0/497 than theoretical sum which is unit sum according to the hypothesis. Regarding the resulted meaningful level for t statistics, as (P-value =0) sig<0/05, the zero hypothesis by 0/95 credit is rejected and the opposite hypothesis (H_1) is accepted, so assuming inequality of MAPR ratio with unit which is explained in the second secondary hypothesis is accepted.

The observed upper sum is -0/337, and the lower is -0/655 for MAPR. So it can be concluded that MAPR sum is less than the tested sum, unit.

7-3 Third secondary hypothesis test

The third secondary hypothesis explains that the resulted sum from drop ratio in share price to the price before the effective date isn't equal to dividend yield

(H_0 : RPD=0/127 H_1 :RPD \neq 0/127)

Table 8: Results of one-sample t-test performance for the third hypothesis test

Variable	Numbers	Average	Standard deviation	Mean standard error		
RPD	164	0/0813	0/28534	0/2228		
Variable	Expected value=0/127					
	t	Freedom degree	Meaningful level	Mean difference	Credit level %95 of difference	
					Lower	Upper
RPD	-2/054	163	0/042	-0/0898	-0/6731	-0/0018

Table 9: shows the resulted statistical results from t-test for the third secondary hypothesis.

As shown in above table, the observed sum for price drop ratio to the price before the effective date (RPD), is equal to 0/0813 that is less about 0/045 than theoretical sum which is 0/127 according to the third hypothesis. Regarding the resulted meaningful level for t statistics, as (P-value=0/045) sig<0/05, so zero hypothesis (H_0) is rejected and the opposite hypothesis (H_1) is accepted; however inequality of RPD with dividend yield is accepted.

The observed upper sum is -0/0018, and the lower sum is -0/089 for RPD. So it can be concluded that RPD sum is less than the tested sum, 0/127.

Researches are done following the achievement the purposes and the results show the rate of achievement the purposes. This research is designed and done in order to study the effective date of dividend delivery and the effect of special conditions of transactions around that date on share price.

9) RESEARCH SUGGESTIONS

9-1 SUGGESTIONS THROUGH THE RESEARCH

1) Regarding the importance and the role of profit distribution in capital market, it is necessary that more attention be paid to this issue by scientific and university committees in the form of enriching the educational contents and presenting scientific and analytical papers.

2) It is noteworthy that active analysts in capital market, management accountants and financial clerks of companies besides the common analyses and techniques devote their abilities and services to present analyses which are based on the position of cash dividend and cash dividend yield in different levels of industry and economic units.

9-2 SUGGESTIONS FOR FUTURER RESEARCH

1) Studying the behavior of share price in dividend effective date regarding the effect of tax on share interest (the research performed by Nicolas in China market)

2) Studying the possibility of presence unusual yields in the dividend effective date (research performed by Nicolas in Athena market).

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