JOURNAL OF CURRENT RESEARCH IN SCIENCE
ISSN 2322-5009
CODEN (USA): JCRSDJ
Available at www.jcrs010.com

JCRS
4 (3), 2016: 6-15

Representatives Investigation of wealth effects of dividend announcements on stock returns (Evidence from Tehran Stock Exchange)

Abdorreza Asadi

Assistant professor of finance, Department of management, Neyshabur branch, Islamic Azad University, Neyshabur, Iran.
Corresponding Author email: Abdorrezaasadi@yahoo.com

K E Y W O R D S: Dividend announcement, Signaling effects, Abnormal Returns, Cumulative Abnormal Returns, and Risk adjusted market model.

ABSTRACT: One of the noteworthy features of dividend policy is that dividend payment could favorably affect stoke price and firms' value. This paper attempts to analyze the wealth effect of signaling hypotheses of dividend announcements on stock prices using event study methodology. The study contains a sample of 80 listed firms in Tehran Stock Exchange, over period of 2003-2012. In order to investigate the effect of dividend, an event window of 30 days prior and 30 days after the announcement date, the study calculates Abnormal Returns and Cumulative Abnormal Returns using Risk Adjusted Market Model for three categories of dividend announcements, dividend increase, dividend decrease, and no-change in dividends. Then t-statistics and plots are used to analyze significance of the effects of the announcements on stock prices and stock returns. The findings document that the announcements of dividend increase create positive abnormal returns while negative abnormal returns appear after the announcements of dividend decrease in the market.

Introduction

Dividend Policy is one of the most important financial decisions that managers have to make it. Brealey and Myers (2005) listed this financial decision as one of the top ten important issues in corporate finance. Its importance is due to the interactions with other firms' financing and investment decisions. In this regard, one considerable feature of dividend policy is the effect on share price and firms' value. According to bird-in-hand hypothesis, in the markets with information asymmetry, dividends are valued differently to capital gains. Because of uncertainty conditions, investors will generally prefer certain dividends to uncertain future cash flow arise from retained earnings. As a result, a higher payout ratio will reduce the required rate of return, and hence increase the value of the firm (Gordon, 1963). According to signaling theory (Bhattacharya, 1979; John & Williams, 1985; Miller & Rock, 1985) dividends contain private information and therefore can be used as a signaling device to influence share price. An announcement of dividend increase will be considered as good news and accordingly the share price reacts favorably, and vice versa.

The previous studies indicate different patterns and effects of dividends across countries, especially between developed and emerging markets. Glen, Karmokoiias, Miller and Shah (1995) found that dividend policies in emerging markets differed from those in developed markets. They assert that dividend payout ratios in developing countries are around two thirds that of developed markets. Ramcharran (2001) also observed low dividend yields for emerging markets. Firms in emerging capital markets face more financial constraints to finance their investment opportunities, which may result in more reliance on retained earnings and accordingly lower payout ratios.

Managers and market participants would be able to make proper decisions in their financing and investment policies based on the information of relationship between changes in dividend payments and sign of market reactions. Therefore, from this point of view, the present study is going to provide relevant information about dividend announcements and stock price reactions against, besides filling the lack of empirical research of dividend decision in the literature of dividend. Specifically, the objective of the study is to investigate market price reactions and consequently stock returns around each kind of dividend announcements including increase, decrease and no-change in dividend in Tehran Stock Exchange (TSE).

It is important to note that the findings of the study can be used by several groups of people. Firms' policy makers and managers are able to make optimal financing decisions knowing the kind of market reactions after dividend

announcements. Moreover, they can use dividend as an effective device to influence stock price. Stockholders and investors having information about the sign of price reactions against firms' dividend policy can adjust their investing decision to gain more returns.

The paper structure contains several sections including introduction, literature review of dividend discussing theoretical and empirical previous research in developed and emerging markets followed by methodology and data discussion at third section. In this section data collection, hypotheses development, abnormal return models, and event study methodology discussed in detail. Results and findings of the study explained in forth section. Finally, at the last section a summary and conclusion of the findings will be discussed.

Literature Review of Dividend Signaling Effects

Miller and Modigliani's (1961) irrelevance proposition of dividend are assumed as impractical because of market imperfections that may cause a company's dividend policy to affect the stock price. Firstly, due to the costs of issuing stocks in the real world, firms will prefer to fund the projects by internal equity and then dividend decision is considered as a residual decision, where dividend payment should equal the remaining internal capital after financing the equity portion of investment. Therefore, MM posit that in the real world a change in the dividend can consequently affect market price. They attributed this phenomenon to the information content of dividend.

Information asymmetry proposition asserts that in the real world, external shareholders and debt holders possess less information about the firm's performance than do internal shareholders and managers. Therefore, insiders will attempt to signal firm-specific private information about an undervalued firm via firm's announcements. In this condition, dividend payments have the potential to signal the intentions of the firm's management (Bhattacharaya, 2003).

In this regard, financial markets tend to view announcements made by firms about their future prospects with a great deal of skepticism, since firms routinely make exaggerated claims. At the same time, some firms with good projects are undervalued by markets. How do such firms convey information realistically to markets? Signaling theory suggests that these firms need to take actions that cannot be easily imitated by firms without good projects. Increasing dividends is considered as one such action. By increasing dividends, firms create a cost to themselves, since they commit to paying these dividends in the long term. Their willingness to make this commitment indicates to investors that they believe to have the capacity to generate these cash flows in the long term. This positive signal should therefore lead investors to re-evaluate the cash flows and firm values and enhance the stock price. Decreasing dividends is a negative signal because firms are reluctant to cut dividends. Thus, when a firm takes this action, markets participants view this firm in substantial and long-term financial trouble. Consequently, such actions lead to a drop in stock prices.

According to information signaling theory, managers are reluctant to cut payments and firms' managers with more stable earnings are likely to pay higher dividends (Aivazian , Booth, & Cleary, 2003a). Baker and Powell (1999) found that the role of dividends in signaling receives the strong recognition from executives. Only managers of high quality firms with high future cash flows are expected to pay dividends on a continuing basis (Aivazian et al., 2003a).

Bhattacharya (1979) develops an asymmetric information model with dividend policy as a signal of the future cash flows to the firm. To arrive at a signaling equilibrium, the author considers two costs: the tax disparity between the capital gains and dividend income, and the cost of additional financing needed (if any) to pay dividends. The second cost assumes that a firm will signal through dividends even if it has to raise additional funds by issuing new equity. In the Bhattacharya's model, the announcement effects of dividend increases are positive. Dividend payouts are lower, with larger adverse tax consequences and higher flotation costs of external financing.

Ambarish, John and Williams (1987) present an efficient signaling equilibrium with dividends and investments identifying its properties. Such a study is an attempt to answer questions such as why do dividends carry on despite their dissipative costs; what are the announcement effects in more sensible problems with multiple signals; and why should corporate insiders signal with dividends when less costly mechanisms can convey reliable private information to the market.

DeAngelo, DeAngelo and Skinner (1992) draw on the seminal work of Lintner (1956) by stating net income is the key characteristic in determining dividend changes. They find that an annual loss is a necessary, but not sufficient condition for a firm's dividend reduction. The authors assert that firms reduce dividends less often when their loss includes unusual income items, which would indicate transitory earnings problems. Their results support Miller and Modigliani's information content of dividend, asserting that a firm by reducing dividends improves the ability of current earnings to forecast future earnings.

(2005) documents that managers have more information regarding the firm's future prospects than do outside investors. They have an incentive to create positive information known to investors, particularly when a firm has attractive investment opportunities. Dividend change as a signal of new information has to be reliable because dividend signals are among costly signals. Managers are assumed to choose signals on a cost efficiency basis, so the lower cost signal is always preferred if the same results could be achieved. Information signaling theory also explain why dividends are stable and why managers are reluctant to cut payments, managers of firms with more stable earnings are likely to pay higher dividends.

Denis and Osobov (2008) have documented their multi-country study of dividend policy. They aim to provide credible answer to the question; why do some firms pay dividends while others do not? In this regard, they included listed firms in six developed countries containing US, UK, Canada, Germany, France, and Japan over the period of 1989 to 2002. However utilities, financial firms and firms with negative book equity are excluded from the sample. The main purpose of the study is to identify which firms' characteristics would be determinants of dividend policy. The characteristics include profitability, growth opportunities, size, and the earned/contributed equity mix. Based on the results, it could be concluded that the determinants of dividend policy are the same across countries, indicating that firm size, profitability, growth opportunities, and the earned/contributed equity mix could be considered as main determinants of dividend.

Chemmanur, He, Hu and Liu (2010) compare firms' dividend policies in Hong Kong and the U.S to present the dynamic nature of the decision. Based on the study, they have documented following results. A test of Lintner's model reveals that the extent of firms' dividend smoothing in Hong Kong is significantly less than those in the U.S. However, the signalling effects of dividend changes on stock returns are stronger in the U.S. compared to those in Hong Kong. They used logit analysis model to test the effect of determinants of dividend changes. The results showed that the lagged dividend yield significantly affects dividend changes in both countries in the same manner and past year stock returns have opposite effects on dividend changes in the two countries.

Brockman and Unlu (2011) examine the agency cost version of the lifecycle theory of dividends by taking advantage of cross-country variations in disclosure environments. The results confirm that dividend-initiating firms increase their retained earnings deciles rank prior to their initiations, and that dividend-omitting firms decrease their retained earnings deciles rank prior to their omissions. Taken together, these empirical results strongly support the lifecycle theory of dividends. In the second section of empirical analyses, they verify that the propensity to pay dividends increases significantly with retained earnings, even after controlling for returns on assets, firm size, total equity, cash holdings, and sales growth.

Fuller and Goldstein (2011) find evidence that investors are concerned with firms' dividend policies. Their results indicate that dividend-paying stocks outperform non-dividend-paying stocks by approximately 1% to 2% more in declining markets than in advancing markets. Further, these results hold when they control for risk, different definitions of advancing and declining markets, size, liquidity, industry groups, and for different sub-periods. They also find that these differences increase the more the market decreases. These results seem not to be a function of the quality of the firm, based on past profitability, future profitability, cash flow, or Tobin's Q.

Methodology and Data

Sample Selection and Data

In this study, sample companies are selected from listed firms in TSE. In order to select sample companies, several criteria are considered. Firstly, this study excludes the financial companies due to its different accounting regulations, categories and financial reports. Secondly, due to differences in firms' fiscal year, only companies with same fiscal year calendar included in the sample. Thirdly, the companies whose data are not available at least for five years are excluded from the sample. Fourthly, the sample firms must be listed until end of 2012, which means that firms exited the boards before 2012 should be excluded from the sample.

The required data for this study are daily data of stock price and market indices obtained from daily reports of TSE. The study uses two data sources include Rahavard Novin and Tadbir Pardaz databases to collect the data. The period of the study is considered from 2003 to 2012.

Research Hypotheses

According to the signalling theory of dividend, due to information asymmetry between firms' insiders and outsiders in real world, insiders will attempt to signal firm-specific private information to outsiders via firm's announcements. In this condition, dividend payments have a potential to signal the outlook and intentions of the firm's management (Bhattacharaya, 2003). Therefore, announcements of any change in dividend may convey useful information about a firm's future profitability. Market participants are expected to interpret every action a firm takes for implications for future cash flows and firm value. Then when firms announce any changes in dividend, investors and shareholders tend to react favorably against.

Based on the literature of dividend discussed previously, the present study investigates directional effects of dividend announcements through developing following hypotheses for selected markets:

Hypothesis1: There is a difference between changes in stock abnormal returns before and after the announcement of dividend increase.

Hypothesis2: There is a difference between changes in stock abnormal returns before and after the announcement of dividend decrease.

Hypothesis3: There is a difference between changes in stock abnormal returns before and after the announcement of no change in dividend.

Event Study Method

The event study methodology is designed to investigate the effect of an event on a specific dependant variable with a long history. Dolley (1933) as a first study, examines the price effects of stock splits investigating nominal price changes at the time of the stock split.

In this study, event study method, due to its simplicity and functionality, is used to test the effect of unexpected dividend changes on the changes of stock prices. Indeed, the investigation of relationship between changes in dividend and abnormal returns of the stock is necessary to test the signaling hypothesis of dividend. It can be used under less than perfect conditions and still produce reliable results (Henderson, 1990).

In this regard, the announcements of dividend are divided into three categories, dividend increase, dividend decrease, and no-change[1] in dividends. On the other side, the announcement date is also considered as the event day. The event window for this study comprises 30 pre-event days (-30) and 30 post-event days (+30) relative to the event. The period prior to and after the event may provide information about the dividends prior to the actual announcement, and captures the price effects of the announcements after the stock market closes on the announcement day by examining the pre-event and post-event returns. Defining $t = 0$ as the event date, $t = -30$ days to $t = +30$ days represent the event window for analysis, and 500 trading day period from $t = -60$ day to $t = -560$ day is considered as the estimation window to apply the market model for estimating the parameters, α and β. Figure 1 depicts the time line for event study:

Figure 1. Time Line for the Event Study

It is usual for the estimation window and the event window not to overlap. This design provides estimators for the parameters, α *and* β, of the normal return model, which are not influenced by the returns around the event. The purpose of this approach is to increase the robustness of the normal market return measure to gradual changes in its parameters. Therefore, the abnormal returns associated with the event under the study will not bias the results. The choice of using daily data for analysis is based on the evidence that the rejection frequencies for the null hypothesis of no abnormal returns when abnormal returns exist is, roughly three times that reported for monthly data (Brown & Warner, 1985).

This study also uses t-statistic to test the significance of abnormal returns. Following the above discussion a measurement of the event's effect requires a measure of abnormal return, which is discussed in detail in the next section.

Measuring the Abnormal Returns

The abnormal return is the actual ex-post return of the security over the event window. The normal return is defined as the expected return estimated by market model. The abnormal return is calculated for firm i and event date t, as following formula:

$$AR_{it} = R_{it} - E(R_{it}|X_t) \quad (1)$$

Where,

AR_{it} : abnormal returns for firm i at time t,

R_{it} : actual returns for firm i at time t,

$E(R_{it}|X_t)$: expected normal returns for firm i at time t,

X_t : conditional information for the normal return model.

A number of approaches are available to calculate the expected normal return of a given security. In the present study, the Risk Adjusted Market Model (RAMM) calculates the expected normal returns. RAMM, which is derived from the Capital Asset Pricing Model (CAPM) (Sharpe, 1964), is a statistical model that relates the return of any given security to the return of the market portfolio. The model assumes that the return of each security is linearly related to the market index and the market index is considered as a proxy for market portfolio. The model is presented as follows:

$$R_{it} = \hat{\alpha}_i + \hat{\beta}_i R_{mt} + \hat{\varepsilon}_{it} \quad (2)$$

Where,

R_{it} : Return on i^{th} security at time t, calculated by Ln (P_t/P_{t-1}),

1 The announcements of dividend in which the absolute value of percentage of dividend changes is less than 5 percent are considered as no-change in dividend.

R_{mt}: Return on the market portfolio at time t, calculated by Ln (I_t/I_{t-1}),

The equation (2) can easily be estimated through ordinary least squares (OLS) regressions, and the estimated coefficients, α *and* β, can be used to calculate the abnormal returns. The natural log function is used to calculate the security returns and market returns because the natural log can produce a better return distribution when returns are not normal (Singleton & Wingender, 1986).

One of the major concerns is that stocks are thinly traded on the stock exchanges in the sample countries, which will lead to the problem of non-synchronous trading bias (Annuar, Ariff, & Shamsher, 1994; Cheng, 2000; Yilmaz & Gulay, 2006). The problem especially happens when daily stock price are used. Consequently, the estimation of systematic risk (as measured by β) of thinly traded shares and then abnormal returns will be biased. There are several solutions to overcome the problem. Following previous research (Annuar et al., 1994; Cheng, 2000; Norhayati, 2005) this study utilizes the combined procedure of Dimson-Fowler-Rorke's model as outlined by Ariff and Johnson (1990) to obtain an unbiased estimate of the β coefficient. In this regard, this study uses a two leads and two lags model to adjust the estimation of parameter β. The unbiased $\hat{\beta}$ for stock i on day 0 in the estimation window is estimated as follow:

$$\hat{\beta}_i^0 = w_2(\beta_i^{-2}) + w_1(\beta_i^{-1}) + \beta_i^0 + w_1(\beta_i^{+1}) + w_2(\beta_i^{+2}) \quad (3)$$

Where, assuming a two-lead and two-lag model:

$$R_{it} = \alpha_i + \beta_i^{-2}\left(R_{m(t-2)}\right) + \beta_i^{-1}\left(R_{m(t-1)}\right) + \beta_i^0(R_{mt}) + \beta_i^{+1}\left(R_{m(t+1)}\right) + \beta_i^{+2}\left(R_{m(t+2)}\right) + U_{it} \quad (4)$$

The weights (W) for correcting the beta coefficient will be calculated as:

$$W_1 = \frac{1 + 2\rho_1 + \rho_2}{1 + 2\rho_1 + 2\rho_2} \quad (5)$$

$$W_2 = \frac{1 + \rho_1 + \rho_2}{1 + 2\rho_1 + 2\rho_2} \quad (6)$$

and we will have:

$$R_{mi} = \rho_0 + \rho_1 R_{m(t-1)} + \rho_2 R_{m(t-2)} + U_t \quad (7)$$

Subscripts -1 and +1 in the above equations refer to the first period lag/lead specification and subscripts -2 and +2 refer to the second lag/lead specification. ρ is the serial correlation coefficient, and ρ_1 refers to the first order serial correlation between R_{mt} and $R_{m(t-1)}$ and ρ_2 refers to the second order serial correlation between R_{mt} and $R_{m(t-2)}$ for two lags.

The parameters α *and* β is estimated for each firm in event window, by OLS estimator in the market model. The abnormal return will be the difference between the realized returns, R_{it} and the expected returns given the level of systematic risk. The equation will be as follows:

$$AR_{it} = R_{it} - [\alpha_i + \beta_i R_{mt}] \quad (8)$$

Under the null hypothesis, H_0, that the event has no impact on the behavior of returns, the distributional properties of the abnormal returns can be used to draw inferences over any period within the event window. Under H_0 the distribution of the sample abnormal return of a given observation in the event window is:

$$AR_{it} \sim N\left(0, \sigma^2(AR_{it})\right) \quad (9)$$

The distribution of abnormal return is built upon to consider the aggregation of the abnormal returns.

Aggregation of Abnormal Returns

The abnormal return observations must be aggregated in order to draw overall inferences for the event of interest because event study looks at the average effect of the announcement rather than each examining firm separately. The aggregation is along two dimensions through time and across securities. In this study, the abnormal returns of all securities are aggregated for each event day and then averaged to get the average abnormal return ($\overline{AR}_t$). Given N events in each group of announcement, the sample aggregated average abnormal returns for time t is calculated as follows:

$$\overline{AR}_t = \frac{1}{N}\sum_{i=1}^{N} AR_{it} \quad (10)$$

In addition, for large estimation window, its variance is:

$$VAR(\overline{AR}_t) = \frac{1}{N^2}\sum_{i=1}^{N} \sigma_{\varepsilon i}^2 \quad (11)$$

So far, the single null hypothesis H_0, is that the event has no effect on the abnormal returns. With this null hypothesis, either mean effect or a variance effect will represent a violation. Therefore, it is necessary to expand the null hypothesis to allow for increasing variance. This is achieved using a cross-section of abnormal returns to form an estimator of

the variance for testing the null hypothesis. Using the cross-section to form an estimator of the variance results in following equation:

$$VAR(\overline{AR}_t) = \frac{1}{N^2}\sum_{i=1}^{N}(AR_{it} - \overline{AR}_{it})^2 \qquad (12)$$

The abnormal returns need to be unrelated in the cross-section for this estimator of variance being consistent. With this estimator of variance, the null hypothesis H_0, is that, the average abnormal returns are not different from zero for each day in the event window, then the hypothesis H_0, can be tested by:

$$t - satistic = \frac{\overline{AR}_t}{\sqrt[2]{VAR(\overline{AR}_t)}} \sim t - distribution \qquad (13)$$

This distributional result is asymptotic with respect to the number of securities N and the length of estimation window.

Cumulative Abnormal Returns

The abnormal returns of each individual security can be aggregated for any interval in the event window to get the Cumulative Abnormal Returns (CAR). CAR for stock i from day $\tau_1 to\ day\ \tau_2$ $(CAR_i(\tau_1, \tau_2))$ is calculated as follows:

$$CAR_i(\tau_1, \tau_2) = \sum_{\tau=\tau_1}^{\tau_2} AR_{i,\tau} \qquad (14)$$

Denote $\overline{CAR}(\tau_1, \tau_2)$ as the sample average cumulative abnormal return across event observations, then $\overline{CAR}(\tau_1, \tau_2)$ is calculated as follows:

$$\overline{CAR}(\tau_1, \tau_2) = \sum_{\tau=\tau_1}^{\tau_2} \overline{AR}_\tau = \frac{1}{N}\sum_{i=1}^{N} CAR_i(\tau_1, \tau_2) \qquad (15)$$

The variance of cumulative average abnormal returns can be calculated by the following formula:

$$\mathrm{VAR}\big(\overline{\mathrm{CAR}}(\tau_1, \tau_2)\big) = \frac{1}{\mathrm{N}^2}\sum_{\mathrm{i}=1}^{\mathrm{N}} \sigma_{\mathrm{i}}^2(\tau_1, \tau_2) \qquad (16)$$

The cross-section approach for estimating variance can be used to the average cumulative abnormal returns. In this case, the estimator of variance will be as follows:

$$\mathrm{VAR}\big(\mathrm{CAR}(\tau_1, \tau_2)\big) = \frac{1}{\mathrm{N}^2}\sum_{\mathrm{i}=1}^{\mathrm{N}} [\mathrm{CAR}(\tau_1, \tau_2) - \overline{\mathrm{CAR}}\,(\tau_1, \tau_2)]^2 \qquad (17)$$

For this estimator of the variance to be consistent, the abnormal returns need to be uncorrelated in the cross-sections. Given this variance estimator, the null hypothesis H_0, that the cumulative abnormal returns are not different from zero, can be tested by using the usual theory. The following t-statistic test will be used to test the null hypothesis,:

$$\mathrm{t} - \mathrm{statistic} = \frac{\overline{\mathrm{CAR}}(\tau_1, \tau_2)}{\sqrt[2]{\mathrm{VAR}(\overline{\mathrm{CAR}}(\tau_1, \tau_2))}} \sim \mathrm{t} - \mathrm{distribution} \qquad (18)$$

A chart also can be produced to show the cumulative average abnormal returns for announcements of dividend increase, decrease, and no-changes in dividend. The chart can be examined and conclusions can be drawn from that.

Results and discussions

This section analyses and reports the descriptive statistics of the variables used in the study. It also discusses the findings of the effects of dividend announcements on stock price and abnormal return, and the t-statistics and plots of the abnormal returns are used to interpret the findings.

Descriptive Statistics of Cumulative Abnormal Returns

Table 1 shows the descriptive statistics of Cumulative Abnormal Return (CAR) calculated for three groups of dividend announcements for sample firms of TSE. As it can be seen, the mean CAR for whole sample, with 650 announcement observations, is 0.3 percent with a standard deviation of 0.138 ranging from -0.701 to 1.388. The mean CAR for the announcement of dividend increase is 1.4 percent with a standard deviation of 0.161 ranging from -0.385 to 1.388. For the announcements of no-change in dividend, the mean CAR is 0.3 percent with a standard deviation of 0.137 ranging from -0.701 to 0.415 followed by dividend decrease announcements with mean CAR of -0.9 percent and standard deviation of 0.107 and ranging from -0.468 to 0.295.

Table 1: Descriptive statistics of CARs for sample firms of TSE

	Increase	Decrease	No-change	Whole sample
Mean	0.014	-0.009	0.003	0.003
Standard Error	0.001	0.004	0.014	0.004
Standard Deviation	0.161	0.107	0.137	0.138
Sample Variance	0.026	0.011	0.019	0.019
Minimum	-0.385	-0.468	-0.701	-0.701
Maximum	1.388	0.295	0.415	1.388
Sum	3.771	-2.329	0.368	1.993
Count	268	269	113	650

Table 2: Average ARs of dividend announcements in TSE over 2003-2012

Days	Dividend increase, n=268			Dividend decrease, n=269			No-change in dividend, n=113		
	AR	T-test	CAR	AR	T-test	CAR	AR	T-test	CAR
-30	0.00109	0.998	0.00109	-0.00185	-0.840	-0.00185	0.00083	0.752	0.00083
-25	0.00027	0.209	0.00221	-0.00111	-0.463	-0.00087	0.00151	0.970	0.00263
-20	0.00029	0.182	0.00435	-0.00047	-0.173	-0.00284	0.00093	0.628	0.00357
-15	0.00260	*1.781	0.00923	-0.00165	-0.905	-0.00677	0.00114	0.683	0.00311
-10	-0.00049	-0.289	0.01365	-0.00101	-1.038	-0.00802	-0.00183	-0.827	0.00120
-5	0.00051	0.305	0.01715	0.00036	0.220	-0.00793	0.00076	0.449	0.00044
-4	-0.00073	-0.198	0.01643	-0.00008	-0.045	-0.00801	0.00038	0.149	0.00082
-3	0.00171	0.440	0.01813	-0.00027	-0.157	-0.00828	-0.00117	-0.313	-0.00035
-2	0.00291	*1.828	0.02105	0.00030	0.165	-0.00798	-0.00041	-0.129	-0.00076
-1	0.00003	0.025	0.02107	-0.00115	-1.052	-0.00913	0.00201	0.486	0.00125
0	0.00210	*1.966	0.02298	-0.00231	-0.936	-0.01145	0.00034	0.072	0.00159
1	0.00163	1.114	0.02538	-0.00017	-0.099	-0.01162	-0.00038	-0.077	0.00122
2	0.00241	*1.823	0.02519	0.00150	1.007	-0.01011	0.00199	0.890	0.00321
3	0.00050	0.292	0.02513	-0.00057	-0.219	-0.01068	-0.00049	-0.193	0.002719
4	-0.00153	-0.999	0.02578	0.00115	0.692	-0.00953	-0.00108	-0.340	0.00164
5	0.00221	*1.704	0.02433	-0.00059	-0.456	-0.01012	0.00133	0.481	0.00297
10	0.00025	0.076	0.02098	0.00017	0.071	-0.01105	0.00079	0.484	0.00582
15	0.00080	0.261	0.01913	-0.00085	-0.365	-0.01351	0.00020	0.027	0.00457
20	-0.00132	-0.412	0.01628	0.00037	0.301	-0.01739	-0.00013	-0.073	0.00418
25	0.00034	0.293	0.01549	-0.00084	-0.454	-0.01962	0.00072	0.244	0.00177
30	0.00100	0.634	0.01765	-0.00165	*-1.664	-0.01843	0.00077	0.357	-0.00086

Significant at 0.10(*), 0.05 (**), and 0.01 (***) levels

The directional effect of dividend announcements

Table 2 tabulates the market price reaction to the dividend announcements over the analysis window in sample firms. The first column denotes the days relative to the announcement day (day zero) and the next columns show the average AR, test of significance and the average CAR, for the announcements of dividend increase and decrease and no-change respectively. For the dividend increase group, the market seems to have favorably reacted since 30 days prior to the announcement showing that average AR is significant at 0.10 level especially for 15 days before the event. The average AR continues to be significant at on the days -6 and -2 prior to the announcement with t-test of 1.866 and 1.828 respectively. The significant average ARs are observed on the event day and the days +2 and +5 after the event with corresponding t-test of 1.966, 1.823, and 1.704 respectively. It indicates that the price effect is significantly different from zero on the event day and after the event. It is also seen that the ARs for the days +1 and +3 after the announcement are still positive but not significant. The next positive market reactions appear on the days +9 and +10 after the announcement but insignificant.

For dividend decrease category, the ARs appear to be negative since 30 days prior to the announcement day but not significant. The average ARs for the event day is -0.23 percent with the corresponding t-statistic of -0.936. The market reacts negatively to the announcement of dividend decrease but not strongly significant. One strange observation is that there are positive returns on days -2 before and +2 after the announcement of dividend decrease. It may be explained that some parts of the market consider dividend decrease as good news of firms' future investment opportunities.

The table shows that for dividend decrease there are significant negative reactions only on days 19 and 30 after the announcement with corresponding t-statistic -1.766 and -1.664 respectively. The effect of announcements of no-change in dividend is also analyzed. The market price reaction to this group of the announcements is presented in the last columns. According to the hypothesis, it is expected that there will be no abnormal return resulting from this kind of the announcements.

Table 3 illustrates the average CARs and corresponding t-statistics for the pre-event periods up to +1 day after the event, event period and post event periods. The event period is determined as day -1 to day +1 relative to event day. Panel A in the Table shows the average CARs and corresponding t-statistics on the pre-event, up to day +1 period. The value of CARs for dividend increase is significantly different from zero for the pre-event periods and for the event period. While for dividend decrease, none of the pre-event, up to day +1 period, and the event period, is significantly different from zero. Panel B shows the post-event CARs, and no dividend increase and dividend decrease is significantly different from zero, indicating that there is no post-announcement drift in the market. For the announcements of no-change in dividend the Table also shows that the average CARs for pre-event periods in panel A as well as post-event periods in panel B relative to event day, are positive but not statistically significant.

Table 3: Test of the significance of CARs for dividend announcements

	Dividend Increase: n=268		Dividend Decrease: n=269		No-change in dividend, n=113	
Periods	CAR	T-test	CAR	T-test	CAR	T-test
Panel A: Pre-event						
-30 to +1	0.02538	1.336	0.02538	1.336	0.00122	0.057
-20 to +1	0.02131	1.192	-0.00924	-0.889	-0.00143	-0.085
-10 to +1	0.01124	**1.943	-0.00460	-0.758	-0.00182	-0.155
-5 to +1	0.00904	***2.697	-0.00332	-0.844	0.00153	0.253
-2 to +1	0.00725	***2.907	-0.00333	-0.936	0.00157	0.432
-1 to +1	0.00433	**2.312	-0.00364	-1.362	0.00198	0.407
Panel B: Post-event						
+2 to +5	-0.00105	-0.342	0.00149	0.445	0.00175	0.610
+2 to +10	-0.00440	-0.626	0.00057	0.093	0.00460	0.835
+2 to +20	-0.00910	-0.857	-0.00577	-0.593	0.00296	0.231
+2 to +30	-0.00773	-0.560	-0.00682	-0.526	-0.00208	-0.129

Significant at 0.10 (*), 0.05 (**), and 0.01 (***)

Figure 2 illustrates the plots of average CARs for dividend announcements for sample firms in TSE. It is seen that CARs increases for the announcements of dividend increase and decreases for dividend decrease. The observations of the plot seem to be consistent with those documented in developed markets. For dividend increase, the plot shows the market gradually revalues the shares in anticipation of forthcoming announcements with a sharp increase occurring on the announcement day and on the day after the announcement. It seems that before the announcement, there is some leakage information in the market about dividend increase. After the announcement, there is a new reaction of the market after day four with a sharp decline in CAR and again stabilizing up to day ten. It seems that the market can immediately react to the dividend increase around the announcement date. The plot shows that after day +13 the market revalues again the share to have a steady increase in returns.

For dividend decrease announcements, between days -19 to -7 the market reacts steady and negatively but it seems that there is some leakage of positive information prior to the announcement day. It could be that the market is anticipating that the decrease in dividend will not be too large. However, the sharp decline in CARs around the event day shows a strong negative reaction to the announcement of dividend decrease. The CARs seems to stabilize after the event, experienced again a sharp decline after day +8, and continues to decrease steadily after that.

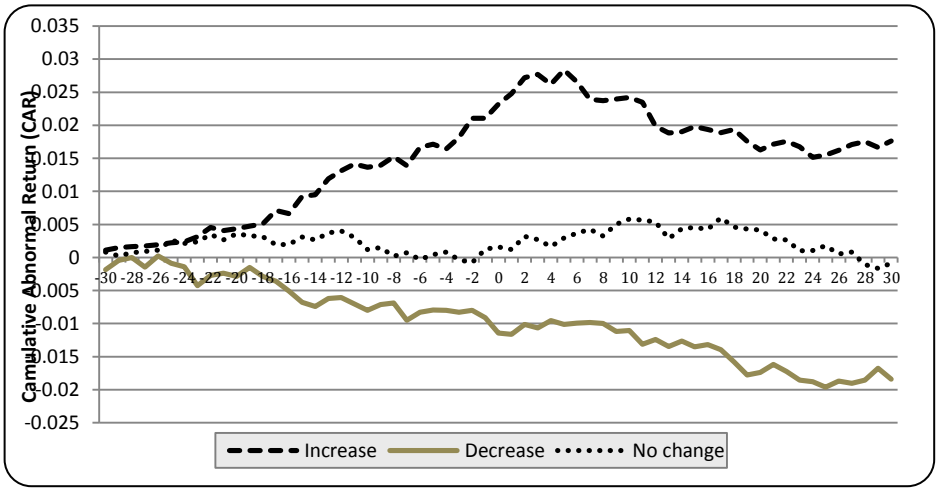

Figure 2: Plot of CARs around the announcement of dividend in TSE

The figure shows that the movement of the stock price reaction to the announcements of no-change in dividend is somewhat similar to dividend increase announcements. These observations is consistent with previous research stating that the stock market in TSE is somewhat efficient in the semi-strong form (Pourheydari, Aflatooni, & Nikbakhat, 2008; Samadzadeh, 1993). It can be concluded, the results of the tables and plot seem to support the dividend signaling hypothesis where the announcements of dividend increases are followed by positive abnormal returns and the announcements of dividend decreases by negative abnormal returns. However, the share prices reacted to the announcement of dividend decrease with a few days delay, showing significant negative $\overline{AR}$ on the 19 days after the event. One possible explanation for this delayed reaction is that the market does not take the announcement of dividend decrease into consideration as a very negative event and may looks forward for other positive news to make trading decision.

Summary and Conclusions

This study investigates the directional effects of dividend announcements, in three categories of dividend increase, dividend decrease, and no-change in dividend, in Tehran Stock Exchange (TSE). The findings support the revaluation effect of dividend change announcements in the market.

The daily AR on the announcement day appears to be around 0.2 percent, with significant t-statistics for dividend increase category. Dividend increase announcements create an increase in abnormal returns and dividend decrease announcements are followed by negative abnormal returns around the event days. Results of no-change in dividend tend to follow the pattern of dividend increase by positive abnormal return around the announcement day. The CARs show significant effect of dividend increase announcements especially over the pre-event periods.

Overall, it can be concluded that dividend change announcements have informational content in TSE. As mentioned in previous sections, signaling hypothesis of dividend states that the market can interpret the announcements of dividend increase as good news and tends to show a positive reaction and adversely the announcements of dividend decrease is interpreted as bad news and creates a negative market reaction. It seems that the signaling hypothesis appears to be supported in the market by positive reactions to dividend increases and negative reactions to dividend decreases.

References

Aharony, J., & Swary, I. (1980). Dividend and Earnings Announcements and Stockholders'Returns: An Empirical Analysis. Journal of Finance, 35, 1-12.

Aivazian , V., Booth, L., & Cleary, S. (2003a). Dividend Policy and the Organization of Capital Markets. Journal of Multinational Financial Management, 13(2), 101-121.

Ambrish, R., John, K., & Williams, J. (1987). Efficient Signalling with Dividends and Investments. Journal of Finance, June, 321-343.

Annuar, M. N., Ariff, M., & Shamsher, M. (1994). Is Kuala Lampur's Emerging Share Market Efficient? International Financial Markets, Institutions & Money, 4(1/2), 89-100.

Ariff, M., & Johnson, L. W. (1990). Securities Markets and Stock Pricing: Evidence from a Developing Capital Market in Asia. Singapore: Longman Singapore Publishers.

Baker, H., & Powell, G. (1999). How Corporate Managers View Dividend Policy. Quarterly Journal of Business and Economics, 38, 17-35.
Ben-Naceur, S., Ghazouani, S., & Omran, M. (2007). The Determinants of Stock Market Development in the Middle-Eastern and North African Region. Managerial Finance, 33 (7), 477-489.
Bhattacharaya , S. (1979). Imperfect Information, Dividend Policy, and `The Bird In The Hand' Fallacy. Bell Journal of Economics, 10(1), 259-270.
Bhattacharaya, N. (2003). Good Managers Work More and Pay Less Dividends - A Model of Dividend Policy. Financial Management, 16(3), 29-35.
Brealey, R., & Myers, S. (2005). Principles of Corporate Finance (8th ed.). London: McGraw-Hill.
Brockman, P., & Unlu, E. (2011). Earned/Contributed Capital, Dividend Policy, and Disclosure Quality: An International Study. Journal of Banking & Finance, 35, 1610-1625.
Brown, S., & Warner, J. (1985). Using Daily Stock Returns. Journal of Financial Economics, 14, 3-31.
Chemmanur, T. J., He, J., Hu, G., & Liu, H. (2010). Is Dividend Smoothing Universal? New Insights from a Comparative Study of Dividend Policies in Hong Kong and the U.S. Journal of Corporate Finance, 16, 413-430.
Cheng, F. F. (2000). The Impact of Accounting Earnings Disclosures on Stock Prices in Malaysia, an Emerging Market. Unpublished PhD Thesis, Universiti Putra Malaysia.
DeAngelo, H., DeAngelo, L., & Skinner, D. (1992). Dividends and Losses. Journal of Finance, December, 1837-1863.
Denis, D. J., & Osobov, I. (2008). Why Do Firms Pay Dividends? International Evidence on the Determinants of Dividend Policy. Journal of Financial Economics doi:10.1016/j.jfineco.2007.06.006.
Deshmukh, S. (2005). The Effect of Asymmetric Information on Dividend Policy. Quarterly Journal of Business and Economics, 44(1/2), 107-127.
Dolley, J. C. (1933). Characteristics and Procedure of Common Stock Split-Ups. Harvard Business Review, 11, 316-326.
Fuller, K. P., & Goldstein, M. A. (2011). Do Dividends Matter more in Declining Markets? Journal of Corporate Finance, 17, 457-473.
Glen, J. D., Karmokoiias, Y., Miller, R. R., & Shah, S. (1995). Dividend Policy and Behaviour in Emerging Markets: To Pay or not to Pay. IFC Discussion Paper No. 26, World Bank, Washington, DC, July. .
Gordon, M. (1963). The Savings, Investment and Valuation of A Corporation. Review of Economics and Statistics, 44, 37-51.
Henderson Jr, G. V. (1990). Problems and Solutions in Conducting Event Studies. Journal of Risk and Insurance, 57, 282-306.
John, K., & Williams, J. (1985). Dividends, Dilution, and Taxes: A Signaling Equilibrium. Journal of Finance, 40 (4), 1053-1070.
Lintner, J. (1956). Distribution of Income of Corporations among Dividends, Retained Earnings and Taxes. American Economic Review, 46, 97-113.
Miller , M., & Modigliani, F. (1961). Dividend Policy, Growth and the Valuation of Shares. Journal of Business, 34, 411-433.
Miller, M., & Rock, K. (1985). Dividend Policy Under Asymmetric Information. Journal of Finance, 40(4), 1031-1051.
Norhayati, M. (2005). Information Signaling and Dividend Policies in Malaysia. Unpublished Ph-d thesis, Universiti Putra Malaysia (UPM).
Omran, M. (1999). The Impact of Egypt's Economic Reform Programme on the Stock Market Performance. Unpublished PhD thesis, University of Plymouth, Plymouth.
Pourheydari, O., Aflatooni, A., & Nikbakhat, Z. (2008). The Pricing of Dividends and Book Value in Equity Valuation: The Case of Iran. International Research Journal of Finance and Economics (13), 7-17.
Ramcharran, H. (2001). An Empirical Model of Dividend Policy in Emerging Equity Markets. Emerging Markets Quarterly, 5, no.1, 39-49.
Samadzadeh, M. (1993). Dividend Policies and their Effect on the Stock Value in the Tehran Stock Exchange. Isfahan university, Isfahan.
Shackmurove, Y. (2006). Economic Development in the Middle East, Working Paper Philadelphia: Penn Institute for Economic Research Department of Economics University of Pennsylvania (19104-6297).
Sharpe, W. F. (1964). Capital Asset Prices: a Theory of Market Equilibrium under Conditions of Risk. Journal of Finance, XLX (3), 425-442.
Singleton, J. C., & Wingender, J. (1986). Skewness Persistence in Common Stock Returns. Journal of Finance and Quantitative Analysis, 21, 335-341.
Tehran Stock Exchange. (2009). Annual Report of the Stock Exchange Organisation. From (www.rdis.ir/YearReport.asp). Tehran.
Yilmaz , M. K., & Gulay, G. (2006). Dividend Policies and Price-Volume Reactions to Cash Dividends on the Sock Market: Evidence from the Istanbul Stock Exchange. Emerging Markets Finance and Trade, 42. no.4.