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INFORMATION CONTENT OF DIVIDEND CHANGES: CASH FLOW SIGNALLING, DIVIDEND CLIENTELE AND FREE CASH FLOW HYPOTHESES

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The study aims to identify the type of information that firms are trying to convey when they change dividend. The first step is to test the relationship between unexpected dividend changes and stock prices by employing the event study methodology. The next step is to evaluate the information content of dividend changes in the context of three hypotheses: the cash flow signalling hypothesis, the dividend clientele hypothesis and the free cash flow hypothesis.

Past explanation to the effect of dividend changes on stock prices is that firms are signalling their current and/or future cash flow of the firm, or known as the cash flow signalling hypothesis. Later studies have incorporated other explanations, which are the dividend clientele hypothesis and the free cash flow hypothesis. Regression analysis is applied to study the wealth effect of dividend changes on stock prices and to test for the three hypotheses. The effect of firm size on the relationship between dividend changes and stock prices are also analysed by using total assets per share as the proxy variable for firm size.

The findings show a significant relationship between unexpected dividend changes and stock prices, which also constitute support for the cash flow signalling hypothesis. Mixed support is found for the dividend clientele hypothesis while strong support is found for the free cash flow hypothesis.

Next, the finding on the size variable indicates that firm size affect the relationship between unexpected dividend and stock prices; however, the relationship is not significant.

Keywords: *Dividends, Signalling, Cash Flow, Clientele, Free Cash Flow, Regression*

Introduction

In the study of dividends, the first stage of the research involved determining the effect of unexpected dividend announcements on the stock prices. Many studies have documented a positive relationship between the two. The second stage literature in the study of dividends sought to give explanations as to why managers pay and/or change dividend. This need arises mainly because of the information asymmetry that exists between the managers and the stockholders. The relationship between the two parties is known as the agency relationship, where the stockholders are known as the principal and the managers as the agent, working on behalf of the principal. Jensen and Meckling (1976) are generally credited with having developed the agency theory.

Objectives of Study

Past studies in the Kuala Lumpur Stock Exchange (KLSE)[1] have reported some support for the relationship between unexpected dividend changes and stock returns. However, there is no published study which has attempted to provide explanation to the information that is being signaled through dividend changes. Furthermore, these studies have used smaller sample size and a shorter period of study. Therefore, the main objective of the study is to test which of the three available hypotheses best explains the kind of information that is being signaled through announcement of dividend changes. Three competing but not necessarily mutually exclusive hypotheses suggested in the literature, namely, the cash flow signalling hypothesis, the dividend clientele hypothesis, and the free cash flow hypothesis are tested. It is important to test the three hypotheses together because previous studies documented conflicting results.

A subsidiary objective includes studying the effect of firm size on the relationship between unexpected dividends and stock returns. Bajaj and Vijh (1990) show that stock price reactions to dividend changes are greater for small firms than for large firms. Therefore, it is imperative to study the effect of firm size on the relationship between unexpected dividends and stock returns in this capital market as well.

Literature Review

In their seminal article, Miller and Modigliani (1961) argued that, under a few strict assumptions, dividend is irrelevant to the firm's value. However, under less strict assumptions, they noted that there is a positive association between the payment of dividend and its related stock prices. They attributed this to the signalling effect of the dividend. They point out that dividends may have information content if managers have better information than investors about the firm's future earnings and use that information

to set current dividends. Dividend changes can then be thought as management forecasts of future earnings changes substantiated by cash. Therefore, they suggest that dividends can convey information about future cash flows when markets are incomplete.

Many earlier empirical studies (for example, Asquith and Mullins, 1983; Healy and Palepu, 1988; and Richardson, Sefcik and Thompson, 1986; among others) explain the stock price reaction to dividend changes by concentrating on the cash flow signalling hypothesis developed by Ambarish, John and Williams (1987), Bhattacharya (1979), John and Williams (1985), Miller and Rock (1985), and Williams (1988), among others. This hypothesis posits that a dividend change conveys information about the current and/or future cash flows of the firm. Later empirical studies have incorporated other hypotheses to ascertain the kind of information that are being signalled by the dividend payment and dividend changes, namely, the dividend clientele hypothesis and the free cash flow hypothesis (Bajaj and Vijh, 1990; Denis, Denis and Sarin, 1994; Lang and Litzenberger 1989; Ryan, 1995; and Yoon and Starks, 1995).

The dividend clientele hypothesis posits that high yield shares will have greater price reactions to dividend changes because if investors who prefer dividends own the high yield shares, their anticipation of dividends must be higher. The higher the anticipation, the higher the price reaction to dividend changes (Bajaj and Vijh, 1990).

The free cash flow hypothesis is considered as an agency cost explanation to the information content of dividend changes. The agency cost explanations have been developed by Rozeff (1982), Easterbrook (1984) and Jensen (1986), among others. According to Easterbrook (1984), the separation of ownership from control will encourage managers to misuse the company's resources under their control for their personal gain. If there is a reduction in dividend, this will increase access to internally generated funds where the possibility of management to allocate a greater proportion of the company's resources into perquisites is higher. Jensen (1986) defined free cash flow as cash flow in excess of that required to fund all positive net present value projects and postulated that higher payouts reduce the funds available for managers to invest in negative net present value projects. Lang and Litzenberger (1989) defined a firm with a Tobin's Q less than unity ($Q<1$) to be having low growth opportunities, which means that the managers do not have many positive net present value projects to invest in. They stress that if that is the case, the likelihood that the managers will invest in negative net present value projects is higher. Therefore, a dividend change announcement (increase or decrease) from firms with low growth opportunity will invite greater stock price reaction. It is true that firms will not purposely invest in negative net present value projects, however, due to the agency relationship that exists between the managers and the shareholders, there is a possibility that the managers might not act in the best interest of the stockholders.

To date, there are only two studies in the developed market that have tested all three hypotheses together. The studies are by Denis, Denis and Sarin (1994) and Bajaj and Vijh (1990). Denis et al. test the three hypotheses, and find support for the cash flow signalling hypothesis and the dividend clientele hypothesis but find no support for the free cash flow hypothesis. Bajaj and Vijh test the dividend clientele and the cash flow signalling hypotheses, and indirectly test the free cash flow hypothesis. They find support for the dividend clientele hypothesis.

Lang and Litzenberger (1989), and Yoon and Starks (1995), test the cash flow signalling and the free cash flow hypotheses. Lang and Litzenberger find support for the free cash

flow hypothesis, while Yoon and Starks find support for the cash flow signalling hypothesis. Ryan (1995) combines the dividend clientele and the cash flow signalling as one hypothesis and tests it against the free cash flow hypothesis. The findings strongly support the signalling/clientele hypothesis and mildly support the free cash flow hypothesis.

The need to study the three hypotheses together is especially highlighted by Denis *et al*. (1994). In their study, they confirm the findings of others, (Brickly, Coles, and Nam, 1987; Gaver and Gaver, 1993; Smith and Watts, 1992), that there is an inverse relation between dividend yield and various measures of growth opportunities. Consequently, the observed negative relation between Tobin's Q and the stock price reaction to dividend changes may be a by-product of a negative relation between dividend yield and Tobin's Q.

It is apparent that the findings in the developed market in explaining the information content of dividend are inconsistent.

In Malaysia, there are not many published studies that attempt to provide explanation to the information content of dividend changes. Annuar and Shamsher (1993) investigate the dividends and earnings behaviour of firms listed on the KLSE. The data used consist of annual earnings and dividends for the period 1975 to 1989. The simple model and Lintner's model were used to verify the relationship between dividends and earnings. Their findings are that the dividend decisions of the firms partially depend on their current earnings and past dividends, and firms have long-term target dividend that is conditioned upon their earnings ability.

Mansor and Subramaniam (1992) examine the effect of dividend and earnings announcements on share prices on the KLSE. Their sample is for the period 1970 to 1984 consisting of 159 observations. They find significant increase (decrease) in stock prices when firms increase (decrease) dividends. They also find that Malaysian investors react to dividends and earnings independently.

Nur-Adiana, Rosemaliza and Yusnidah (2002) study the effect of dividend announcements on stock prices. Their sample consists of 120 observations covering the period from 1996 to 2000. They utilise the market adjusted return to estimate abnormal returns. They find that dividend increases lead to positive abnormal returns, however, dividend decreases do not lead to a decrease in stock prices. Furthermore, they interpret the significant increase in stock prices from dividend increase announcement as support for cash flow signalling and free cash flow hypothesis without doing additional testing to test for the free cash flow hypothesis.

A few other published studies include the ones by Neoh (1986) who studies the effect of bonus issue on the stock price, while Cheng (2000) studies the directional and magnitude impact of accounting earnings disclosures on the stock prices.

As can be seen from the above findings, there is no published evidence of studies in Malaysia that rigorously test the three hypotheses in order to explain the information content of the dividend changes. Furthermore, the size of the sample used is usually small and covers a short time period. Therefore, it is imperative that a comprehensive and rigorous study is done on the information content of dividend changes to see whether the theories tested in the developed market applies to an emerging market like Malaysia.

Data and Methodology

Research Design

Prior to testing the information content of dividend changes, the wealth effect of the dividends announcements has to be determined first. Dividend announcements will be categorised as dividend increases or dividend decreases looking at the change in dividends from one year to the other. Event study methodology will be used to determine the directional effect of such events on share prices.

The information content of dividend changes will then be analysed by studying the possible relationship between CAR calculated above with the independent variables representing the three hypotheses.

Effect of Unexpected Dividend Changes on Stock Returns

To measure the effect of the stock price reaction to the announcement of dividend policy changes, the event study methodology will be used. The stock price reaction or the abnormal returns will be further utilised in testing the hypotheses that will determine the kind of information signalled from a change in dividend policy.

The abnormal return is the actual ex-post return of the security over the event window minus the normal return of the firm over the event window. The abnormal returns will be calculated using the risk-adjusted market model of the well-known Sharpe-Lintner Capital Asset Pricing Model (CAPM) (Sharpe, 1964; Lintner, 1965). The market model assumes that the return on each security is linearly related to the market portfolio. The model is:

$$R_{it} = \hat{\alpha}_i + \hat{\beta}_i R_{mt} + \hat{e}_{it} \quad [1]$$

$$R_{it} = \text{Ln}\,(P_t / P_{t-1}) \quad [2]$$

$$R_{mt} = \text{Ln}\,(I_t / I_{(t-1)}) \quad [3]$$

where:

P_t : monthly share price at time t,
I_t : KLSE Composite Index at time t,
R_{it} : return of i-th security during period t,
R_{mt} : return on the market portfolio at period t,
$\hat{e}_{it}$: zero mean disturbance term,
$\hat{\alpha}_i$, $\hat{\beta}_i$: the parameters of the Market Model

To correct for the problem of non-synchronous trading bias, the combined procedure of Dimson-Fowler-Rorke's model as outlined by Ariff and Johnson (1990) will be used. The market parameters a_i and b_i are estimated over –63 to –3 months (estimation period) relative to the announcement day.

The abnormal return is the difference between the realised returns, R_{it} and the expected returns given the level of systematic risk.

$$AR_{it} = R_{it} - [\hat{\alpha}_i + \hat{\beta}_i R_{mt}] \quad [4]$$

The individual security's abnormal returns, AR_{it}, is aggregated and averaged across all the observations. Next, the average abnormal returns are aggregated over the event window to give the cumulative average abnormal returns (CAR). For any interval in the event window,

$$CAR_i(t_1, t_2) = \sum_{t_1}^{t_2} AR_{it} \qquad [5]$$

where,

$CAR_i(t_1, t_2)$: is the sample cumulative abnormal returns from t_1 days to t_2 day of the event window.

The t-statistic is used to test the significance of abnormal returns and the appropriate cumulative t-statistic is used to test the significance of CAR. Craig and MacKinlay (1997) provide a comprehensive review process of the event study procedure.

In developed markets, the specification of event window is usually two days (0 to +1 day) or three days (-1 to +1 days). For this study, the event period of (0 to +2) is chosen for reasons that will be explained in the next section. The return window of (–50 to +2) will also be analysed to provide an opportunity to examine whether there is an information leakage prior to the announcement date.

Dividend Expectation Models

Following previous studies that assume naïve expectations (for example, Aharony and Swary, 1980; Ariff and Finn, 1989; Lang and Litzenberger, 1989; Annuar, Ariff and Shamsher, 1992; Mansor and Subramaniam, 1992; Denis *et al*. 1994; and Yoon and Starks, 1995; Cheng, 2000), the dividend expectation model is as follows:

$$D_{i,t} = D_{i,t-1}, \qquad [6]$$

where:

$D_{i,t}$: expected dividend per share for the i-th firm in the t-th period,

$D_{i,t-1}$: actual dividend per share announced by the i-th firm in the t-th period.

The justification in using the naïve model is derived from the assertion that managers are reluctant to change dividends unless they have reasons to expect a significant change in the future prospects of the firm.

Due to the inconsistency in the announcement of interim dividends, this study will only concentrate on the changes in the final dividend announcements. Following recommendations by Warther (1994), only dividend changes of more than 10 percent will be included. Standardised unexpected dividend changes (SUDC) are computed as:

$$SUDC = (D_{i,t} - D_{i,t-1}) / D_{i,t-1} \qquad [7]$$

Proxy Variables

Measure of Growth Opportunities

Following Lang and Litzenbrger, 1989; Bajaj and Vijh, 1990; Denis *et al*., 1994; Yoon and Starks, 1995; Ryan, 1995, this study will classify firms into high or low growth opportunity based on a one-year Tobin's Q greater or less than unity.

A simpler formula as suggested by Chung and Pruitt (1994) will be used to calculate Tobin's Q. The calculation is as follows:

$$Q_{(CP)} = \frac{MVE + PS + DEBT}{TOTASST} \qquad [8]$$

where,

MVE	:	market value of equity,
PS	:	value of outstanding preferred stocks,
DEBT	:	value of short term liabilities net of short term assets, plus book value of long term debt, and
TOTASST	:	book value of total assets.

They reported that this simplified formula has a 96.6 percent correlation with the one developed by Lindenberg and Ross (1981). Norhana (1998) is an example of a study in the emerging market that used the simplified formula to calculate Tobin's Q.

Measure of Dividend Yield

The calculation of dividend yield will be similar to the one used by Denis *et al*. (1994), which is as follows:

$$\text{Dividend yield} = \frac{\text{Selected final dividend}}{\text{The average market value of equity for days } t = -1 \text{ to } t = +1} \qquad [9]$$

where,

$t = 0$: the announcement date.

The average market value is chosen to take into account the variation in the stock price, which can be considered as volatile in this emerging market.

Firm Size

Bajaj and Vijh (1990) show that stock price reactions to dividend changes are greater for small firms than for large firms. Eddy and Seifert (1988) document an association between firm size and abnormal returns from the announcement of large dividend increases. To test the firm size effect, the firm i's size is measured as the total assets per share at the end of the financial year t for which the dividend is announced. Total assets per share (TAPS) is

chosen as a proxy for firm size because it is assumed to be a more stable measure compared to market value of equity especially in a volatile market as the KLSE. Furthermore, the period of study includes the period of financial crisis of 1997, where many firms experienced huge reductions in market capitalisation. Therefore, for each announcement:

$$Size_i = \frac{\text{Total Assets at the end of financial year}_i}{\text{Number of shares outstanding}_i} \quad [10]$$

Regression Analysis of Cumulative Abnormal Returns with Unexpected Dividends, Dividend Yield, Tobin's Q and Firm Size

Regression analysis is employed to test for the relationship between unexpected dividend change and stock returns. Typically, inferences regarding the information content of dividends are based on the significance of the slope coefficient (b) and the explanatory statistics (R^2) of the following linear model estimated cross-sectionally and/or over time:

$$CAR_{it} = a + b*SUDC_{it} + e_{it} \quad [11]$$

where,

CAR_{it} : risk-adjusted abnormal return for security i cumulated over time t,
$SUDC_{it}$: is a measure of unexpected dividends, and is a random
e_{it} : disturbance term assumed to be normally distributed.

Following Bajaj and Vijh (1990) and Denis *et al*. (1994), the following regression will be utilised to test for the relationship between cumulative abnormal returns, the standardised unexpected dividends, dividend yield, Tobin's Q and firm size:

$$CAR_i = a_1 + a_2\, SUDC_i + a_3\, DY_i + a_4\, TQD_i + a_6\, Size_i + e_i \quad [12]$$

where,

CAR_i : Cumulative abnormal returns over a specified window,
$SUDC_i$: Standardised unexpected dividends,
DY_i : Dividend yield, and
TQD_i : Tobin's Q measured as a dummy variable.
Tobin's Q > 1 will be given a value of one, or 0 if otherwise.

The regression will also be performed using Tobin's Q as a continuous variable.

A significant positive relationship between CAR and SUDC will constitute support for information content in dividend announcement and also the cash flow signalling hypothesis. A positive relationship is also expected between CAR and DY, and a significant association will constitute support for the dividend clientele hypothesis. A negative relationship is expected between CAR and TQD (or TQ), where a significant relationship will constitute support for the free cash flow or overinvestment hypothesis. A negative relationship is expected between CAR and SIZE.

Hypotheses

1) The first strategic hypothesis (SH) in this study is:

   H_0^{SH1} : There is no relation between stock prices and the announcements of unexpected dividend changes.
   H_a : Otherwise

2) The second strategic hypothesis is:

   H_0^{SH2} : There is no positive relationship between stock prices and the magnitude of the dividend yield.
   H_a : Otherwise.

3) The third strategic hypothesis is:

   H_0^{SH3} : There is no negative relationship between stock prices and the measurement of the firm's growth opportunity (Tobin's Q).
   H_a : Otherwise.

4) The subsidiary hypothesis (SSH) is:

   H_0^{SSH} : The coefficient for firm size in the regression between CAR, SUDC, DY and TQD (TQ) is insignificantly equals to zero.
   H_a : Otherwise.

Data

Stock Price Data

This study uses data over the period 1986 to 2000. This period is chosen to gather data for at least 15 years. Over this period, the Malaysian stock market went through economic cycles of recession and growth. The sample consists of companies listed on the main board of the KLSE except for the Finance and Unit Trust sectors. Dividend announcement dates are collected for a sample of 179 firms over the period of January 1986 to December 2000. The total dividend change announcements included in the sample for the period are 617 announcements, consisting of 318 announcements of dividend decreases and 299 announcements of dividend increases. The sample is selected subject to the following criteria:

(a) The information on final cash dividends and the announcement dates are available in the Dividend Records Database from the KLSE, or the Investors Digest.
(b) The daily share prices of the stocks are available from Datastream.
(c) The information needed to calculate the average Tobin's Q and dividend yield are available in the KLSE Annual Company Handbook.
(d) The firms have been paying dividends for a consecutive period of at least five years in the period of study (an announcement of an interim dividend only, will not qualify the year as part of a consecutive period).

(e) The firms have been quoted on the KLSE for at least five years in the period of study.
(f) There is no announcement of a bonus or special dividend in the same year as the announcement of a final dividend, specifically $\pm$ 100 days from the event date.
(g) The companies are Malaysian domiciled.

Daily closing prices of selected company traded anytime during January 1986 to December 2000 together with the number of shares outstanding and the KLSE Composite Index are extracted from Datastream. Information on capitalisation changes (bonus and right issues) is contained in the KLSE Investor Digest.

KLSE Composite Index is a value-weighted index, which is reliable, efficient, and sensitive to short-term share market movement, responsive to the underlying structural changes and trends in the economy. The KLSE Composite Index can be used as one of the leading indicators of the market portfolio.

Discussion of Results

Effect of Dividend Changes on Stock Prices (Abnormal Returns and Cumulative Abnormal Returns)

There were 299-dividend increase and 318 dividend decrease announcements. The market price reaction is assessed for 50 days prior to the announcement day and 30 days after the announcement day. For the dividend increases category, the abnormal returns on announcement day, one day, and two days after are 0.36 percent, 0.33 percent, and 0.36 percent respectively. The corresponding t-statistics are 2.199, 1.895, and 2.543. The price effects are significantly different from zero at the 0.05 levels at $t = 0$, $t = +1$ and $t = +2$. The abnormal returns subsequently level off at +3 days. For the dividends decrease category, the average abnormal returns for day 0, +1 and +2 are –0.14, –0.24, and –0.28 percent with the corresponding t-statistic of –0.749, –1.625 and –1.677 respectively. Only the abnormal returns on day +1 and +2 are significantly different from zero at 0.10 level. Furthermore, the abnormal return on the day before the announcement of dividend decrease was significantly positive, which is in the opposite direction from what is expected. Due to these observations, an event period of 0 to +2 days is chosen to be used in the testing of the three hypotheses. The delayed reaction to the announcement of dividend decrease in this study seems to indicate that the market was very bullish before the announcement. It also indicates that there was no information leakage about the announcement of dividend decrease before the event day.

Table 1 shows the cumulative abnormal return and the corresponding t-statistic for pre-announcement periods and post announcement periods. The results show that CAR for dividends increases is very significant for almost all the pre-event periods and the event period. Some post-announcement drifts can also be detected. For dividends decreases, the only period that is significant is the event period. The overall results seem to support the dividend signalling hypothesis where dividends increases are followed by positive abnormal returns and dividends decreases are followed by negative abnormal returns.

Table 1: Test of Significance on Cumulative Abnormal Returns over Different Cumulative Periods: n = 617

	Dividends Increase: n = 299		Dividends Decrease: n = 318	
Periods	CAR	t-test	CAR	t-test
		Panel A		
CAR(-50 to +2)	0.018159	**(1.972)	-0.009462	(-0.896)
CAR(-40 to +2)	0.018976	**(2.281)	-0.006656	(-0.668)
CAR(-30 to +2)	0.006949	(1.076)	-0.006532	(-0.736)
CAR(-20 to +2)	0.011924	**(2.115)	0.000434	(0.054)
CAR(-10 to +2)	0.014470	***(3.223)	-0.000369	(-0.064)
CAR(-5 to +2)	0.010424	***(2.630)	0.004912	(1.062)
CAR(-2 to +2)	0.010172	***(3.093)	0.001092	(0.283)
CAR(-1 to +2)	0.010757	***(3.363)	-0.003205	(-0.900)
CAR(0 to +2)	0.010569	****(3.632)	-0.006535	**(-2.043)
		Panel B		
CAR(+3 to +5)	0.001408	(0.702)	0.000267	(0.101)
CAR(+3 to +10)	0.003549	(1.019)	-0.003130	(-0.744)
CAR(+3 to +20)	0.016564	***(3.139)	-0.002221	(-0.380)
CAR(+3 to +30)	0.020325	***(3.137)	0.002186	(0.270)

Note: Number in bracket is t-value. Significant at 0.10 (*), 0.05 (**), 0.01 (***), and 0.001 (****) levels

Testing the Cash Flow Signalling, Dividend Clientele and Free Cash Flow Hypotheses

Table 2 shows the results of the multiple regression to explain the behaviour of stock returns at announcement time, and to test for the three hypotheses, which have been used to explain the information signalled from unexpected dividend changes. Five separate regressions are reported in the table. The first column shows the effect of standardised unexpected dividend changes on stock prices. A significant coefficient for SUDC in this model constitutes support for the cash flow signalling hypothesis. The second model simultaneously test the three hypotheses by incorporating the dividend yield and the Tobin's Q variable in addition to the unexpected dividend change variable (SUDC), The difference between model two and model three is that the latter treats the Tobin's Q as a dummy variable. Tobin's Q greater than one is given a value of one, whereas Tobin's Q less than one is given a value of zero. The fourth and fifth regression incorporates all the variables mentioned above plus another variable, total assets per share (TAPS), which is a proxy for firm size. Again, the difference between the fourth and fifth regression is that the fourth regression treats Tobin's Q as a continuous variable, whereas the fifth regression treats Tobin's Q as a dichotomous variable.

Table 2: Results of Multiple Regression for SUDC, Dividend Yield, Tobin's Q and Firm Size for Long (Panel A) and Short (Panel B) Windows; n = 617.

$CAR_{it} = a_1 + a_2SUDC_{it} + a_3DY_{it} + a_4TQ_{it} + a_5TQD_{it} + a_6TAPS_{it} + e_{it}$

Panel A: (-50, +2)						
Independent Variables		Regression Coefficients Model				
		1	2	3	4	5
Constant	[a]	0.0021	0.03170	0.0223	0.0425	0.0317
	[b]	(0.290)	(2.260**)	(1.695*)	(2.531**)	(1.990**)
	[c]	(0.772)	(0.024)	(0.091)	(0.012)	(0.047)
SUDC		0.0189	0.0224	0.0217	0.0231	0.0223
		(2.148**)	(2.496**)	(2.414**)	(2.570***)	(2.480**)
		(0.032)	(0.013)	(0.016)	(0.010)	(0.013)
DY			-0.0021	-0.0015	-0.0024	-0.0018
			(-0.836)	(-0.610)	(-0.967)	(-0.729)
			(0.404)	(0.542)	(0.334)	(0.467)
TQ			-0.0218		-0.0236	
			(-3.331***)		(-3.511***)	
			(0.0018)		(0.000)	
TQD				-0.0430		-0.0470
				(-2.741***)		(-2.911***)
				(0.006)		(0.004)
TAPS					-0.0014	-0.0013
					(-1.169)	(-1.047)
					(0.243)	(0.296)
Adj.R-sq		0.0059	0.0209	0.0151	0.0215	0.0153
F-statistic		4.613**	5.294**	4.091**	4.314**	3.343**
AIC		0.0309	0.0306	0.0307	0.0306	0.0308
B-P-G		1.166	5.867	6.501	5.554	6.207
Harvey		0.187	2.707	5.252	3.642	4.188
Glejser		0.584	10.483*	11.386*	9.789*	10.661*
χ^2 critical		3.84	7.81	7.81	9.48	9.48

(Cont.) Table 2: Results of Multiple Regression for SUDC, Dividend Yield, Tobin's Q and Firm Size for Long (Panel A) and Short (Panel B) Windows; n = 617.

		Panel B: (0, +2)				
Independent Variables		Regression Coefficients Model				
		1	2	3	4	5
Constant	[a]	0.0010	-0.0018	0.0008	-0.0026	0.0009
	[b]	(0.428)	(-0.419)	(0.203)	(-0.499)	(0.180)
	[c]	(0.669)	(0.675)	(0.839)	(0.618)	(0.857)
SUDC		0.0066	0.0058	0.0062	0.0057	0.0062
		(2.391**)	(2.053**)	(2.218**)	(2.029**)	(2.212**)
		(0.017)	(0.040)	(0.027)	(0.043)	(0.027)
DY			0.0015	0.0012	0.0015	0.0012
			(1.969**)	(1.593)	(1.986**)	(1.578)
			(0.049)	(0.112)	(0.047)	(0.115)
TQ			-0.0019		-0.0018	
			(-0.919)		(-0.832)	
			(0.358)		(0.406)	
TQD				-0.0103		-0.0104
				(-2.121**)		(-2.065**)
				(0.034)		(0.039)
TAPS					0.0001	-0.0000
					(0.271)	(-0.023)
					(0.787)	(0.982)
Adj.R-sq		0.0077	0.0155	0.0214	0.0140	0.0198
F-statistic		5.715**	4.169**	5.410**	3.140**	4.051**
AIC		0.003	0.003	0.003	0.003	0.003
B-P-G		0.177	0.289	3.947	0.326	4.020
Harvey		0.670	7.886	0.260	8.731	0.713
Glejser		0.016	4.903	1.760	5.251	2.890
χ^2 critical		3.84	7.81	7.81	9.49	9.49

AIC = Akaike information criterion
SUDC = Standardised unexpected dividend changes; DY = Dividend Yield; TQ = Tobin's Q; TQD = Tobin's Q (Dummy Variable); TAPS = Total Assets
[a] = coefficients, [b] = t-statistics, [c] = p-values, Significant at 0.01(***) and 0.05(**) levels.

In regressions (1), (2), (3), (4) and (5) for both long (see Panel A) and short (see Panel B) windows, the SUDC variable is consistently significant at least at the 0.05 level. For the long window, the coefficient for SUDC for each model is 0.0189 for model 1, 0.0224 for model 2, 0.0217 for model 3, 0.0231 for model 4 and 0.0223 for model 5. The corresponding t-values are 2.148, 2.496, 2.414, 2.570 and 2.480, respectively. For the short window, the coefficient for SUDC for each model is 0.0066 for model 1, 0.0058 for model 2, 0.0062 for model 3, 0.0057 for model 4 and 0.0062 for model 5. The corresponding t-values are 2.391, 2.053, 2.218, 2.029 and 2.212, respectively. This reinforces the support for dividend signalling or cash flow signalling. The variable dividend yield (DY) is included to test for the dividend clientele hypothesis. For the long window, the coefficient for DY for each model is -0.0021 for model 2, -0.0015 for model 3, –0.0024 for model 4 and -0.0018 for model 5. The corresponding t-values are –0.836, –0.610, –0.967 and –0.729, respectively. None of the coefficient is significant and the sign of the coefficients is also the opposite of what is predicted by theory. For the short window, the coefficient for DY for each model is 0.0015 for model 2, 0.0012 for model 3, 0.0015 for model 4 and 0.0012 for model 5. The corresponding t-values are 1.969, 1.593, 1.986, and 1.578, respectively. The results show that dividend yield is only significant in the short window returns. Furthermore, DY is only significant when it is regressed with Tobin's Q (TQ) as a continuous number. The sign of all the coefficients is positive, which is consistent to what is predicted by theory. This finding is similar to what is found by Denis *et al*. (1994) and Bajaj and Vijh (1990). They only utilised a short window return to test for the hypothesis. However, they find significant support when the DY is regressed with TQ as a dichotomous variable.

The variable Tobin's Q (TQ and TQD) is included to test for the free cash flow hypothesis. For the long window, the coefficient for TQ for model 2 and model 4 is -0.0218 and –0.0236, respectively. The corresponding t-values are –3.331 and –3.511. These values are significant at the 0.01 level. The coefficient for TQD for model 3 and model 5 is -0.0430 and –0.0470, respectively. The corresponding t-values are –2.741 and –2.911. These values are also significant at the 0.01 level. The sign of the coefficients is also the same as to what is predicted by theory. For the short window, the coefficient for TQ for model 2 and model 4 is -0.0019 and –0.0018, respectively. The corresponding t-values are –0.919 and –0.832. None of these values is significant. However, the sign of the coefficients is the same as to what is predicted by theory. The coefficient for TQD for model 3 and model 5 is –0.0103 and –0.0104, respectively. The corresponding t-values are –2.121 and –2.065. These values are significant at the 0.05 level. The sign of the coefficients is also as what is predicted by theory.

The variable TQD (Tobin's Q- dummy) seems to be significant in both the long and short windows, whereas TQ (Tobin's Q- continuous) variable is only significant in the long window. This finding could be considered as support for the free cash flow hypothesis because previous studies have utilised only the short window returns and treat Tobin's Q as a dummy variable.

The last variable, total assets per share (TAPS), is added as a proxy for firm size. The variable is added in models 4 and 5 of the multiple regression. For the long window, the coefficient for TAPS is –0.0014 and –0.0013, respectively. The corresponding t-values are –1.169 and –1.047. None of these values is significant; however, the sign of the coefficients is similar as to what is predicted by theory.

For the short window, the coefficient for TAPS in model 4 and model 5 is 0.0001 and –0.0000, respectively. The corresponding t-values are 0.271 and –0.023. None of these values is significant; however, the sign of the coefficients is the same as to what is predicted by theory. Bajaj and Vijh (1990) show that stock price reactions to dividend changes are greater for small firms than for large firms. One explanation given is that information sources other than the earnings or dividend announcements are available exclusively to the investors in the large firms. Another explanation by Bhushan (1989) is that information acquisition is less costly for large firms.

All the regressions previously run were tested for violation of the assumption of homoscedasticity. Homoscedasticity tests were conducted using Breusch-Pagan Godfrey, Harvey and Glejser tests. The ratios calculated under these tests are compared against the •-squared value at 0.05 level tabulated at the bottom of Table 4. The results show that the calculated ratios for regressions (2), (3), (4) and (5) in the long window are significant and reject for homoscedasticity. Thus, the residuals in those models do exhibit heteroscedasticity.

White's heteroscedasticity-consistent covariance matrix estimators were obtained to remove the problem (White, 1980). The following results are reported after running regressions (2), (3), (4) and (5) again for comparison purpose. White's correction reduces the standard error in some cases and increases it in others. The fluctuation results in the t-statistic increasing or decreasing, respectively, with no change in the value of the coefficient and the results do not differ significantly from the previous regressions.

Overall, the explanatory power of all the regressions at individual announcement level is low. The adjusted R-squared values, which on average are about 2 percent for the regressions, are small. The results are consistent with the findings in other developed countries, which also have low R-squared values of between 7 percent (Bajaj and Vijh, 1990) and 14 percent (Denis *et al*., 1994). Cheng (2000) in his study of returns to earnings relationship in an emerging market records adjusted R-squared value of 5 to 9 percent.

Conclusion

The findings presented suggest that dividend is a price relevant variable, and that dividend has a contemporaneous impact on stock prices in this market. The lack of strong relations between unexpected dividends and stock returns during the period immediately around the announcement dates is not surprising given the emerging nature of the test market. This suggests either a slow dissipation of information or a speculative trade in short windows being corrected over a longer window. Three days or so after the announcement, the prices do not exhibit post-announcement drift, which is evidence of a reasonably after-announcement efficiency. The findings constitute support for strategic hypothesis 1. Furthermore, the findings from the regression analysis show that the coefficients for SUDC are significant for both the long and short window returns. This constitutes further support for strategic hypothesis 1, which means that an increase (decrease) in dividend will lead to an increase (decrease) in abnormal returns. In terms of explaining the information conveyed from the dividend change, this significant relationship constitutes support for the cash flow signalling hypothesis. This is consistent with past findings in the developed

market (for example, Lang and Litzenberger, 1989; Bajaj and Vijh, 1990; Denis *et al*., 1994; Ryan, 1995; and Yoon and Starks, 1995). However, support could also go for the other two hypotheses.

To determine support for the dividend clientele hypothesis, we need to look at the significance of the variable dividend yield (DY). In past studies from the developed market, (Bajaj and Vijh, 1990; Denis et al., 1994) short window abnormal return is utilised and the dividend yield is regressed with unexpected dividends and Tobin's Q as a dichotomous variable (TQD). If similar analysis is being considered, then it means there is only weak support for the dividend clientele hypothesis or strategic hypothesis 2. The inconsistent findings mean that the firm's dividend clientele do not exert enough influence on the firm for it to change its dividend policy to satisfy the preference of the dividend clientele group. Furthermore, this finding could also confirm the contention that the investment behaviour of the investors in this capital market is speculative in nature and many of them prefer short term capital gains to dividends.

Next, the variable Tobin's Q, which is a proxy for firm's growth opportunity is analysed. Since the findings for TQ and TQD are different, the conclusion will be based on TQD, which is a more commonly used measure in other studies (for example, Denis *et al*., 1994 and Yoon and Starks, 1995). The variable TQD is significant for both the long and short window. Therefore, this constitutes partial support for strategic hypothesis 3^2. This partial support is similar to Ryan (1995)'s findings. It indicates that the managers in Malaysian firms are giving the signal to the investors that by paying out dividends; they are not investing their free cash flow in negative net present value projects.

Finally, the finding indicates that smaller firms have greater stock price reactions; however, the relationship is not significant. Past studies have found that reaction to dividend changes tend to be bigger for smaller firms. One explanation given is that information sources other than the earnings or dividend announcements are available exclusively to the investors in the large firms. Another explanation given is that information acquisition is less costly for large firms. The availability of information may also be the underlying causal factor behind the small firm effect. Klein and Bawa (1977) argue that for firms for which there is little public information, investors require a premium to compensate for estimation risk.

Suggestions for Future Research

The focus of this study is to look at the information being signalled from dividend changes. However, later studies have tried to look at another alternative for firms to signal their cash flow positions, which is through stock repurchases (known as share buybacks in Malaysia). For example, Jagannathan, Stephens and Weisbach (2000) measure the growth in open market stock repurchases and the manner in which stock repurchases and dividends are used by US corporations. Their findings suggest that stock repurchases and dividends are used at different times from one another and by different kinds of firms. Dividends are paid by firms with higher "permanent" operating cash flows, while repurchases are used by firms with higher "temporary", non-operating cash flows. Guay and Harford (2000) examine whether the stock market uses the announcement of the payout method to update its beliefs about the permanence of cash-flow shocks. They

find that the stock price reaction to dividend increases is more positive than the reaction to repurchases.

The above course of study is very relevant in the Malaysian scenario because stock repurchases (share buybacks) is relatively new in Malaysia and is gaining in popularity. In 1999, the Malaysian Accounting Standards Board (MASB) issued a Technical Release on Share Buybacks – Accounting and Disclosure, to deal with the issues arising from share buybacks. Therefore, it is imperative that a study be done to test whether Malaysian firms are turning towards share buybacks, instead of dividends, in signalling their cash flow positions.

Notes

[1] The Kuala Lumpur Stock Exchange (KLSE) has changed its name to Bursa Malaysia on 26 April 2004. However, since the time period of this study covers the time before the name change, the name KLSE will be used throughout all discussions in this paper.

[2] The use of the test of difference in means of CAR for Tobin's Q >1 versus Tobin's Q < 1 is not significant.

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