SIGNALLING EFFECTS OF DIVIDEND ANNOUNCEMENTS IN TEHRAN STOCK EXCHANGE (TSE)

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ABSTRACT

One of the noteworthy features of dividend policy is that dividend payment can affect share price and firms' value. This paper attempts to analyze the signaling effects of dividend announcements on stock prices using event study methodology in Iran. The study contains a sample of 80 Iranian firms over period of 1997-2008. Considering 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 dividend. Then t-statistics and plots are used to analyze significance of the effects of the announcements on stock prices. 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.

Keywords*: Dividend policy, Dividend announcement, Signaling effects of dividend, Abnormal Returns, Cumulative Abnormal Returns, Risk adjusted market model, Tehran Stock Exchange.*

Introduction:

Dividend Policy is known as one of the most important financial decisions that managers encounter. Brealey and Myers (2005) have listed firms' dividend decision as one of the top ten important issues in advance corporate finance. Its importance is due to the interactions with other firms' financing and investment decisions. For instance, one of the reasons for importance of dividend policy is that it affects firms' capital structure, since the retained earnings could be used as internal funds to finance the projects instead of external sources. Otherwise, the firm has to raise funds by issuing new debt.

In this regard, one considerable feature of dividend policy is to affect share price and firms' value. The bird-in-hand hypothesis asserts that in a world 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 the private information and therefore can be used as a signaling device to influence share price. An announcement of dividend increase is taken as good news and accordingly the share price reacts favorably, and vice versa.

The previous studies document that the patterns and effects of dividends differ 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 report that dividend payout ratios in developing countries were around two thirds that of developed countries. Ramcharran (2001) also observed low dividend yields for emerging markets. Firms in emerging capital markets face more financial constraints and limited resources to finance their investment opportunities, which may result in more reliance on retained earnings and accordingly lower payout ratios.

In recent decade, Middle Eastern financial markets have been considered as attractive emerging markets due to noteworthy development and growth rate in terms of market size, liquidity and performance (Omran, 1999).

Literature Review:

Miller and Modigliani's (1961) irrelevance proposition of dividend are assumed as unrealistic 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 the market price. They attributed this phenomenon to the information content of dividend.

In the real world, external shareholders and debt holders possess less information about the firm's performance than do internal shareholders and managers; the issue is named as information asymmetry between firms' insiders and outsiders. 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 outlook and 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 scepticism, 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 credibly 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 viewed 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 increase the stock price. Decreasing dividends is a negative signal, largely because firms are reluctant to cut dividends. Thus, when a firm takes this action, markets see it as an indication that this firm is in substantial and long-term financial trouble. Consequently, such actions lead to a drop in stock prices.

Information signaling theory may also explain why dividends are stable and why managers are reluctant to cut payments, firms' managers with more stable earnings are likely to pay higher dividends (Aivazian , Booth, & Cleary, 2003a). Baker and Powell (1999) found from survey data that the role of dividends in signaling receives the strong recognition from executives. Only managers of high quality firms anticipating 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 differential between the capital gains and dividend income tax, 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) construct 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 persist despite their dissipative costs; what are the announcement effects in more realistic problems with multiple signals; and why should corporate insiders signal with dividends when less costly mechanisms can convey credible private information to the market.

Many empirical researches on asymmetric information and dividends examine the effect of dividend change (increase, decrease or omission) on share price. Pettit (1972) finds that announcements of dividend decreases are followed by significant share price drops and dividend increases are followed by share price increases. Aharony and Swary (1980) test whether quarterly dividend changes provide information beyond that already provided by quarterly earnings numbers. The capital market reaction to the dividend announcements they studied strongly support the hypothesis that changes in quarterly cash dividends provide useful information beyond that provided by corresponding quarterly earnings numbers.

DeAngelo, DeAngelo and Skinner (1992) continue with the theme of dividend reduction in "Dividends and Losses". In this paper, they have increased their sample size of NYSE firms to 167 firms with losses from 1980 to 1985 and included 440 firms without losses. They draw on the seminal work of Lintner (1956) by stating net income is the key characteristic in determining dividend changes. However, Lintner did not survey "unhealthy" firms. Whereas their 1990 paper looked at persistent losses (three or more over the 1980 - 1985 period), they extend their analysis to transitory losses. The authors find that an annual loss is a necessary, but not sufficient condition for a firm's dividend reduction. In their sample of 167 firms, 50.9% reduced dividends whereas for those firms without losses, only 1% reduced dividends. The authors find that firms reduce dividends less often when their loss includes unusual income items which would indicate transitory earnings problems. The authors also find that their results support Miller and Modigliani's information content of dividends - a firm that has reduced dividends improves the ability of current earnings to predict future earnings.

Woolridge (1983) investigates the effects of unexpected dividend changes on the values of common stock, preferred stock, and bonds in order to distinguish between a wealth transfer effect and a signaling effect. He points out that the financial decisions may have at least two separate effects on the distribution of total firm value among different classes of securities. First, if claim holders are inadequately protected by 'me-first' rules, a financing decision may result in wealth transfers among different classes of securities. Therefore, an announcement of dividend increase (decrease) will result an increase (decrease) in common stock prices, but a decrease (increase) in value of preferred stock and debts. This is called the wealth transfer effect. Second, if the market possesses imperfect information, a financing decision may signal information to the market concerning firm value and thereby influence the values of all security classes. Therefore, an announcement of a dividend increase (decrease), will result an increase (decrease) in common stock prices, and also an increase (decrease) in value of preferred stock and debts. This is called signaling effect. He also asserts that a wealth transfer effect is not necessarily denied, but if it exists, it is dominated by the signaling effect.

Methodology and Data:

Sample Selection and Data:

In this study, sample companies are selected from listed firms in Tehran stock exchange. The study considers several criteria for companies to be selected. Firstly, this study excludes the financial companies due to its different accounting regulations, categories and financial reports. Secondly, the companies whose fiscal year ends in different date are excluded from 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 2008, which means that firms exited the boards before 2008 should be excluded from the sample.

The required data for this study are daily data obtained from daily reports of the stock exchanges in Iran (TSE)[1]. The study uses Tadbir Pardaz database to collect required data. The period of the study is considered from 1997 to 2008.

1 Tehran Stock Exchange (TSE)

Research Hypotheses:

This study investigates the directional effects of dividend announcements in Tehran stock exchange. For this purpose, the following hypothesis will be tested to identify whether or not the signaling hypothesis of dividend is supported.

Hypothesis1:

The announcements of dividend changes determine the sign of changes in stock price.

H_0: There is no relationship between changes in stock prices and the announcement of dividend changes.

H_a: There is a positive relationship between changes in stock prices and the announcement of dividend changes.

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 Jr, 1990).

In this respect, the announcements of dividend are divided into three categories, dividend increase, dividend decrease, and no-change[2] in dividends. On the other side, the announcement date is also considered as an event. The event window for this study comprises 30 pre-event days (-30) and 30 post-event days (+30) relative to event day. 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:

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

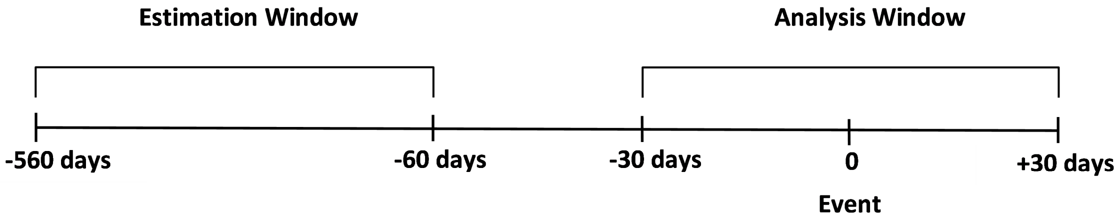

Figure 1: Time Line for the Event Study

It is typical 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 goal 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 will also use 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 will be discussed in detail in the next section.

3.3.1 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:

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

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:

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

Where,

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

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

$\hat{\varepsilon}_{it}$: Disturbance term, with $E(\hat{\varepsilon}_{it}) = 0$, $\mathrm{Var}(\hat{\varepsilon}_{it}) = \sigma^2_{\varepsilon i}$,

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 about emerging stock markets is that stocks are thinly traded on the stock exchanges in 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.

This study following Ariff and Johnson (1990), Annuar et al. (1994) and Cheng (2000) uses a two leads and two lags model to adjust the estimation of parameter β. Previous research reveals that specifying two leads and two lags of market returns in the market model seems to be more appropriate to obtain stable and unbiased beta estimation. 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, H0, that the event has no impact on the behavior of returns (mean or variance) the distributional properties of the abnormal returns can be used to draw inferences over any period within the event window. Under H0 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.

3.3.2 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:

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

Using these estimates, the abnormal returns for any event period can be analyzed. The estimator of variance ($\sigma_{\varepsilon i}^2$), must be used to calculate the variance of the average abnormal return in the above equation because the population variance is unknown. Therefore, the sample variance measure from the market model regression in the estimation window is an appropriate choice.

So far, the single null hypothesis H0, was 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:

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

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 H0, is that, the average abnormal returns are not different from zero for each day in the event window, then the hypothesis H0, can be tested by:

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

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

3.3.3 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. The cumulative abnormal return for stock i from day τ_1 to day τ_2 ($CAR_i(\tau_1, \tau_2)$) is calculated as follows:

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

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:

Table 1: Yearly frequency distribution of dividend announcements

Year	Increase		Decrease		No change		Total in Sample	Total in Market
	No	%	No	%	No	%		
1999	16	37	17	40	10	23	43	195
2000	18	35	21	41	12	24	51	188
2001	29	53	15	27	11	20	55	200
2002	16	26	42	68	4	6	62	206
2003	39	60	21	32	5	8	65	227
2004	41	55	20	27	13	18	74	257
2005	24	31	40	51	14	18	78	259
2006	27	36	31	41	18	24	76	103
2007	37	49	26	34	13	17	76	192
2008	21	30	36	51	13	19	70	272
Total	**268**	**41**	**269**	**41**	**113**	**17**	**650**	**2099**

*The percentages are calculated by taking the number of dividend announcements in each group of increase, decrease or no-change divided by the total announcements in a given year. The last column denotes total dividend announcements of listed companies in Tehran Stock Exchange.

Table 2: Descriptive statistics of CARs

	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

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

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

$$VAR\left(\overline{CAR}(\tau_1,\tau_2)\right) = \frac{1}{N^2}\sum_{i=1}^{N} \sigma_i^2(\tau_1,\tau_2) \qquad (16)$$

In practice, because the variance of the population is unknown, an estimator must be used to calculate the variance of the abnormal returns. The sample variance measure from the cumulative returns of the estimation window is an appropriate choice. Similar to the test in abnormal returns, the null hypothesis need to be modified due to the violation by either mean effect or variance effect. Therefore, it is necessary to expand the null hypothesis to allow for increasing variance by using the cross-section of cumulative abnormal returns. 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:

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

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 H0, 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,:

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

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 then be examined and conclusions can be drawn from that.

Table 3: Average ARs of dividend announcements over 1999-2008

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
-19	0.00037	0.259	0.00473	0.00132	0.998	-0.00152	-0.00027	-0.109	0.00329
-18	0.00036	0.149	0.00509	-0.00132	-0.673	-0.00284	-0.00018	-0.080	0.00312
-17	0.00202	1.600	0.00711	-0.00077	-0.143	-0.00362	-0.00120	-0.573	0.00191
-16	-0.00047	-0.042	0.00663	-0.00150	-0.665	-0.00512	0.00006	0.025	0.00197
-15	0.00260	*1.781	0.00923	-0.00165	-0.905	-0.00677	0.00114	0.683	0.00311
-14	0.00025	0.260	0.00948	-0.00064	-0.381	-0.00741	-0.00045	-0.369	0.00265
-13	0.00243	1.229	0.01191	0.00120	0.786	-0.00621	0.00106	0.559	0.00372
-12	0.00121	0.713	0.01312	0.00013	0.078	-0.00608	0.00028	0.125	0.00399
-11	0.00101	0.520	0.01414	-0.00093	-0.806	-0.00701	-0.00096	-0.401	0.00303
-10	-0.00049	-0.289	0.01365	-0.00101	-1.038	-0.00802	-0.00183	-0.827	0.00120
-9	0.00032	0.136	0.01396	0.00090	0.512	-0.00712	0.00030	0.036	0.00151
-8	0.00127	0.706	0.01523	0.00023	0.176	-0.00689	-0.00134	-1.086	0.00017
-7	-0.00135	-1.141	0.01388	-0.00259	-1.152	-0.00949	0.00054	0.186	0.00071
-6	0.00275	*1.866	0.01634	0.00120	0.667	-0.00829	-0.00103	-0.316	-0.00032
-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
6	-0.00182	-1.056	0.02373	0.00017	0.140	-0.00995	0.00069	0.379	0.00365
7	-0.00265	-0.876	0.02102	0.00011	0.028	-0.00984	0.00058	0.302	0.00423
8	-0.00021	-0.077	0.02071	-0.00013	-0.083	-0.00997	-0.00098	-0.566	0.00326
9	0.00024	0.091	0.02069	-0.00124	-0.389	-0.01122	0.00177	0.648	0.00503
10	0.00025	0.076	0.02098	0.00017	0.071	-0.01105	0.00079	0.484	0.00582
11	-0.00070	-0.675	0.01946	-0.00210	-0.532	-0.01315	-0.00014	-0.019	0.00568
12	-0.00365	-1.503	0.01830	0.00076	0.407	-0.01239	-0.00030	-0.215	0.00538
13	-0.00101	-0.430	0.01798	-0.00108	-0.428	-0.01347	-0.00253	*-1.734	0.00285
14	0.00019	0.053	0.01903	0.00081	0.277	-0.01266	0.00148	0.723	0.00433
15	0.00080	0.261	0.01913	-0.00085	-0.365	-0.01351	0.00020	0.027	0.00457
16	-0.00047	-0.254	0.01936	0.00032	0.131	-0.01319	-0.00029	-0.149	0.00425
17	-0.00049	-0.350	0.01886	-0.00076	-0.581	-0.01395	0.00173	0.453	0.00598
18	0.00049	0.194	0.01935	-0.00183	-0.540	-0.01578	-0.00138	-0.478	0.00460
19	-0.00176	-0.453	0.01760	-0.00198	*-1.766	-0.01776	-0.00030	-0.152	0.00430
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

Results and Discussions:

This section analyses and reports the descriptive statistics of the variables used in the study for both selected markets, Iran and Saudi Arabia respectively. 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.

Dividend Announcements:

This study uses only the final dividend announcements in Iran, and based on availability of

daily stock prices, dividend announcement dates are collected for a sample of 80 listed firms in Iran, over the period 1997 to 2008. Therefore, the study contains 650 announcements of listed firms in Iran.
Table 1 shows the yearly distribution of dividend announcements for all observations of 80 listed firms in the sample of Iran. The percentages are calculated by taking the number of dividend increase, decrease or no-change divided by the total announcements in a given year.

Descriptive Statistics of Cumulative Abnormal Returns:

Table 2 shows the descriptive statistics of Cumulative Abnormal Return (CAR) calculated for three groups of dividend announcements. As it can be seen, the mean CAR for whole sample of Iran, 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.

Directional Effect of Dividend Announcements:

The directional effect of dividend announcements for sample of Iran is tested by calculating the Abnormal Return (AR) and CAR. Then t-statistic is used to test the significance of the returns in the analysis window.
Table 3 tabulates the market price reaction to the dividend announcements over the analysis window in sample of Iran. 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. This implies that in Iran, dividends change information is reflected into the share price around the announcement day, but it seems there is some information leakage before the announcements in the market.
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 delayed reaction to this dividend announcement seems to indicate that Iran's stock market has been very bullish before the event.
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. Aharony and Swary (1980) state that companies, which do not change their dividends, earn only normal returns over the twenty days surrounding the announcement dates.
However, the results summarized in the Table show that there is a positive abnormal return on the announcement day and day before the event. Therefore, the null hypothesis that the abnormal return around the dividend announcement is zero can be rejected. The findings in this study seem to indicate that the market also views no-change in dividend as a positive practice by managers.
Table 4 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 periods. As it is seen, the value of CARs for dividend increase is significantly different from zero for the pre-event periods and also 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

Table 4: Test of the significance of average 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 (***)						

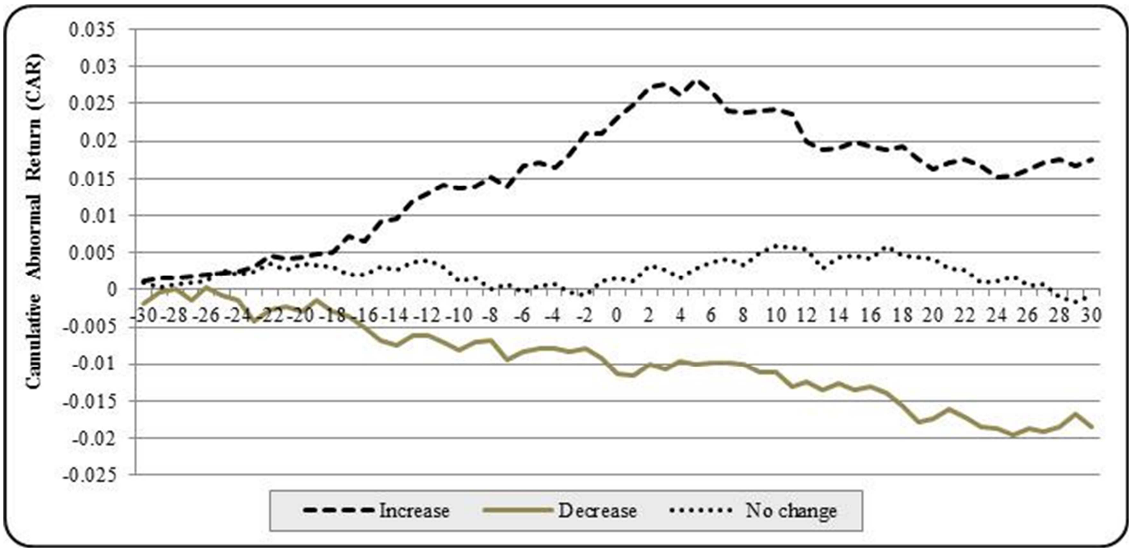

Figure 2: Plot of average CARs around the announcement of dividend over 1999-2008

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.

Figure 2 illustrates the plots of average CARs for dividend announcements in sample of Iran. 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. 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 seem to be consistent with previous research stating that the stock market in Iran is somewhat efficient in the semi-strong form (Pourheydari, Aflatooni, & Nikbakhat, 2008; Samadzadeh, 1993).

It can be concluded, that in sample of Iran, 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 Iran. The findings support the revaluation effect of dividend change announcements. In Iran, 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 Iran. As mentioned in previous chapters, 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 both markets by positive reactions to dividend increases and negative reactions to dividend decreases.

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