Moderation Effect of Market Condition on the Relationship between Dividend Yield and Stock Return

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Abstract

This paper examines the existence of moderation effect of market condition on the relationship between dividend yield and stock return in Bursa Malaysia. Results confirm the existence of moderating effect of market condition. However, if the market condition is assumed to have direct impact on the stock return, the tested moderating variable fails to be significant in all forms of market condition. Results also suggest that incorporating moderation variable will improve the explanation power of the model in terms of R-square. In addition, models have been controlled for the size effect of the firms.

Keywords: Moderation Effect, Market Condition, Dividend Yield, Stock Return, Malaysia

INTRODUCTION

Identification of influencing factors on stock return is not only an important issue for academicians, but also has a critical role for fund managers as well as individual investors who aim to maximize the return on their investment. This has been a research question for many decades. During the course of time, researchers have identified different factors contributing to returns of equity. Among all, firm-specific factors such as earnings or dividends have been identified for long time (for instance: Dow, 1920; Lintner, 1956). Many researchers have attempted to shed light into these relationships and results of their works have developed into various theories and models that explain them. Gordon (1959) was one of the first who developed a model to estimate stock value based on its dividend stream. Since then, few other models and theories have been developed to explain the effect of dividend on stock value (Elton, Gruber, & Rentzler, 1990; Litzenberger & Ramaswamy, 1982; Rosenberg & Marathe, 1979).

Earliest works on the relationship between dividend and stock return dates back to middle of 20th century (Clendenin & Van Cleave, 1954; Graham & Dodd, 1951). Since then, various theories have been developed over time. Miller and Modigliani (1961) argued that in a perfect financial world, dividend policy of a firm do not affect its value. However, residual dividend theory, which is based on the difference in financing costs of a firm, argues that firms' managers pay dividend only if they do not have any prosperous investment projects. They will allocate earnings of the firm, first, to the investment projects and the leftovers are distributed among shareholders. Tax-effect explanation argues that due to the tax advantage of capital gain compared to dividend, investors prefer lower (zero) dividends (Brennan, 1970). Clientele effect theory is based on the diversity of investors' preferences on dividend and also the marginal stockholder tax rates (Elton & Gruber, 1970). Signaling theory is based on the existence of asymmetry of information between managers and shareholders (Bhattacharya, 1979; Kalay, 1980; M. H. Miller & Rock, 1985; Spence, 1973). Thus, managers will send signals to the investors to assure them that the firm will continue its prosperousness. Any means could be used as signals; however, signals should be in a form that is not easy for competitors to mimic. One of these signals is the dividend.

Generally, paying high amount of dividend (*i.e.* high dividend yield) signals the strength of income generation ability of the firm to investors. This signal is very hard to mimic by competitors who are not as prosperous as the firm. However, some empirical evidences have shown that this signal is not always perceived in a consistent way (Al-Mwalla, Al-Omari, & Ayad, 2010; Aono & Iwaisako, 2010; Blume, 1980; Chen, 1982; Gombola & Liu, 1993; O. A. P. Gwilym, G. Morgan, & S. Thomas, 2000; Keim, 1985, 1986; Rao, Aggarwal, & Hiraki, 1992; Wolf, 2000). They have documented that dividend paid to investors may signal differently in different times. If the market is booming (*i.e.* bull market condition), a high amount of dividend paid to investors may signal that the firm do not have much investment opportunities ahead. However, if the market is weakening (i.e. bear market condition), a high amount of dividend paid to investors may signal the financial stability and strength of the firm. Some researchers, using advanced econometrical methods, have tested and confirmed this conclusion (Al-Mwalla et al., 2010; Aono & Iwaisako, 2010; Bonga-Bonga & Makakabule, 2010; Campbell & Diebold, 2009; Chang, 2009; Gombola & Liu, 1993; O. a. Gwilym, G. Morgan, & S. Thomas, 2000; Henkel, Martin, & Nardari, 2011; Rao et al., 1992; Wolf, 2000).

This study aims to investigate the time-variation of the relationship between dividend yield and stock return

from the perspective of a moderation variable. Market condition, as a moderator, causes the direction or magnitude of the relationship between dividend yield and stock return to change. Thus, in order to test this moderation effect, a balanced panel of data is constructed by collecting monthly data from January 1991 until the January 2011 (241 months) for 180 companies which are listed in Bursa Malaysia. The rest of the paper is organized as follows. In next section, description of the data set to be used and the methodology applied, is discussed. Then, findings are presented and followed by concluding remarks in the last section.

DATA AND RESEARCH METHODOLOGY

The concept of moderation effect of a variable, which had came from social science (particularly psychological research), has been extensively used in other areas of research such as management or accounting. Baron and Kenny (1986) have defined moderator variable as "a qualitative or quantitative variable that affects the direction and/or strength of the relation between an independent or predictor variable and a dependent or criterion variable". By understanding the definition of moderation effect and by having in mind the variation of the relationship between dividend yield and stock return in various market conditions, one may hypothetically assume that market condition has a moderation effect on the relationship between dividend yield and stock return. Hence, the hypothesis is set to examine this moderation effect. The hypothesis to be tested is that market condition has moderation effect on the relationship between dividend yield and stock return.

In conducting this research, definition of the market condition plays a major role. Market, in this research, specifically means the financial market, or bursa, for which the composite index can be used as a proxy. Therefore, the term market condition means the current standing of the market index's return compared to a benchmark. Different authors have introduced different benchmarks where each of them has its own implications. However, all of them followed the dichotomous classification of having bull vs. bear market.

- Kim and Zumwalt (1979), Chen (1982), and Gombola and Liu (1993) used risk free rate as benchmark. If the market return is greater (less) than risk free rate in same period, that period is considered as bull (bear) market. Because this form of classification is separately performed on each month and results are independent of other months, it can be considered as short-term definition.
- Cohen, Zinbarg, and Zeikel (1973), Fabozzi and Francis (1977), and Gombola and Liu (1993) compared market return by its trend in surrounding months. The classification is done first by comparing the market return of each month with previous month, if it is more (less) then the month is considered as bull (bear). Then, the generated sequence is re-examined and only those months that are similar to their adjunct months are confirmed. By this definition, change in bull and bear periods will take few months, thus, this definition is considered as intermediate-term classification.
- Weisenberger (1984), Lockwood and McInish (1990), and Gombola and Liu (1993) defined bull (bear) market as one in which a 10 per cent increase (decrease) from the previous low (high) is observed. Since a 10 percent change may take longer time to happen, this definition is considered as long-term classification.
- Besides the above mentioned dichotomous definitions, in this study, models also have been tested for continues form of market condition. In other words, market return is not classified into dichotomous form of bull or bear, but considered as continues variable in the model (R_m).

In order to conduct this research, various models that explain the relationship between dividend yield and stock return were tested. The simplest model only takes into account the effect of dividend yield on stock return as:

$$R = \alpha + \beta\, DY \qquad (1)$$

Where, R is the stock return and DY is the dividend yield in the same month. This simple model is tested as benchmark for other models in order to find the relative improvement in model's explanation power. The framework for Model (1) is depicted in Figure 1.

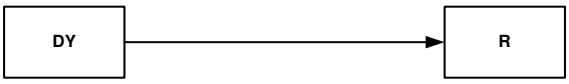

Figure 1- Model (1) Framework

In order to test the moderation effect of market condition (MC), interaction variable between market condition and dividend yield should generated and added to the model. Thus, Model (2) is developed as follow:

$$R = \alpha + \beta_1\, DY + \beta_2\, MC\,.DY \qquad (2)$$

Where, R is stock return, DY is the dividend yield, and MC is the market condition based on the abovementioned definitions. MC.DY is the interaction variable generated by multiplication of market condition by dividend yield. The framework for Model (2) is depicted in Figure 2. This model assumes that only effect that moderator variable (MC) has on the

dependent variable (R) is through its interaction with independent variable and no direct effect between moderator and dependent variable.

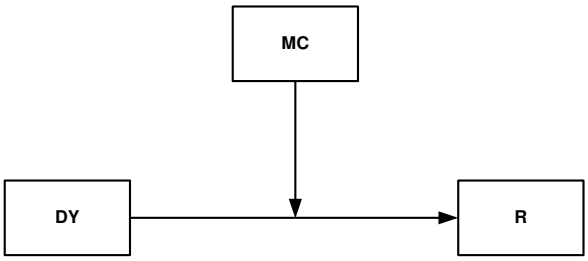

Figure 2- Model (2) Framework

However, it should be noticed that the market condition, besides the moderation effect, may also have direct effect on stock return. This is incorporated in Model (3).

$$R = \alpha + \beta_1 DY + \beta_2 MC + \beta_3 MC.DY \quad (3)$$

Where, R is stock return, DY is the dividend yield, MC is the market condition based on the above mentioned definitions, and MC.DY is the interaction variable generated by multiplication of market condition by dividend yield. The framework for Model (3) is depicted in Figure 3. This model assumes that market condition has moderation effect as well as direct effect on the stock return.

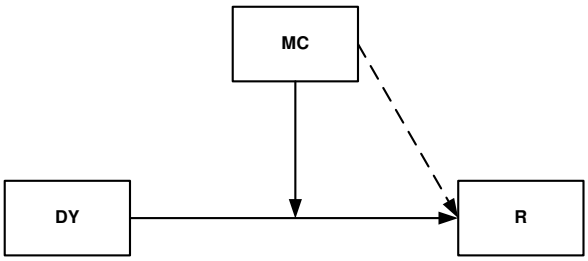

Figure 3- Model (3) Framework

Finally, in order to control for size effect on the relationship between dividend yield and stock return, Model (4) is tested by:

$$R = \alpha + \beta_1 DY + \beta_2 MV + \beta_3 MC + \beta_4 MC.DY \quad (4)$$

Where, R is stock return, DY is the dividend yield, MV is the logarithm of market value of the firm, MC is the market condition based on the above mentioned definitions, and MC.DY is the interaction variable generated by multiplication of market condition by dividend yield. The framework for Model (4) is depicted in Figure 4. This model assumes that market condition has moderation effect as well as direct effect on the stock return. Moreover, it controls for the firm's size effect.

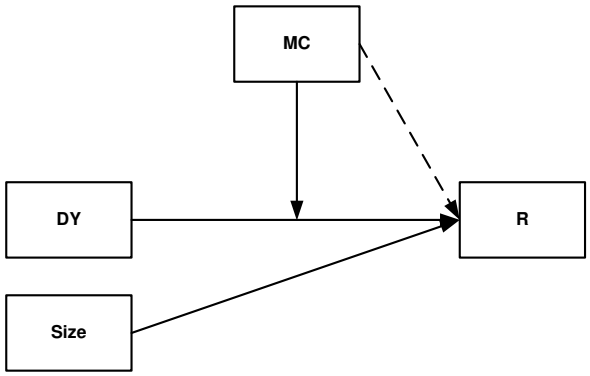

Figure 4- Model (4) Framework

These models are tested on panel of data consisting cross section of 180 Malaysian firms that have been actively traded in bursa Malaysia for the whole period of January 1991 until January 2011, equal to 241 month data for each firm. Data was collected from Datastream database and analysis was performed using EViews software.

RESULTS AND DISCUSSION

Descriptive Statistics

Summary of descriptive statistics are presented in Table 1. Total number of observations in this study for each variable is 43380, which came in form of a panel of 180 cross sections (*i.e.* firms) and time series of 241 months. Panels of data are all balanced with no missing data.

Table 1- Descriptive Statistics of Stock Return (R) and Dividend Yield (DY)

	R	DY
Mean	0.066491	2.520247
Median	0.000000	1.670000
Maximum	158.1786	517.2400
Minimum	-299.5732	0.000000
Std. Dev.	15.14367	8.715564
Skewness	0.083269	42.90151
Kurtosis	16.21783	2190.111
Jarque-Bera	315840.2	8.66E+09
Probability	0.000000	0.000000
Sum	2884.382	109328.3
Sum Sq. Dev.	9948132.	3295114.
Observations	43380	43380

Mean of monthly stock return for all data pooled is 0.066 per cent, with maximum of 158.178 per cent and minimum of -299.573 per cent. Standard deviation of monthly stock return is 15.143 per cent. Median of monthly stock return is 0.00 per cent.

Mean of monthly dividend yield for all pooled data is 2.52 per cent, with maximum of 517.24 per cent and minimum of 0.00 per cent (*i.e.* no dividend paid in past year). Standard deviation of dividend yield is 8.715 per cent. Median of dividend yield is 1.67 per cent.

Summary of descriptive statistics for market condition (MC) is presented in Table 2. As the Table illustrates, based on the short-term definition of bull/bear market, out of 241 months, 64 months were categorized as bull market and 177 months were considered as bear market. In other words, 73.44 per cent of the duration of the study was under bearish condition. Based on the intermediate-term definition, 82 months were considered as bull market while the remaining 159 months were bear months. In other words, 65.97 per cent of the duration of the study was under bearish condition. Based on the long-term definition, 165 months were considered as bull period, while the remaining 76 months were bear period. In other words, 28.04 per cent of the duration of the study was under bearish condition.

Table 2- Descriptive Statistics of Market Condition (MC) Based on Various Definitions

	MC_SHORT	MC_MED	MC_LONG	MC_RM
Mean	0.265560	0.340249	0.684647	0.490797
Median	0.000000	0.000000	1.000000	0.865551
Maximum	1.000000	1.000000	1.000000	33.60915
Minimum	0.000000	0.000000	0.000000	-38.55239
Std. Dev.	0.442550	0.474779	0.465623	7.759679
Skewness	1.061700	0.674350	-0.794770	-0.304645
Kurtosis	2.127207	1.454748	1.631659	8.145602
Jarque-Bera	52.92556	42.24324	44.17322	269.6032
Probability	0.000000	0.000000	0.000000	0.000000
Sum	64.00000	82.00000	165.0000	118.2821
Sum Sq. Dev.	47.00415	54.09959	52.03320	14451.03
Observation	241	241	241	241

Market condition, as in the last definition, could also be recognized as continues variable by using market return. The mean of monthly market return for this period was 0.49 per cent, with maximum of 33.609 per cent and minimum of -38.552 per cent. The standard deviation of monthly market return was 7.759 per cent, while the median of monthly market return was 0.865 per cent. Kuala Lumpur Composite Index (KLCI) which was used as a proxy of market is presented in Figure 1.

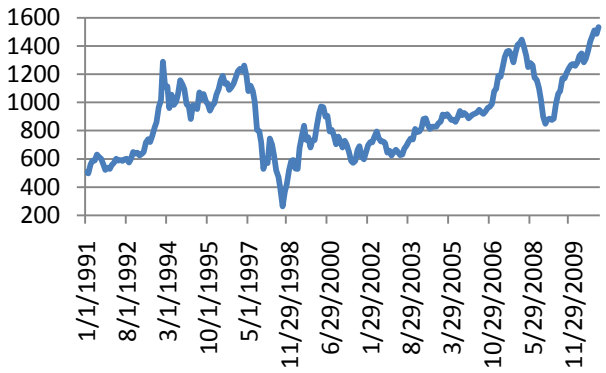

Figure 5. Kuala Lumpur Composite Index (KLCI): 1991-2011

REGRESSION RESULTS

Model (1)

Result of regression analysis conducted on Model (1) is presented in Table 3. The F-statistic (26.7778) suggests that the model is statistically significant. It indicates that dividend yield has a significant effect on stock return. The coefficient of DY (-0.04316), which is significant at 1 per cent level, has a negative sign. In other words, dividend yield has a negative relationship with stock return. The R-square of the regression model is 0.000617 (*i.e.* 0.0617 per cent). Based on Model (1), variation in dividend yield can explain 0.06 per cent of variation in stock return.

Model (2)

Result of regression analysis conducted on Model (2) is presented in Table 4. The model has been tested using four sets of data for market condition (MC). The first regression analysis was conducted based on the short-term definition of market condition. The F-statistic (148.06) suggests that the model is statistically significant. It indicates that dividend yield has a significant effect on stock return. The coefficient of DY (-0.1261), which is significant at 1 per cent level, has a negative sign. In other words, dividend yield has a negative relationship with stock return. The R-square of the regression model is 0.00678 (*i.e.* 0.678 per cent). Based on short-term market condition of Model (2), variation in dividend yield can explain 0.67 per cent of variation in stock return. Comparing the R-square of Model (2) to R-square of Model (1), one can conclude that R-square has been improved. In other words, Model (2) has more explanation power compared to Model (1). The coefficient for interaction variable between dividend yield (DY) and market condition (short-term MC) is significant at 1 per cent (t-stat = 16.4069). Thus, one may conclude that the short-term market condition has a moderation effect on the relation between dividend yield and stock return.

The second regression was conducted based on the intermediate-term definition of market condition. The F-statistic (55.295) indicates that the model is statistically significant, or dividend yield has a significant effect on stock return. The coefficient of DY (-0.0849), which is significant at 1 per cent level, has a negative sign meaning that dividend yield has a negative relationship with stock return. The R-square of the regression model is 0.002543 (*i.e.* 0.254 per cent). Based on intermediate-term market condition of Model (2), variation in dividend yield can explain 0.25 per cent of variation in stock return. Comparing the R-square of Model (2) to R-square of Model (1), one could conclude that R-square has been improved. In other words, Model (2) has more explanation power compared to Model (1). The coefficient for interaction variable between dividend yield (DY) and market condition (intermediate-term MC) is significant at 1 per cent (t-stat = 9.1521). Thus, one may conclude that the intermediate-term market condition has a moderation effect on the relation between dividend yield and stock return.

The third regression was conducted based on the long-term definition of market condition. The F-statistic (83.4077) shows that the model is statistically significant, or dividend yield has a significant effect on stock return. The coefficient of DY (-0.1309), which is significant at 1 per cent level, has a negative sign implying dividend yield has a negative relationship with stock return. The R-square of the regression model is 0.00383 (*i.e.* 0.383 per cent). Based on long-term market condition of Model (2), variation in dividend yield can explain 0.38 per cent of variation in stock return. Comparing the R-square of Model (2) to R-square of Model (1), one can conclude that R-square has been improved. In other words, Model (2) has more explanation power rather than Model (1). The coefficient for interaction variable between dividend yield (DY) and market condition (long-term MC) is significant at 1 per cent (t-stat = 11.8301). Thus, one may conclude that the long-term market condition has a moderation effect on the relation between dividend yield and stock return.

The forth regression was conducted based on continues definition of market condition. The F-statistic (749.504) demonstrating the model is statistically significant, or dividend yield has a significant effect on stock return. The coefficient of DY (-0.03922), which is significant at 1 per cent level, has a negative sign conveying dividend yield has a negative relationship with stock return. The R-square of the regression model is 0.0334 (*i.e.* 3.34 per cent). Based on continues market condition of Model (2), variation in dividend yield can explain 3.34 per cent of variation in stock return. Comparing the R-square of Model (2) to R-square of Model (1), one can conclude that R-square has been improved. In other words, Model (2) has more explanation power rather than Model (1). The coefficient for interaction variable between dividend yield (DY) and market condition (continues MC) is significant at 1 per cent (t-stat = 38.3578). Thus, one may conclude that continues definition of market condition has a moderation effect on the relation between dividend yield and stock return.

Therefore, based on the four analysis conducted on this model, one may conclude that the market condition has a moderation effect on the relationship between dividend yield and stock return regardless of the definition of market condition Moreover, one may also conclude that the Model (2) has more explanation power than Model (1), in terms of R-square.

Model (3)

Result of regression analysis conducted on Model (3) is presented in Table 5. The model has been tested using four sets of data for market condition (MC). The first regression analysis was conducted based on the short-term definition of market condition. The F-statistic (2021.054) suggests that the Model (3) is statistically significant. The coefficient of DY (-0.0239), which is significant at 1 per cent level, has a negative sign. In other words, dividend yield has a negative relationship with stock return. The R-square of the regression model is 0.12263 (*i.e.* 12.26 per cent). Based on short-term market condition of Model (3), variation in dividend yield and market condition can explain 12.26 per cent of variation in stock return. Comparing the R-square of Model (3) to R-square of Model (1) or Model (2), one can conclude that R-square has been improved. In other words, Model (3) has more explanation power rather than Model (1) or Model (2). The coefficient for interaction variable between dividend yield (DY) and market condition (short-term MC) is significant at 1 per cent (t-stat = -3.67516). Thus, one may conclude that the short-term market condition has a moderation effect on the relation between dividend yield and stock return. Short-term market condition, besides the moderation effect, also has direct impact on the stock return as it is statistically significant (t-stat = 75.6831).

The second regression analysis was conducted based on the intermediate-term definition of market condition. The F-statistic (404.6273) indicates that the Model (3) is statistically significant. The coefficient of DY (-0.03623), which is significant at 1 per cent level, has a negative sign implying dividend yield has a negative relationship with stock return. The R-square of the regression model is 0.02722 (*i.e.* 2.72 per cent). Based on intermediate-term market condition of Model (3), variation in dividend yield and market condition can explain 2.72 per cent of variation in stock return. Comparing the R-square of Model (3) to R-square of Model (1) or Model (2), one can conclude that R-square has been improved. In other words, Model (3)

has more explanation power rather than Model (1) or Model (2). The coefficient for interaction variable between dividend yield (DY) and market condition (intermediate-term MC) is not significant even at 10 per cent (t-stat = -0.89927). Thus, one may not conclude that the intermediate-term market condition has a moderation effect on the relation between dividend yield and stock return. However, intermediate-term market condition only has direct impact on the stock return as it is statistically significant (t-stat =33.1735).

The third regression analysis was conducted based on the long-term definition of market condition. The F-statistic (1050.226) illustrates that the Model (3) is statistically significant. The coefficient of DY (-0.0119) is not significant even at 10 per cent level, however, has a negative sign. In other words, dividend yield has a negative relationship with stock return. The R-square of the regression model is 0.0677 (*i.e.* 6.77 per cent). Based on long-term market condition of Model (3), variation in dividend yield and market condition can explain 6.77 per cent of variation in stock return. Comparing the R-square of Model (3) to R-square of Model (1) or Model (2), one can conclude that R-square has been improved. In other words, Model (3) has more explanation power rather than Model (1) or Model (2). The coefficient for interaction variable between dividend yield (DY) and market condition (long-term MC) is significant at 1 per cent (t-stat = -2.74152). Thus, one may conclude that the long-term market condition has a moderation effect on the relation between dividend yield and stock return. Long-term market condition, besides the moderation effect, also has direct impact on the stock return as it is statistically significant (t-stat = 54.5200).

The fourth regression analysis was conducted based on continues definition of market condition. The F-statistic (6711.206) illustrates that the Model (3) is statistically significant. The coefficient of DY (-0.0246) is significant at 1 per cent level and has a negative sign denoting dividend yield has a negative relationship with stock return. The R-square of the regression model is 0.31701 (*i.e.* 31.70 per cent). Based on continues market condition of Model (3), variation in dividend yield and market condition can explain 31.7 per cent of variation in stock return. Comparing the R-square of Model (3) to R-square of Model (1) or Model (2), one could conclude that R-square has been improved. In other words, Model (3) has more explanation power rather than Model (1) or Model (2). The coefficient for interaction variable between dividend yield (DY) and market condition (continues MC) is significant at 1 per cent (t-stat = -10.0315). Thus, one may conclude that continues market condition has a moderation effect on the relation between dividend yield and stock return. Continues market condition, besides the moderation effect, also has direct impact on the stock return as it is statistically significant (t-stat = 134.2095).

Therefore, based on the four analysis conducted on this model, with exception of intermediate-term definition of market condition, one may conclude that the market condition has a moderation effect on the relationship between dividend yield and stock return. Moreover, results show that market condition also has direct impact on the stock return. Finally, one may also conclude that the Model (3) has more explanation power than Model (1) or Model (2), in terms of R-square.

Model (4)

Result of regression analysis conducted on Model (4) is presented in Table 6. The model has been tested using four sets of data for market condition (MC). The first regression analysis was conducted based on the short-term definition of market condition. The F-statistic (1586.254) suggests that the Model (4) is statistically significant. The coefficient of DY (-0.0280), which is significant at 1 per cent level, has a negative sign. In other words, dividend yield has a negative relationship with stock return. Market value (MV) is significant at 1 per cent level (t-stat = 15.729), indicating that firm size significantly affect the stock return. The R-square of the regression model is 0.12761 (*i.e.* 12.76 per cent). Based on short-term market condition of Model (4), variation in dividend yield, firm size, and market condition can explain 12.76 per cent of variation in stock return. Comparing the R-square of Model (4) to R-square of Model (1), Model (2) or Model (3), one can conclude that R-square has been improved. In other words, Model (4) has more explanation power rather than Model (1), Model (2), or Model (3). The coefficient for interaction variable between dividend yield (DY) and market condition (short-term MC) is significant at 1 per cent (t-stat = -3.7080). Thus, one may conclude that the short-term market condition has a moderation effect on the relation between dividend yield and stock return. Short-term market condition, besides the moderation effect, also has direct impact on the stock return as it is statistically significant (t-stat = 75.9653).

The second regression analysis was conducted based on the intermediate-term definition of market condition. The F-statistic (358.919) suggests that the Model (4) is statistically significant. The coefficient of DY (-0.0393), which is significant at 1 per cent level, has a negative sign meaning dividend yield has a negative relationship with stock return. Market value (MV) is significant at 1 per cent level (t-stat = 14.6895), indicating that firm size significantly affect the stock return. The R-square of the regression model is 0.0320 (*i.e.* 3.20 per cent). Based on intermediate-term market condition of Model (4), variation in dividend yield, firm size, and market condition can

explain 3.20 per cent of variation in stock return. Comparing the R-square of Model (4) to R-square of Model (1), Model (2) and Model (3), one can conclude that R-square has been improved. In other words, Model (4) has more explanation power in comparison with Model (1), Model (2) or Model (3). The coefficient for interaction variable between dividend yield (DY) and market condition (intermediate-term MC) is not significant even at 19 per cent (t-stat = -1.1274). Thus, one may not conclude that the intermediate-term market condition has a moderation effect on the relation between dividend yield and stock return. However, intermediate-term market condition only has direct impact on the stock return as it is statistically significant (t-stat = 33.3419).

The third regression analysis was conducted based on the long-term definition of market condition. The F-statistic (831.7116) suggesting the Model (4) is statistically significant. The coefficient of DY (-0.0135), which is not significant even at 10 per cent level, has a negative sign. Market value (MV) is significant at 1 per cent level (t-stat = 12.8182), indicating that firm size significantly affect the stock return. The R-square of the regression model is 0.07123 (*i.e.* 7.12 per cent). Based on long-term market condition of Model (4), variation in dividend yield, firm size, and market condition can explain 7.12 per cent of variation in stock return. Comparing the R-square of Model (4) to R-square of Model (1), Model (2) and Model (3), one can conclude that R-square has been improved. In other words, Model (4) has more explanation power compared to Model (1), Model (2) or Model (3). The coefficient for interaction variable between dividend yield (DY) and market condition (long-term MC) is significant at 1 per cent (t-stat = -3.02171). Thus, one *may* conclude that the long-term market condition has a moderation effect on the relation between dividend yield and stock return. Long-term market condition, besides the moderation effect, also has direct impact on the stock return as it is statistically significant (t-stat = 54.185).

The forth regression analysis was conducted based on continues definition of market condition. The F-statistic (5118.985) demonstrates that the Model (4) is statistically significant. The coefficient of DY (-0.0282), which is significant at 1 per cent level, has a negative sign implying dividend yield has a negative relationship with stock return. Market value (MV) is significant at 1 per cent level (t-stat = 15.3009), indicating firm size significantly affect the stock return. The R-square of the regression model is 0.32068 (*i.e.* 32.07 per cent). Based on long-term market condition of Model (4), variation in dividend yield, firm size, and market condition can explain 32.07 per cent of variation in stock return. Comparing the R-square of Model (4) with R-square of Model (1), Model (2) and Model (3), one can conclude that R-square has been improved. In other words, Model (4) has more explanation power rather than Model (1), Model (2) or Model (3). The coefficient for interaction variable between dividend yield (DY) and market condition (continues MC) is significant at 1 per cent (t-stat = -10.212). Thus, one may conclude that continues market condition has a moderation effect on the relation between dividend yield and stock return. Moreover, continues market condition has direct impact on the stock return as it is statistically significant (t-stat = 134.3969).

Therefore, based on the four analysis conducted on this model one could conclude that the market condition has a moderation effect on the relationship between dividend yield and stock return regardless of intermediate-term definition of market condition. Furthermore, results show that market condition also has direct impact on the stock return. In addition, results support that the firm size has effect on the stock return. Finally, one may also conclude that the Model (4) has more explanation power compared to Model (1), Model (2) or Model (3) in terms of R-square.

CONCLUSION

This study proposed to incorporate market condition as a moderator variable in the framework of the relationship between dividend yield and stock return. Results of this study confirm the moderation effect of market condition on the relationship between dividend yield and stock return. Moreover, if one wants to analyze the effect of market condition both as a moderator and an independent variable at the same time, the moderation effect is evident except for the case of intermediate-term definition of market condition. However, based on R-squares results of regression analysis, continues definition of market condition (*i.e.* market return as continues variable) has the strongest explanation power.

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APENDIX

Table 3- Regression Results for Model 1 ($R_i=\alpha+\beta\ 〖DY〗_i$)

Model	Variable	Coefficient	Std. Error	t-Statistic	Prob.	R-squared	Adjusted R-squared	S.E. of regression	F-statistic	Prob (F-statistic)
Model 1	DY	-0.04316	0.00834	-5.17474	0.0000	0.000617	0.000594	15.13917	26.77789	0.0000
	C	0.175258	0.075665	2.316237	0.0205					

Table 4- Regression Results for Model 2 ($R_i=\alpha+\beta_1\ 〖DY〗_i+\beta_2\ MC.〖DY〗_i$)

Model	Variable	Coefficient	Std. Error	t-Statistic	Prob.	R-squared	Adjusted R-squared	S.E. of regression	F-statistic	Prob(F-statistic)
Model 2: Short-term	DY	-0.12606	0.009729	-12.9568	0.0000	0.006781	0.006735	15.09258	148.0664	0.0000
	INT_DY_MC_SHORT	0.290831	0.017726	16.40699	0.0000					
	C	0.191492	0.075439	2.538379	0.0111					
Model 2: Intermediate-Term	DY	-0.08497	0.009502	-8.94203	0.0000	0.002543	0.002497	15.12475	55.29562	0.0000
	INT_DY_MC_MED	0.168439	0.018404	9.152172	0.0000					
	C	0.142725	0.075677	1.885988	0.0593					
Model 2: Long-Term	DY	-0.13097	0.011155	-11.7409	0.0000	0.003831	0.003785	15.11498	83.40775	0.0000
	INT_DY_MC_LONG	0.190425	0.016097	11.83012	0.0000					
	C	0.086187	0.075918	1.135255	0.2563					
Model 2: Continues MC	DY	-0.03922	0.008203	-4.78105	0.0000	0.033403	0.033359	14.88894	749.5044	0.0000
	INT_DY_MC_RM	0.042266	0.001102	38.35783	0.0000					
	C	0.168419	0.074415	2.26325	0.0236					

Table 5- Regression Results for Model 3 ($R_i=\alpha + \beta_1 \ 〖DY〗_i+ \beta_2 \ MC + \beta_3 \ MC.〖DY〗_i$)

Model	Variable	Coefficient	Std. Error	t-Statistic	Prob.	R-squared	Adjusted R-squared	S.E. of regression	F-statistic	Prob(F-statistic)
Model 3: Short-Term	DY	-0.02396	0.009243	-2.59232	0.0095	0.122639	0.122578	14.18519	2021.054	0.0000
	MC_SHORT	12.12395	0.160194	75.68311	0.0000					
	INT_DY_MC_SHORT	-0.0636	0.017306	-3.67517	0.0002					
	C	-3.05061	0.082839	-36.8257	0.0000					
Model 3: Intermediate-Term	DY	-0.03623	0.009499	-3.81458	0.0001	0.027223	0.027156	14.93663	404.6273	0.0000
	MC_MED	5.253848	0.158374	33.17359	0.0000					
	INT_DY_MC_MED	-0.0171	0.019016	-0.89928	0.3685					
	C	-1.61581	0.091627	-17.6347	0.0000					
Model 3: Long-Term	DY	-0.01197	0.01101	-1.08762	0.2768	0.067718	0.067653	14.62244	1050.226	0.0000
	MC_LONG	8.548976	0.156804	54.52004	0.0000					
	INT_DY_MC_LONG	-0.04429	0.016156	-2.74153	0.0061					
	C	-5.68417	0.128826	-44.123	0.0000					
Model 3: Continues MC	DY	-0.0246	0.006896	-3.56785	0.0004	0.317017	0.31697	12.51558	6711.206	0.0000
	MC_RM	1.130263	0.008422	134.2095	0.0000					
	INT_DY_MC_RM	-0.01008	0.001005	-10.0316	0.0000					
	C	-0.42697	0.06271	-6.80862	0.0000					

Table 6- Regression Results for Model 4 ($R=\alpha + \beta_1 DY + \beta_2 MV + \beta_3 MC + \beta_4 MC.DY$)

Model	Variable	Coefficient	Std. Error	t-Statistic	Prob.	R-squared	Adjusted R-squared	S.E. of regression	F-statistic	Prob(F-statistic)
Model 4: Short-Term	DY	-0.02806	0.009221	-3.043089	0.0023	0.127615	0.127534	14.14507	1586.254	0.0000
	LOGMV	0.680431	0.043259	15.72924	0.0000					
	MC_SHORT	12.13486	0.159742	75.96537	0.0000					
	INT_DY_MC_SHORT	-0.06399	0.017257	-3.708049	0.0002					
	C	-7.175616	0.274953	-26.09765	0.0000					
Model 4: Intermediate-Term	DY	-0.039303	0.009477	-4.147017	0.0000	0.032039	0.031949	14.89979	358.919	0.0000
	LOGMV	0.669435	0.045572	14.68957	0.0000					
	MC_MED	5.267574	0.157986	33.34193	0.0000					
	INT_DY_MC_MED	-0.02139	0.018972	-1.127452	0.2596					
	C	-5.67513	0.291064	-19.49789	0.0000					
Model 4: Long-Term	DY	-0.013548	0.01099	-1.232782	0.2177	0.071236	0.07115	14.59499	831.7116	0.0000
	LOGMV	0.572705	0.044679	12.81824	0.0000					
	MC_LONG	8.484914	0.15659	54.18563	0.0000					
	INT_DY_MC_LONG	-0.048739	0.01613	-3.021715	0.0025					
	C	-9.107499	0.296409	-30.72608	0.0000					
Model 4: continues MC	DY	-0.028257	0.006882	-4.106026	0.0000	0.320683	0.320621	12.48208	5118.985	0.0000
	LOGMV	0.584183	0.03818	15.30091	0.0000					
	MC_RM	1.128878	0.0084	134.3969	0.0000					
	INT_DY_MC_RM	-0.010236	0.001002	-10.21207	0.0000					
	C	-3.965204	0.239552	-16.55259	0.0000					