Management Science Letters 9 (2019) 347–356

Contents lists available at GrowingScience

Management Science Letters

homepage: www.GrowingScience.com/msl

Future earnings growth and dividend payout: Evidence from Malaysia

Kamarun Nisham Taufil Mohd* **and Khairul Zharif Zaharudin**

School of Economics, Finance and Banking, Universiti Utara Malaysia, Sintok, Kedah, Malaysia

C H R O N I C L E

Article history:
Received: October 10, 2018
Received in revised format: October 9, 2018
Accepted: November 16, 2018
Available online:
November 16, 2018

Keywords:
Future earnings growth
Dividend payout
Dividend policy
Emerging markets
Panel data analysis

A B S T R A C T

This study investigates the effect of dividend payout on firms' future earnings growth (FEG) in Malaysia. We use panel data analysis methodology to determine the effect of dividend payout and other control variables on FEG in 1, 2, 3, 4, and 5 years. Our results show that firm size and payout ratio had significant positive relationship on four out of five dynamic models tested. The remaining factors except of debt ratio are significant at least four out of the five years used in dynamic models in this study. We find evidence that Malaysian firms show mean reversion pattern in their earnings; smaller firms would enjoy greater future earnings growth; increased monitoring from creditors leads to better earnings performance; firms with better investment prospect have greater future growth in earnings; and higher investment in assets leads to higher future earnings growth. The findings show that in Malaysia, managers use dividend as a tool to signal their positive private information about the firms' future prospect.

1. Introduction

Having better future earnings compared with current years' profit is a desirable situation for managers and investors alike. Higher profit indicates better managerial performance for the management team of the firm, and as for the investors, a better future return in the form of dividend payment. Nevertheless, based on the conventional dividend theory proposed by Gordon (1959) in his seminal article, it is not possible to achieve higher growth in earnings while enjoying higher dividend. The theory suggests that to enjoy a higher future earnings growth, firms should be paying lower dividend. The inverse relationship between payout ratio and firms growth rate makes it impossible to achieve the best of both parties – to firms and stockholders. Thus, the conflict of interest between stockholders and managers would go on indefinitely, as both parties would like to have decision, which suits their needs. Nonetheless, Zhou and Ruland (2006), using extensive financial information on dividend paying firms in the New York Stock Exchange (NYSE), found contrary evidence. The study finds significant positive relationship between firm's future earnings growth and dividend payout, which directly contests the half-century old theory.

Dividend is used as a mean to transfer excess funds from a firm to its stockholders. Dividend payment can be in the form of cash dividend, or stock dividend, or both. Cash dividend involves outflow of funds from the firm, thus it is often associated with reduction in stock's value. On the contrary, stock dividend

* Corresponding author.
E-mail address: kamarun@uum.edu.my (K.N.T. Mohd)

doi: 10.5267/j.msl.2018.11.006

does not affect a firm's cash level but will influence its number of shares outstanding. Shareholders who wish to cash-in their stock dividend may do so by selling a portion of their shares, which will reduce their percentage of shareholdings in a firm. Although dividend payment is not an obligation for a firm, it may affect a firm's value by influencing its share price (Bhattacharya, 1979). In the seminal dividend irrelevant paper, Miller and Modigliani (1961) state that firm's issuance of dividends should have no impact on share price or its value. This theory, however, comes with certain restrictive assumptions.

Studies on dividend in Malaysia have been conducted by quite a number of financial scholars' in the past. A large number of Malaysian firms increase payment of dividends when their earnings increase, reluctant to skip dividends when earnings fall, but they tend to omit dividends when they suffer losses (Pandey, 2003). Contrary to the Pandey's findings, Al-Twaijry (2007) finds that Malaysian firms in general follow stable dividend policies, and firms tend to pay dividends even though they report losses, resulting in negative payout ratio. Similar results were reported by Ling et al. (2008), and their evidence point out that Malaysian public listed firms' dividend policy was found to be rigid and sticky as managers are reluctant to cut dividend, and also try to avoid from omitting dividend even when the performance of the firms are deteriorating. The characteristics of dividend-paying firms in Malaysia are they have lower growth opportunities, lower risk and lower leverage, tend to achieve higher profitability and are bigger in terms of revenue as compared with non-dividend-paying firms.

2. Objective of study

When it comes to the relationship between dividend payment and firm's future and/or past earnings performance in Malaysia, the scholars find mixed evidence. Current dividend of listed firms in Malaysia is found to be affected by its past and future dividends, and not strongly attached to its current earnings (Al-Twaijry, 2007). Pandey (2003) and Annuar and Shamser (1993) claim that Malaysian firms rely on both past dividends and current earnings in deciding the current period's payment of dividends, and Ling et al. (2008) find that current dividend has positive correlation with past earnings, and has little or no correlation with current earnings. Inconclusive results from Malaysian-based studies might be due to different models applied to examine the relationship between dividend and future earnings growth. Thus, we use the same method of correlation analysis as an applied by Al-Twaijry (2007) and Ling et al. (2008) to investigate this relationship. Furthermore, we augment the correlation analysis method with the regression model as used by Zhou and Ruland (2006) to test whether the results from a developed market (United States) is consistent with the results from an emerging market like Malaysia.

3. Methodology

We use correlation analysis to get a fair comparison with earlier studies on dividend and future earnings conducted in Malaysia (Al-Twaijry, 2007; Ling et al., 2008). The correlation analysis provides us with linear associations between variables used in our study. The main difference between our study and the earlier studies on dividend in Malaysia is the extensiveness of dataset used. Our study uses data that extends to more than 30 years, from as early as 1980 until 2012, resulting in large number of firm-year observations. We also employ another method to study the effect of the selected independent variables on future earnings growth, and for that, we adapted the regression model introduced by Zhou and Ruland (2006). Since our data is in panel form, we perform statistical test to choose which estimation method is best from the three competing methods: pooled OLS, fixed-effects and random-effects. To choose the best method, we use F-test, Breusch-Pagan test, and Hausman test. Table 1 shows the null hypotheses for each test, and the choice to make following the rejection/failure to reject the H_0.

Table 1
Tests to determine the best statistical model

Tests	H_0 hypotheses	Reject H_0	Failed to reject H_0
F-test	All of the cross-sectional units have a common intercept	Fixed-effect	Pooled OLS
Breusch-Pagan	The variance in the equation is equal to zero	Random-effect	Pooled OLS
Hausman	The generalized least squares estimates (GLS) are consistent	Fixed-effect	Random-effect

The advantage of using panel data analysis is to get s more efficient econometric estimate through a large number of data points, which increases the degree of freedom and reduces the collinearity among our independent variables. It also allows us to address omitted or unobserved variables that cannot be explained using cross-sectional or time-series data sets (Hsiao, 2003; Pukelsheim, 1994). We also use robust standard error methodology to control for heteroskedasticity and autocorrelation problem in our models. Following Zhou and Ruland (2006), our future earnings growth (FEG) is measured as the compounded annual growth rate. Eq. (1) shows the general multivariate regression model that we adapted from Zhou and Ruland (2006):

$$FEG_{t,t+n} = \alpha_0 + \beta_1 DPR_t + \beta_2 ROA_t + \beta_3 SIZE_t + \beta_4 DEBTR_t + \beta_5 EYIELD_t + \beta_6 PEG_{t-n,t} + \beta_7 FAG_{t,t+n} + \varepsilon_t \quad (1)$$

where,

$FEG_{t,t+n}$ = future earnings growth, measured as compounded annual growth in post-tax earnings of common shares from year t to year $t + n$, where $n = 1, 2, 3, 4$, or 5

DPR_t = dividend payout ratio, measured as year t dividend payout divided by year t post-tax earnings of common shares

ROA_t = return on asset, measured as year t annual post-tax earnings of common shares divided by year t total assets

$SIZE_t$ = firm size, measured as the natural logarithm of year t total assets

$DEBTR_t$ = debt ratio, measured as year t total debt divided by year t total assets

$EYIELD_t$ = earnings yield, measured as year t annual post-tax earnings per share divided by the stock price at the end of year t

$PEG_{t-n,t}$ = past earnings growth, measured as compounded annual growth of post-tax earnings of common shares from year $t - n$ to year t, where $n = 1, 2, 3, 4$, or 5

$FAG_{t,t+n}$ = future assets growth, measured as compounded annual growth in total assets from year t to year $t + n$, where $n = 1, 2, 3, 4$, or 5

Our study focuses on the dividend payout (DPR_t) variable, since the main objective of this study is to find evidence whether Malaysian listed firms' future earnings growth supports the conventional dividend theory or otherwise. A negative coefficient on DPR_t would support the theory that high dividend payout would result in lower future earnings growth as postulated by the dividend discount model. On the other hand, a positive coefficient would support the results reported by Zhou and Ruland (2006). Other than the payout ratio, we also control for other factors such as profitability (ROA_t), firm size ($SIZE_t$), leverage ($DEBTR_t$), earnings prospect ($EYIELD_t$), mean reversion in earnings ($PEG_{t-n,t}$), and assets growth ($FAG_{t,t+n}$). We expect that apart from dividend payment, these factors may have significant effect on the future earnings growth as well.

Profitability, which is proxied by return on assets (ROA_t), is controlled since we expect that *ceteris paribus*, firms' would find it difficult to demonstrate strong earnings growth when their profitability is already high, suggesting the existence of mean reversion in profitability (Fama & French, 2000; Freeman et al., 1982). This is also consistent with the competitive market theory (Fama & French, 2000), which suggests that firms with high abnormal profits will attract new firms into the industry who will compete for market share. Consequently, this leads to weaker growth in future earnings (Flint et al., 2010). Size ($SIZE_t$), measured by natural log of total assets, is controlled as we expect that larger firms are more established and mature than smaller firms, hence less likely able to exhibit stronger growth. The influence of firm's size on growth is significant in cases where listed firms pay cash dividends (Zhou & Ruland, 2006; DeAngelo et al., 1996). Large firm is also reported to have slower growth rates in sales, operating income before depreciation, and income before extraordinary items, and thus, weaker future earnings growth (Chan et al., 2003). Their finding is consistent with the business life cycle theory that suggests mature firms would experience slower growth rate compared to relatively younger firms.

Debt ratio ($DEBTR_t$), is used as a proxy for leverage. This variable is controlled based on the assumption that a firm with high level of leverage tends to have large investments (Fama & French, 2000). This gives positive signals to investors that it has profitable investment project in the future. The firm is also expected to have more monitoring from the creditors over its activity compared with other firms with lesser debt. This will force the manager to take up profitable investment opportunities only, which leads to reduced agency cost and better managerial performance. In this case, we expect a positive relationship between leverage and future earnings growth. However, pecking order theory states that profitable firms with better future growth will retain cash so that they can finance future investment opportunities (Myers & Majluf, 1984). Therefore, in this case, pecking order theory predicts a negative relationship between leverage and future earnings growth. Earnings yield ($EYIELD_t$), is the inverse of P/E ratio, and it is used as a proxy for investment opportunity. It measures how much profit is earned for each ringgit an investor pays. Under the assumption that the investor is rational, we expect that the investor is willing to pay more for stocks with better future earnings prospect. Thus, a firm with a promising future will likely having lower earnings yield, resulting in a negative relationship between the earnings yield and future earnings growth (Zhou & Ruland, 2006; Flint et al., 2010).

Past earnings growth ($PEG_{t-n,t}$) is used to control for possibility of having mean reversion in earnings growth (Zhou & Ruland, 2006). Earnings mean reversion suggests that it would be difficult for a firm to sustain high level of earnings growth. We assume that firms' abnormal growth in earnings is temporary, and it would revert to its mean eventually. The past earnings growth calculation is similar to the formula used in computing the future earnings growth. The difference is that the n is backwards. For instance, when estimating five-year future earnings growth, we controlled for five-year past earnings growth. We expect to see a negative coefficient on the $PEG_{t-n,t}$ variable should the mean reversion hypothesis is supported. Future assets growth ($FAG_{t,t+n}$) is used as proxy for firm's ability to generate future earnings. Assets are controllable economics resources for a firm that can be tangible and/or intangible. Firm expects that higher level of assets will increase its capacity and capability to generate higher earnings in the future. Therefore, it is expected that firms with greater level of future assets growth will have greater future earnings growth.

4. Data

All of our data is secondary, obtained from the Thomson Datastream database. To ensure consistency, only one database is used to gather the accounting information. As for sample selection, all firms listed on the Main Market (formerly known as First Board and Second Board) and the ACE Market (formerly MESDAQ) of Bursa Malaysia are selected. We consider both listed and delisted firms. We exclude firms that are categorized as financial institutions (banks, REITs, close-ended funds, and exchange traded funds) since these firms are regulated differently from other types of firms (Short et al., 2002) and have different accounting procedures. We set these criteria to ensure that the samples are able to answer the research objectives of this study.

Our final dataset have more than 1,000 firms, from 1980 until 2012. Due to the dynamic nature of our data, the maximum number of years in our study is reduced to 31 years instead of 33 years. Our data use information on year t+1 (for FEG and FAG) and t–1 (for PEG), which explains the two years reduction in our final dataset. Naturally, some observations in the study have extreme values (i.e. outliers). These observations, if not treated, may distort the result of the study. To address this issue, we use the 3-sigma, or 3-standard deviation, rule to identify the outliers in our dataset. The 3-sigma rule postulates that in a normally distributed data, 99.7% of the observation will be within three sigma interval from its mean (Short et al., 2002; Grafarend, 2006). Any observation that falls outside of the $\mu \pm 3\sigma$ range is considered as outliers. The process of identifying outliers is performed for each variable, both dependent and independent. Therefore, the final sample of the study have value of less than or equal to μ+3σ (the upper limit) and greater than or equal to μ–3σ (the lower limit) for each variable. The 3-sigma rule is also a better method in determining and treating outliers than the more commonly used data truncation method. The truncation method removes a *y*-percentage of observations from the top and bottom part of a sample. If the data is normally distributed with no skewedness issue, then the truncation method should be fine. Nonetheless, if the data is skewed, then cutting off the data equally on both sides not only would have no effect on its skewedness, even worse, it would cause the dataset to lose valuable observations. As for the treatment of outliers, following Zhou and Ruland (2006), we discard all of the outliers from the final observation. Table 2 shows the descriptive statistics of all variables used in this study, covering an observation period from 1980 until 2012.

Table 2
Descriptive Statistics

	$FEG_{t, t+n}$	DPR_t	ROA_t	$SIZE_t$	$DEBTR_t$	$EYIELD_t$	$PEG_{t-n, t}$	$FAG_{t, t+n}$
Count (***n* = *1***)	7523	7523	7523	7523	7523	7523	7523	7523
Mean	-0.2945	0.4405	0.0643	1.09×10^{9}	0.1813	0.1108	0.6626	0.1532
Minimum	-101.5176	0.0000	0.0001	5.71×10^{6}	0.0000	0.0006	-0.9972	-0.9875
Maximum	69.3158	21.1579	0.7811	2.80×10^{10}	0.8509	9.7508	76.3717	89.9054
Std. Dev.	5.6076	0.9815	0.0563	2.46×10^{9}	0.1626	0.2447	3.4870	1.1686
Count (***n* = 2**)	5132	5132	5132	5132	5132	5132	5132	5132
Mean	0.1819	0.4495	0.0669	1.18×10^{9}	0.1726	0.1090	0.1968	0.1227
Minimum	-1.0000	0.0000	0.0003	4.53×10^{6}	0.0000	0.0009	-0.9518	-0.9194
Maximum	4.4238	17.9228	0.6870	2.80×10^{10}	0.8509	8.1778	3.7448	2.8641
Std. Dev.	0.5943	0.9141	0.0561	2.63×10^{9}	0.1598	0.2044	0.5710	0.2085
Count (***n* = *3***)	4638	4638	4638	4638	4638	4638	4638	4638
Mean	-0.2394	0.4571	0.0622	1.23×10^{9}	0.1831	0.1107	0.1577	0.0865
Minimum	-3.9833	0.0000	0.0002	4.53×10^{6}	0.0000	0.0007	-0.8539	-0.8106
Maximum	3.3246	16.6463	0.7811	2.80×10^{10}	1.6784	9.6905	3.0613	1.3091
Std. Dev.	0.9681	0.9338	0.0551	2.61×10^{9}	0.1642	0.2333	0.4416	0.1562
Count (***n* = *4***)	2875	2875	2875	2875	2875	2875	2875	2875
Mean	0.1065	0.4690	0.0640	1.42×10^{9}	0.1705	0.1113	0.1180	0.0844
Minimum	-0.7930	0.0000	0.0004	7.55×10^{6}	0.0000	0.0008	-0.7220	-0.5045
Maximum	1.2500	19.8065	1.4798	2.78×10^{10}	0.8438	9.6905	1.2580	0.8158
Std. Dev.	0.2854	0.8542	0.0608	2.88×10^{9}	0.1599	0.2529	0.2923	0.1143
Count (***n* = *5***)	2482	2482	2482	2482	2482	2482	2482	2482
Mean	-0.2269	0.4874	0.0601	1.53×10^{9}	0.1830	0.1046	0.1111	0.0671
Minimum	-3.4200	0.0000	0.0002	7.55×10^{6}	0.0000	0.0005	-0.7244	-0.4853
Maximum	1.8329	21.1579	1.4798	2.77×10^{10}	0.8434	5.2796	2.5235	0.6902
Std. Dev.	0.8627	0.9970	0.0663	2.95×10^{9}	0.1637	0.1912	0.3075	0.1131

The variables are future earnings growth from year *t* to year *t+n*, dividend payout ratio, return on assets, size, debt ratio, earnings yield, past earnings growth from year *t–n* until year *t*, and future assets growth from year *t* to year *t+n*, where *n* = 1, 2, 3, 4, 5. All of the data presented in Table 2 has been treated for outliers. Model 1 (*n*=1) has the highest number of observation (N = 7,523) while Model 5 (*n*=5) is the lowest (N = 2,482). The difference is due to the dynamic formula used to compute the future earnings growth ($FEG_{t,n}$), past earnings growth ($PEG_{-n,t}$), and future assets growth ($FAG_{t,n}$).

The average value of future earnings growth shows alternating sign, where FEG (*n*=1,3,5) have negative values, while (*n*=2,4) have positive values, which is consistent with earnings mean reversion characteristics. The average payout ratio ranges from 44.05% (*n*=1) to 48.74% (*n*=5). The values suggest that Malaysian firms return almost half of their earnings in the form of cash dividend to their shareholders. The sample also shows that the average profitability rate, measured by ROA, is between 6 percent to 7 percent in all models (*n*=1,2,3,4,5), indicating a stable pattern in earnings generation. Our sample has an average size of RM1.25 billion, ranging from RM4.5 million to RM28 billion. These values reflect our sample that includes all listed firms in Malaysia, from both MESDAQ and the Main Market. The mean debt ratio in all models is close to 18%, suggesting that on average, Malaysian firms tend to finance one-fifth of their assets using debt. Firms also able to give an average of 11% return for every RM1.00 invested by their shareholders, indicated by the value of earnings yield. Past earnings growth consistently shows positive sign in all models, ranging from 66% (n=1) to 11% (n=5). Firm's investment in assets, measured by future assets growth, shows an average value of 10.28% across all models. In summary, Malaysian firms show mean reversion pattern in their future earnings, pay almost half of their income as dividend, and have profitability rate around 6%. The firms have an average size of half billion ringgit, use less leverage in their capital mix, and yield around 11% as earnings from its market price. Firms also reported positive past earnings growth rate and annually expand their assets.

5. Findings

We use correlation analysis to estimate univariate associations between variables used in this study, and present the results in Table 3. The results show that there is no two-variable with a correlation value that is higher than 0.8 (strong relationship) or 0.5 (moderate relationship) in all models. The highest correlation value is between ROA and DEBTR, ranging from -0.2614 (n=5) to -0.3157 (n=1).

Table 3
Correlation Analysis

	FEG$_{t, t+1}$	DPR$_t$	ROA$_t$	SIZE$_t$	DEBTR$_t$	EYIELD$_t$	PEG$_{t-1, t}$	FAG$_{t, t+1}$
FEG$_{t, t+1}$	1.0000							
DPR$_t$	-0.0904***	1.0000						
ROA$_t$	0.0434***	-0.1129***	1.0000					
SIZE$_t$	0.0347***	0.0027	-0.0889***	1.0000				
DEBTR$_t$	-0.0391***	-0.0355***	-0.3157***	0.2765***	1.0000			
EYIELD$_t$	-0.0031	-0.0826***	0.0980***	0.0356***	0.0521***	1.0000		
PEG$_{t-1, t}$	0.0026	-0.0942***	0.1105***	0.0039	0.0303***	0.0900***	1.0000	
FAG$_{t, t+1}$	0.0750***	-0.0215*	0.0134	-0.0225*	-0.0111	-0.0001	-0.0070	1.0000
	FEG$_{t, t+2}$	DPR$_t$	ROA$_t$	SIZE$_t$	DEBTR$_t$	EYIELD$_t$	PEG$_{t-2, t}$	FAG$_{t, t+2}$
FEG$_{t, t+2}$	1.0000							
DPR$_t$	0.2867***	1.0000						
ROA$_t$	-0.2819***	-0.1027***	1.0000					
SIZE$_t$	0.0005	-0.0110	-0.0927***	1.0000				
DEBTR$_t$	0.0781***	-0.0599***	-0.3073***	0.2606***	1.0000			
EYIELD$_t$	-0.1263***	-0.0949***	0.0713***	0.0386***	0.0961***	1.0000		
PEG$_{t-2, t}$	-0.2355***	-0.2456***	0.2517***	0.0311**	0.0110	0.1444***	1.0000	
FAG$_{t, t+2}$	0.2147***	-0.0731***	0.0969***	-0.0891***	0.0020	-0.0412***	0.0733***	1.0000
	FEG$_{t, t+3}$	DPR$_t$	ROA$_t$	SIZE$_t$	DEBTR$_t$	EYIELD$_t$	PEG$_{t-3, t}$	FAG$_{t, t+3}$
FEG$_{t, t+3}$	1.0000							
DPR$_t$	0.1237***	1.0000						
ROA$_t$	0.0513***	-0.0994***	1.0000					
SIZE$_t$	0.0799***	-0.0164	-0.0505***	1.0000				
DEBTR$_t$	-0.1221***	-0.0551***	-0.2977***	0.2476***	1.0000			
EYIELD	-0.0026	-0.0886***	0.0918***	0.0349**	0.0505***	1.0000		
PEG$_{t-3, t}$	-0.0140	-0.2585***	0.3162***	0.0728***	-0.0042	0.1386***	1.0000	
FAG$_{t, t+3}$	0.2465***	-0.0515***	0.1281***	-0.0269*	-0.0798***	0.0284*	0.1056***	1.0000
	FEG$_{t, t+4}$	DPR$_t$	ROA$_t$	SIZE$_t$	DEBTR$_t$	EYIELD$_t$	PEG$_{t-4, t}$	FAG$_{t, t+4}$
FEG$_{t, t+4}$	1.0000							
DPR$_t$	0.2346***	1.0000						
ROA$_t$	-0.2756***	-0.0645***	1.0000					
SIZE$_t$	-0.0282	0.0028	-0.0195	1.0000				
DEBTR$_t$	0.0148	-0.0719***	-0.2579***	0.2460***	1.0000			
EYIELD$_t$	-0.1299***	-0.0825***	0.0534***	0.0338*	0.0552***	1.0000		
PEG$_{t-4, t}$	-0.2921***	-0.2796***	0.3088***	0.1076***	0.0062	0.1369***	1.0000	
FAG$_{t, t+4}$	0.2255***	-0.0631***	0.1056***	-0.0206	-0.0860***	0.0104	0.1550***	1.0000
	FEG$_{t, t+5}$	DPR$_t$	ROA$_t$	SIZE$_t$	DEBTR$_t$	EYIELD$_t$	PEG$_{t-5, t}$	FAG$_{t, t+5}$
FEG$_{t, t+5}$	1.0000							
DPR$_t$	0.0788***	1.0000						
ROA$_t$	0.0289	-0.0736***	1.0000					
SIZE$_t$	0.0262	-0.0046	-0.0115	1.0000				
DEBTR$_t$	-0.1674***	-0.0256	-0.2614***	0.2257***	1.0000			
EYIELD$_t$	-0.0477**	-0.1051***	0.1384***	0.0758***	0.0737***	1.0000		
PEG$_{t-5, t}$	-0.1124***	-0.2406***	0.2997***	0.1364***	-0.0087	0.1664***	1.0000	
FAG$_{t, t+5}$	0.2765***	-0.0431**	0.1381***	-0.0118	-0.1600***	-0.0709***	0.1333***	1.0000

***Significant at 99% confidence level
**Significant at 95% confidence level
*Significant at 90% confidence level

These relationships suggest a negative relationship between leverage and profitability. We also find positive correlation between DPR and FEG in all models, except for model 1. As for DPR and PEG, we find negative correlation in all models. All of our findings contradict the results of earlier studies (Al-Twaijry, 2007; Ling et al., 2008), in which both find negative correlation between DPR and FEG. As for DPR and PEG, Al-Twaijry (2007) finds no association, while Ling et al. (2008) find positive correlation. The possible explanation for these contradicting results perhaps is the great difference in the number of sample size used. Our study uses information from 1,051 firms, compared with 300 and 100 firms used in Al-Twaijry (2007) and Ling et al. (2008) respectively. Our study also covers a period of 33 years, from 1980 until 2012, which is much longer compared to those of Al-Twaijry (5 years; 2001–2005) and Ling et al. (4 years; 2002–2005). Based on the size of sample and study period, *ceteris paribus*, our results are better to explain the relationship between DPR and FEG, and DPR and PEG in Malaysia.

We also conduct regression analysis to determine the relationship between FEG and payout ratio, as well as the other independent variables. Based on the hypotheses outlined in Table 1, we present only the best statistical models among pooled OLS, fixed-effect, and random-effect models, for each regression model (n=1,2,3,4,5). Fixed-effect model is found to be the best statistical models in all of our dynamic regression models (n=1,2,3,4,5), and the results are presented in Table 4. We find that the payout ratio (DPR) has significant positive effect on future earnings growth in four out of five dynamic models used in this study (n=2,3,4,5). The relationship is negative in the model $FEG_{t,t+n}$ (n=1), but it is not significant. The results suggest that managers use dividend as a tool to convey insiders' information on their firm's future outlook. Firms that have promising business prospects with positive future cash flows would pay more dividends (i.e. higher payout ratio) to reflect their managers' confidence in the firms' future.

Similarly, lower payout ratio reflects managers' pessimistic opinion, giving the investors premonition on the firms' future performance. Profitability (ROA) has significant, negative relationship with the future earnings growth. We postulate that this is a sign of earnings mean reversion, where firms that currently experience high profitability rate are not able to sustain their level of profitability in the future, and thus, resulting in lower future earnings and explain the negative relationship with FEG.

Firm's size (SIZE) shows significant, negative relationship with future earnings growth. This indicates that small firms will likely to experience higher level of earnings growth than the larger firms. Our results are consistent with the findings from earlier studies (Zhou & Ruland, 2006; DeAngelo et al., 1996; Chan et al., 2003) and can be explained by the business life cycle theory, in which mature (larger) firms tend to demonstrate weaker growth than the younger (smaller) firms. Leverage, proxied by debt ratio (DEBTR), shows significant, positive relationship with future earnings growth in three out of five dynamic models used in this study (n=2,4,5). The results suggest that firms with greater portion of debt in their capital structure will likely to enjoy greater earning growth in the future. This could be explained by the agency theory, in which increased leverage will increase creditors' monitoring activities over the managers' decision. This motivates the managers to invest only in projects with positive net present value (NPV), resulting in greater earnings in the future.

Earnings yield (EYIELD) measures firms' investment opportunities. The results show that EYIELD has significant, negative relationship with the future earnings growth, consistent with (Zhou & Ruland, 2006; Flint et al., 2010). This relationship is as we expected, since firms with less investment prospects will probably being unable to sustain positive earnings in the future, due to the absence of positive cash flows from their projects. Past earnings growth (PEG) is used to measure the existence of mean reversion in earnings. The results show that PEG has significant, negative effect on the future earnings growth. The findings support earnings mean reversion, suggesting that in a competitive market, a firm cannot consistently outperform its competitors. Abnormally high/low earnings growth in comparison with the market or industry is only temporary and not sustainable. Future assets growth (FAG) measures firms' ability to generate revenue. The results show that FAG has significant, positive effect on earnings growth. The results imply that to support higher future earnings, firms need to expand their assets. More assets increase firms' production capacity, which in turn will generate more revenue and subsequently higher earnings. In other words, firms that want to enjoy higher future earnings growth must first expand their assets, so that the targeted growth rate is achievable and sustainable.

Table 4
Regression Analyses

	$FEG_{t,t+n}$ (n=1) *1051 cross-sectional units 31 years*	$FEG_{t\ t+n}$ (n=2) *834 cross-sectional units 29 years*	$FEG_{t,t+n}$ (n=3) *853 cross-sectional units 27 years*	$FEG_{t,t+n}$ (n=4) *603 cross-sectional units 25 years*	$FEG_{t,t+n}$ (n=5) *549 cross-sectional units 23 years*
Constant	14.8836*** (<0.0001)	1.4808*** (0.0003)	1.5492** (0.0238)	0.7592** (0.0121)	1.4190** (0.0388)
DPR_t	-0.5593 (0.1640)	0.1489*** (<0.0001)	0.1172*** (<0.0001)	0.0618*** (<0.0001)	0.0495* (0.0559)
ROA_t	0.4803 (0.7963)	-4.6282*** (<0.0001)	-2.5739*** (<0.0001)	-1.7397*** (0.0004)	-0.8707*** (0.0002)
$SIZE_t$	-0.7393*** (<0.0001)	-0.0557*** (0.0073)	-0.0897*** (0.0098)	-0.0311** (0.0377)	-0.0852** (0.0144)
$DEBTR_t$	-0.6211 (0.4943)	0.2454* (0.0566)	0.0606 (0.7371)	0.2600*** (0.0007)	0.5252** (0.0437)
$EYIELD_t$	-1.6197*** (0.0006)	-0.4591*** (0.0041)	-0.0895 (0.1955)	-0.1470** (0.0414)	-0.0032 (0.9650)
$PEG_{t-n,t}$	-0.0885*** (<0.0001)	-0.1379*** (<0.0001)	0.0147 (0.6897)	-0.2263*** (<0.0001)	-0.4019*** (<0.0001)
$FAG_{t,t+n}$	0.1419 (0.3856)	0.7121*** (<0.0001)	1.2468*** (<0.0001)	0.6629*** (<0.0001)	0.9422*** (0.0059)
R-squared	0.2621	0.4319	0.5399	0.5647	0.6000
Adj. R-squared	0.1415	0.3207	0.4353	0.4476	0.4847
Observations	7523	5132	4638	2875	2482
F-test	2.4191*** (<0.0001)	15.3433*** (<0.0001)	256.422*** (<0.0001)	20.0217*** (<0.0001)	119.618*** (<0.0001)
Breusch-pagan test	0.06876 (0.7931)	24.7757*** (<0.0001)	253.982*** (<0.0001)	129.949*** (<0.0001)	164.253*** (<0.0001)
Hausman test	194.811*** (<0.0001)	202.103*** (<0.0001)	111.959*** (<0.0001)	76.7027*** (<0.0001)	119.688*** (<0.0001)

***Significant at 99% confidence level
**Significant at 95% confidence level
*Significant at 90% confidence level

6. Conclusion

Our study has investigated the effect of dividend payout ratio on future earnings growth, using firm-level financial data on Malaysian listed firms. We were motivated by Zhou and Ruland (2006) who found positive relationship between earnings growth and dividend payout, in which their findings directly contest the conventional theory (i.e. the dividend discount model) in finance. In our study, we have applied panel-data analysis methodology to estimate the relationships between variables, which are more informative than the pooled-OLS method employed in Zhou and Ruland (2006). We have used a large sample of firms listed in Malaysia, both active and inactive firms, from 1980 until 2012, and to the extent of our knowledge, this is more extensive than any other previous studies conducted on earnings growth and payout ratio in Malaysia (Al-Twaijry, 2007; Ling et al., 2008). We also controlled for other factors that may affect future earnings such as profitability, firm size, leverage, investment opportunity, mean reversion, and assets growth.

We have found significant positive relationship between the payout ratio and future earnings growth, in four out five dynamic models (n=2,3,4,5) tested in this study. Our findings support the signaling theory that suggests managers use dividends as a mean to convey their private information to the shareholders, resulted in higher earnings growth in the future. Our findings also reject the common perception that in order to achieve higher level of growth, firms must pay less dividends to their shareholders. We also found significant relationships between all of our control variables with the future earnings growth in at least three dynamic models. Overall, our findings are consistent with those of Zhou and Ruland (2006). The relationship between earnings growth and payout ratio should be estimated using other statistical methods such as the vector-error correction model (VECM) for future research, to give further supports to the existing evidence. Future researchers should incorporate data from various developed and developing countries to test the generalizability of the results.

Acknowledgement

The research was made possible from the funding provided by the Research Institute and Management Centre (RIMC) and Universiti Utara Malaysia.

References

Al-Twaijry, A. A. (2007). Dividend policy and payout ratio: evidence from the Kuala Lumpur stock exchange. *The Journal of Risk Finance*, *8*(4), 349–363.

Annuar, M.N., & Shamser, M. (1993). The dividend and earnings behaviour of firms on the Kuala Lumpur Stock Exchange. *Pertanika Journal of Social Science & Humanities*, *1*(2), 171–177.

Bhattacharya, S. (1979). Imperfect information, dividend policy, and the bird in hand fallacy. *The Bell Journal of Economics*, 10(1), 259–270.

Chan, L. K. C., Karceski, J., & Lakonishok, J. (2003). The level and persistence of growth rates. *The Journal of Finance*, 58(2), 643–684.

DeAngelo, H., DeAngelo, L., & Skinner, D. (1996). Reversal of fortune – dividend signalling and the disappearance of sustained growth. *Journal of Financial Economics*, *40*(3), 341–371.

Fama, E. F., & French K. R. (2000). Forecasting profitability and earnings. *The Journal of Business*, *73*(2), 161– 175.

Flint, A., Tan, A., & Tian, G. (2010). Predicting future earnings growth – a test of the dividend payout ratio in the Australian market. *The International Journal of Business and Finance Research*, *4*(2), 43–58.

Freeman, R. N., Ohlson, J. A., & Penman, S.H. (1982). Book rate-of-return and prediction of earnings changes – an empirical investigation. *Journal of Accounting Research*, *20*(2), 639–653.

Gordon, M. J. (1959). Dividends, earnings, and stock prices. *The Review of Economics and Statistics*, *41*(2), 99–105.

Grafarend, E. W. (2006). *Linear and nonlinear models fixed effects, random effects, and mixed models*. Berlin: Walter de Gruyter.

Hsiao, C. (2003). *Analysis of panel data*. 2nd ed. New York: Cambridge University Press.

Ling, F.S., Mutalip, M. L. A., Shahrin, A. R., & Othman M. S. (2008). Dividend policy - evidence from public listed companies in Malaysia. *International Review of Business Research Papers*, *4*(4), 208–222.

Miller, M. H., & Modigliani, M. (1961). Dividend policy, growth, and the valuation of shares. *The Journal of Business, 34*(4), 411–433.

Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, *13*(2), 187–221.

Pandey, I. M. (2003). Corporate dividend policy and behaviour – the Malaysian evidence. *Asian Academy of Management Journal*, *8*(1), 17–32.

Pukelsheim, F. (1994). The three sigma rule. *The American Statistician*, *48*(2), 88–91.

Short, H., Zhang, H., & Keasey, K. (2002). The link between dividend policy and institutional ownership. *Journal of Corporate Finance*, *8*(2), 105–122.

Zhou, P., & Ruland, W. (2006). Dividend payout and future earnings growth. *Financial Analysts Journal*, *62*(3), 58–69.