International Business Management 6 (4): 426-432, 2012
ISSN: 1993-5250

Does Dividend Signaling Hypothesis Still Relevant? Evidence from Malaysian Main Market

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Abstract: This study attempts to investigate the wealth effect of a specific corporate announcement that is whether dividend increase announcement is reflected in the firm stock return. In particular, the study focuses to evaluate the relevancy of the information content of dividend increase announcement in the context of dividend signaling hypothesis. For this purpose, the sample firms listed on the main market of Bursa Malaysia which have announced to increase their dividend payment in year 2010 are selected. The analysis uses the event study technique, the Naive Model, a model that is based on single index market model with constrained $\alpha = 0$ and $\beta = 1$ to compute the mean abnormal returns in order to examine the market reaction to dividend increase announcements. The t-test analysis is applied to test for the hypothesis. Results of the t-test indicate that information about dividend increase has been significantly conveyed to the market. The results show that announcements of dividend increases are associated with increased stock prices which constitute support the notion that dividend conveys unique and valuable information to investors. Overall, this study documents significant market reaction to dividend change announcements, lending support to the information content of dividend hypothesis. A follow-up study of other dividend changes announcements is strongly recommended to determine the full wealth effect for shareholders of the relevant firms.

Key words: Dividend announcement, wealth effect, signaling, support, Naive Model, Bursa Malaysia

INTRODUCTION

Miller and Modigliani (1961) have proposed the information content of dividend hypothesis which states that managers use dividend announcements to convey their beliefs about the current and future financial position of the firm. Thus, an announcement of an increase in dividend reflects management's belief that the firm's future earnings will be kept sufficiently high to maintain the increased dividend. As a result, the announcement of a dividend increase conveys good news to the market something that is reflected in the positive reaction of share prices on the announcement day. There are two explainations behind the decision to distribute dividends. The first explaination is based on market imperfections due to information asymmetries whereas second explaination is based on agency costs.

Under market imperfections due to information asymmetries explanation, it can be said that an announcement of a dividend increase (decrease) is accompanied by a rise (fall) in stock prices. This key argument is considered to be the premise of the so-called information content of dividends hypothesis or the dividend signaling hypothesis initially proposed by Lintner (1956) and further developed by Fama *et al.* (1969) and Ambarish *et al.* (1987). Therefore, dividend change announcements convey valuable information to the market as a reflection of managerial expectations regarding current and future cash flows (Dasilas and Leventis, 2011). Consequently, dividend increases (decreases) convey positive (negative) information to the market about the future prospects of firms that distribute dividends.

On the other hand, Jensen (1986) has provided the second explaination for dividend distribution based on agency costs. In particular, Jensen (1986) has argued that a firm with substantial free cash flows might accept negative net present value investments that promoted the objective of managers.

Further, Lang and Litzenberger deduced that if firms overinvest, an increase in the dividend amount, all else being equal, reduces the extent of the over investment and increases the market value of the firm while a decrease in the dividend brings about the opposite result. This is called the free cash flow hypothesis or the over investment hypothesis.

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Therefore, this study focuses to examine stock price reactions to announcements of dividend increase by firms listed on the main market of Bursa Malaysia. It aims to identify whether or not such dividend increase announcement contains information relevant to price formation. The institutional feature of Malaysian listed firms are characterized by high ownership concentration where major owners are usually involved in management. This makes Malaysian market a unique and interesting environment in which to investigate the relevancy of dividend signaling hypothesis.

Literature review and theory: Dividend as the main method of distributing cash to shareholders has received considerable prior attention in the finance literature. In line with this, there is abundant literature that examines the market reaction to dividend announcements. The majority of studies have documented a positive association between announced changes in dividend policy and stock price movements (Dasilas and Leventis, 2011). It is well established in the past studies particularly in the developed market such as US that the market reacts to dividend announcements which implies that dividends contain information (Al-Yahyaee *et al*., 2011). As mentioned by Al-Yahyaee *et al*. (2011), capital markets react favorably to good news announcements (dividend increases) and adversely to bad news announcements (dividend decreases). This can be implied that dividend increases represent positive information about the firm's prospects in which dividend increase is considered as good news while dividend decreases as bad news. Two of the most discussed theories of dividend behavior are information signaling hypothesis and agency theory. Dividend signaling hypothesis developed by Bhattacharya (1979), Miller and Rock (1985) and John and Williams (1985) suggest that firms change their dividend payout to signal future performance. Since, the management knows more about its firm than outsiders do the only way for management to relay the information to the market is by changing their dividend payout pattern.

According to the dividend signaling hypothesis (Miller and Modigliani, 1961), firms increase their dividends to signal a growth in subsequent earnings. There are also evidence documented from past studiest appear as conflicting as supporting the dividend signaling hypothesis. In Japan, Harada and Nguyen (2005) find that dividend cuts are more informative when firms present apparently healthy fundamentals and in particular a positive earnings trend. Thus, it can be argued that dividend increases that occur in unfavorable conditions are unlikely to signal a positive earnings development.

Moreover, Jensen *et al*. (2010) document the negative market reaction and subsequent earnings rebound, however are entirely consistent with a firm retrenchment explanation in which a dividend drop signals that the firm is going to let growth options expire. Their evidence indicates that a dividend reduction tends to coincide with the decision to build the firm's financial resources which requires the firm to allow growth options to expire.

In other study, Dasilas *et al*. (2009) have documented that dividend initiations bring about significant positive abnormal returns in the announcement period where the price response to dividend initiations is inversely associated with the information environment. Finally, the volatility of stock returns is higher in the low information environment group of firms than in the high information environment group of firms. In their study, a dividend initiation is defined as a dividend payment by a firm for the 1st time in its entire corporate history or after a hiatus of >3 years. Finally, Asem (2009) shows that momentum profits are lower among dividend-paying firms than their non-paying counterparts due to differences in losers' returns. This evidence is consistent with the behavioral models that suggest the investors underreact to the losers' positive dividend maintaining news, reducing their return momentum and shrinking the payers' momentum profit.

Dividend signaling theory: The assumptions made by Miller and Modigliani (1961) in asserting that dividend is irrelevant are deemed as unrealistic because there are market imperfections that may cause a firm's dividend policy to affect the firm stock price. Miller and Modigliani acknowledge the fact that in the real world a change in the dividend rate is often followed by a change in the market price. They attributed this phenomenon to the information content of dividend. The general signaling hypothesis posits there exists an information asymmetry between the management and its shareholders. Therefore, management will attempt to dignal firm-specific private information about an undervalued firm via corporate announcements. This hypothesis states that dividend increase conveys favourable information about the current and/or future cash flows of the firm and dividend decrease conveys unfavourable information about the current and/or future cash flows of the firm.

The first application of signaling to finance theory has been put forth by Ross (1977). He suggests that managers who have inside information about the firm will choose to correctly signal the future value of the firm if they have the proper incentive to do the signaling approach. The incentive-signaling approach suggests that management might choose real financial variables

such as financial leverage or dividend policy as the means of sending clear signals to the public about future performance of the firm. The less successful firms cannot mimic these signals because such firms do not have sufficient cash flow to back them up and because managers have the incentive to tell the truth. Without management incentives to signal truthfully, there would be no signaling equilibrium. Therefore, a firm that increases dividend payout is signaling that it has expected future cash flows that are sufficiently large to meet debt and dividend payments without increasing the probability of bankruptcy.

Bhattacharya (1979) uses a signaling model approach to formalise the notion that dividend is used to convey information. He develops a model to explain why firms pay out dividend in spite of the tax advantages of doing so. He posits that if investors believe that a firm that pays a high dividend has a higher value then an unexpected incraese in dividend will be taken as a positive signal. He argues that the investors are assuming that dividend is conveying other messages than what can be found in earnings forecasts, annual reports and presentations before the security analysts. Furthermore, it is more expensive for less successful firms to mimic the signal because they will need to raise additional funds to cover the dividend payment.

Miller and Rock (1985) show that both the earnings surprise and the net dividend surprise can convey the same information and the financing announcement effect is merely the dividend announcement effect but with the sign reversed. Therefore, an unexpected increase in dividend is considered good news and will be followed by a positive abnormal return while unexpected issue of new equity or debt will be interpreted as bad news for the firm. John and Williams (1985) posit that in equilibrium, firms with more favourable future cash inflows distribute larger dividend and receive higher prices for their stock whenever their internal supply of cash is less than what is demanded by both the firm and the current shareholders. Due to this value of information that is transferred by a dividend payment, many firms distribute dividend and some do so while simultaneously selling new shares. Furthermore, firms pay dividend because they have clienteles who prefer current income to future growth.

Ambarish *et al.* (1987) identify an efficient signaling equilibrium with dividend, investment and net new issues of stock. By assumption, corporate insiders have superior information about a single, valuable attribute which is the firm's future return on either assets in place or opportunities to invest. Insiders can convey this information to outsiders through many combinations of dividend and announced investment or equivalently, dividend and new stock. Given a single private attribute and two independent signals, the efficient mix of dividend and investment must then minimise the dissipative cost of signaling.

MATERIALS AND METHODS

Data for sample firms that announced to increase their dividend payment are extracted from individual firm annual report and icapital.biz.berhad (http://www.icapital.biz/english/aftexdate_2.asp?sort=d). This study uses 41 daily closing prices of 25 selected firms listed on the main market of Bursa Malaysia and daily closing price index of the FTSE Bursa Malaysia KLCI (FBMKLCI) surrounding the dividend increase announcements for year 2010. Daily closing prices and FBMKLCI price index for the event windows are downloaded from Datastream. Of main interest to this study is to examine the wealth effects or returns to the shareholders resulting from the dividend increase announcement for year 2010 in different event periods or windows. The event date is the dividend announcement date and designated as day 0.

In order to capture the longer-term effect of an event, an event window of (-60, +60) is normally used. However, the longest event window that may be used in this analysis is (-20, +20). Still because the event announcement is only separated by 40 trading days and no overlapping should be allowed in the CARs calculation, the different event windows is merely for comparison purpose. The Cumulative Abnormal Returns (CARs) calculation of the broaderevent windows (-20, +20) and its narrower pre and post-event combinations are merely calculated for the purpose of determining whether the news provides signal to the market together with the shorter window and their pre and post-event combinations. Meanwhile to test whether the news provide signal to the market (i.e., the average CARs differ significantly from zero) narrower event windows (-5, +5), (-4, +4), (-3, +3), (-2, +2), (-1, +1), (-1, 0), (-5, -1) and (+1, +5) as their pre and post-event combinations are also used. Following Al-Yahyaee *et al.* (2011), t-statistics is used to test the hypothesis that the average CARs are significantly different from zero at each event windows. To estimate wealth effect, only CARs of narrower event windows will be used to eliminate effects of other announcement surrounding the event date.

Using the market model, this study calculates the following statistics: daily abnormal return, daily average abnormal return and cumulative average abnormal return. The method that is applied in the present study is based on the most widely used single index market model which estimanted as a bivariate regression is:

$$R_{i,t}=\alpha+\beta_t R_{M,t}+\varepsilon_{i,t}$$

Where:

$R_{i,t}$ = The return on ordinariy shares of the stockholders of the ith firm at period t

Firm i = $\sum_{i=1}^{N=25} firm_{i,t}$

$R_{M,t}$ = The return on the market benchmark which in this case is the FTSE Bursa Malaysia KLCI (FBMKLCI) in period t

α and β = The regression coefficients

$\varepsilon_{i,t}$ = The zero mean and constant variance error term

This study uses Cumulative Abnormal Returns (CARs) to measure both the signal to the market as in most event studies and wealth effect. In determining the CARs, this study follows the standard market model event study which α and β are constrained to equal to 0 and 1, respectively such that $R_{M,t}$ (the FBMKLCI) is firm ith's expected return. Thus, the Abnormal Return ($Ar_{i,t}$) for firm i is the difference between the actual return on day t and its expected return ($R_{M,t}$):

$$AR_{i,t}=R_{i,t}-(R_{M,t})$$

Where the daily returns of stock i is calculated as:

$$R_{i,t}=\frac{P_t-P_{t-1}}{P_{t-1}}\times 100$$

Where P_t is the price of stock i on trading day t and P_{t-1} is its price one trading day before that. The daily ARs are then averaged across the sample of firms according to the equation:

$$\overline{AR}_t=\left(\frac{1}{N}\right)AR_{i,t}$$

Similarly, the Cumulative Abnormal Returns (CARs) for firm i are the sum is the Abnormal Returns (ARs), calculated as:

$$CAR_{i,t}=\sum_{t=1}^{N} AR_{i,t}$$

Where N is the number of observations. The market return equals to:

$$R_{M,t}=\frac{FBMKLCI_t-FBMKLCI_{t-1}}{FBMKLCI_{t-1}}\times 100$$

The t-value of the abnormal return is equal to:

$$t=\frac{AR_t}{\sigma_{AR,t}}$$

Where:

$$\sigma_{AR,t}=\left[1/N-1\sum_{t=K}^{L}(AR_t-\overline{AR})^2\right]^{1/2}$$

with $\overline{AR}$ is the average of the ARs over the period (N = Number of days from t = K until t = L). Whereas the t-value for the CAR statistics is given as:

$$t=\frac{CAR}{\sigma_{CAR}}$$

Where $\sigma CAR = \sigma AR\sqrt{N}$ where N is the number of days in the CAR statistics. In all cases, the null hypotheses that the dividend increase announcement does not have any significant influence of the firm's stock return (i.e., H_0: AR = 0 and CAR = 0) are to be tested at 5 and 1% significant level. If the dividend increase announcements have no impact on stock prices then on average, one should expect abnormal returns to be zero. This study also aggregates all of firms' abnormal return observations in order to draw overall inferences for the event of interest. Therefore, this study will look at the average effects of the announcement rather than examining each firm separately because other events are occurring and averaging across all firms should minimize the effect of these other events. For sample of N firms, a daily average Abnormal Return (AR) for each day t is obtained:

$$AR_t=1/N\sum_{i=1}^{N} AR_{i,t}$$

In order to determine if there is an impact of dividend increase announcements on stock returns which will produce a significant average daily abnormal return, the t-test statistic on any day t in the event window for all n stocks is constructed:

$$t=\frac{AR_t}{\sigma_{AR,t}}$$

Where $\sigma_{AR,t}$ is the standard deviation of average abnormal return over the event period of (t = -20 to t = + 20).

One would expect if the dividend increase announcements do not have an impact on common stock return, the daily average abnormal returns for all the sample stocks surrounding the event period should not be statistically significant from zero. To estimate wealth effect, only CARs of narrower event windows will be used

to eliminate confounding effects of other events such as asset liquidation and top management replacement surrounding the restructuring announcement reviewed. Specifically, this study uses (-20, + 20), (-5, + 5) and (-1, +1) event windows following Boone and Mulherin. To test the significance of the wealth effects, this study adopts the following t-statistics (Dasilas *et al*., 2009) to test the hypothesis that the changes in wealth as measured by the CARs are significantly different from zero at a given event windows. The t-statistic on the CARs is shown as:

$$t = \frac{CAR}{\sigma_{CAR}}$$

Where $\sigma_{CAR} = \sigma_{AR}\sqrt{N}$ where N is the number of days in the CAR statistics.

The wealth effect of the dividend increase announcements will only be based on the CAR_s of the three different event windows for all 25 selected firms listed on the main market of Bursa Malaysia. Following Bernhardt *et al.* (2005) and Baeket, t-statistics is used to test the hypothesis that the average CAR_s are significantly different from zero at each event windows. The results of this test are used to determine whether or not the announcement convey information to the market.

RESULTS AND DISCUSSION

This study tests the null hypothesis that the daily mean abnormal return is zero. In other words, dividend increase announcements have no systematic impact on corresponding stock prices. This hypothesis is tested by performing a parametric t-test where t-statistics are calculated using the cross-sectional standard deviation as mentioned before. This t-statistic is used in prior studies such as Kadapakkam and Martinez (2008) and Adams and Mansi (2009).

Price reaction of dividend increase announcement: Table 1 shown the ARs measured by the market model with the corresponding t-values for the event period (from day -20 to day 20). On the announcement day (t = 0), the AR measured by the aforementioned model is 1.514, statistically significant at the 0.01 level. On day 0, >70% (18 cases out of 25) of the average ARs are positive. This result confirms the dividend signaling hypothesis to dividend increase announcements. That is the announcement of an increase distribution of a dividend conveys good news to the market, bringing about a significant positive price reaction.

Table 1 also shows that there are positive ARs from day -5 to day +4 without however being statistically significant. This finding implies that there are no significant information leakages before the announcement day.

Table 1: Daily average ARs from 20 days before to 20 days after the dividend increase announcements by 25 selected firms listed on main market of Bursa malaysia in year 2010

	Market model	
Event days (N = 25)	ARs	t-statistic
-20	0.807	1.45
-19	-0.261	-0.47
-18	0.415	0.75
-17	0.048	0.09
-16	0.020	0.04
-15	0.525	0.95
-14	0.765	1.38
-13	1.182**	2.13
-12	0.445	0.80
-11	0.237	0.43
-10	0.290	0.52
-9	-0.171	-0.31
-8	0.687	1.24
-7	0.081	0.15
-6	-0.119	-0.21
-5	0.531	0.29
-4	0.477	0.22
-3	0.136	0.73
-2	0.294	0.21
-1	1.303***	3.97
0	1.514***	2.73
1	5.783	1.98
2	0.372	0.53
3	0.145	0.40
4	0.097	-0.74
5	-0.631	-1.60
6	0.314	0.57
7	-0.142	-0.26
8	0.157	0.28
9	-0.053	-0.10
10	0.656	1.18
11	-0.176	-0.32
12	-0.184	-0.33
13	0.359	0.65
14	0.029	0.05
15	0.369	0.66
16	-0.605	-1.09
17	0.033	0.06
18	0.194	0.35
19	-0.012	-0.02
20	0.643	1.16

For the (-20, +20) event window, the ARs values are **statistically significant at the 0.05 level ($\alpha \leq 5\%$) and ***statistically significant at the 0.01 level ($\alpha \leq 1\%$) when t-stats ≥1.658 and t-stats ≥2.360, respectively

Table 2 provides daily mean abnormal returns and t-statistics (testing that the mean abnormal returns are equal to zero) for the 5 days before and after the dividend announcement date (day 0) using both the market model. The narrower window results in Table 2 are extracted from Table 1.

The positive dividend announcement dates are preceded by positive returns for the 5 days before the announcement. Interestingly, the abnormal return earned on day -1 by dividend increasing firms is 1.3% with a t-statistic of 3.97. The presence of significant positive

Table 2: The stock return to dividend increase announcements for sample firms listed on main market of Bursa malaysia

	Market model	
Event days (N = 25)	ARs	t-statistic
-5	0.531	0.29
-4	0.477	0.22
-3	0.136	0.73
-2	0.294	0.21
-1	1.303	3.97
0	1.514***	2.73
1	5.783**	1.98
2	0.372	0.53
3	0.145	0.40
4	0.097	-0.74
5	-0.631	-1.60

The Abnormal Return (AR) is defined as (1) the difference between the actual return on day i and the expected return predicted from the market model. The t-statistics are for the null hypothesis that the mean abnormal return is equal to zero

Table 3: Cumulative Abnormal Returns (CARs) for dividend increase announcements

	Market model	
Event window	CARs	t-statistic
(+5, -5)	0.0823	0.945
(-4, +4)	0.0800	1.193
(-3, +3)	0.0810	2.197**
(-2, +2)	0.0790	2.412***
(-1, +1)	0.0750	4.639***
(-1, 0)	0.0710	5.506***
(-5, -1)	0.0270	0.465
(+1, +5)	-0.0030	-0.157

The table presents the Cumulative Abnormal Returns (CARs) for dividend increase announcements using the market model. The t-statistics are for the null hypothesis that the cumulative average abnormal returns are equal to zero

abnormal returns on day -1 shows a somewhat earlier market reaction to the dividend increase announcement which may suggest that there is some information leakage into the market.

A further 1.51% abnormal return occurs on the announcement date. The result shows that the market's major reaction takes place on day 1 with 5.78% abnormal return. This average abnormal return on day 1 is the largest of the abnormal returns in the event period studied. These mean abnormal returns are significant, especially a day after the announcement date. The results are consistent with an information effect in dividend increase announcements and thus they imply that relevant information is transmitted to the market when increases in dividends are announced.

Cumulative abnormal returns: This study also calculates Cumulative average Abnormal Returns (CARs) for different event priods or windows. The null hypothesis to be tested is that the cumulative average abnormal returns will be equal to zero. The test statistic is the ratio of the cumulative average abnormal return to its estimated standard error. The results are shown in Table 3.

The 2 days window (-1, 0) shows a significant positive wealth effect surrounding a dividend increase announcement. When the event window is widened to include additional trading days (-2, + 2) pre and post-announcement, the cumulative abnormal returns are also positive and statistically significant. For the (-4, + 4) and (-5, + 5) windows, the cumulative abnormal returns are positive but insignificant. The CARs for the pre announcement window (-5, -1) are positive but insignificant. For the post-announcement window (+1, +5), the cumulative abnormal returns are negative and insignificant.

CONCLUSION

While there are many past studies that examine dividend signaling hypothesis particularly in the developed stock market such as US and UK, this study is one of the few investigations of whether dividend signaling hypothesis still holds in one of the emerging market. In addition, the data set employed in this study is unique in that the high concentration of share ownership should reduce information asymmetry between managers and investors which suggests a diminished role for dividends.

The results indicate that dividend increase announcements do convey information to the market. That is firms announcing an increase in their dividends experience a significant positive price reaction. Therefore, the results support the notion that dividend increases convey positive information which results in a positive price reaction. This study confirms earlier studies' findings that there is a significant abnormal return during the announcement period. Results from this study is also consistent with theory stating that the announcement effect is due to dividend announcements' signaling of valuable information. In a market like Malaysia with highly concentrated shareholdings and limited disclosure of information, dividend may be the one source of information that allows investors to evaluate management's expectations and confidence as to the future performance of a firm.

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