Does a Dividend Ratchet Effect Exist at the Firm Level?

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The "ratchet effect" refers to the notion that firms are slow to cut dividends, and will only increase dividends when future earnings are expected to be high enough to permanently support a higher dividend in the future. An implication of the ratchet effect is that firms strive toward maintaining a long-term target dividend payout ratio. Using cross-sectional analysis on data for U.S. dividend paying firms from 1962-2012, we test for the existence of the ratchet effect at the firm level by examining the relationship of deviations from long-term target dividend payout ratios with future changes in earnings and future changes in dividends. We find that when the current payout ratio is below the long-term target dividend payout ratio, earnings growth remains stable in the future while dividend growth increases in the future, thus moving future payout ratios upward and closer to the long-term target dividend payout ratio. Conversely, when the current payout ratio is above the long-term target dividend payout ratio, future earnings growth increases and future dividend growth decreases, thus moving future payout ratios downward and closer to the long-term target dividend payout ratio. Additionally, positive payout ratio deviations signal higher future earnings growth for up to 5 years. Collectively, our findings suggest that firms are slow to cut dividends, and will increase dividends only if supported by higher expected future earnings growth, behaviours consistent with the existence of a ratchet effect.

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1. Introduction

The payment of dividends is a simple concept, but the motivations underlying the process of how companies choose and implement their dividend payout policy is quite complex. The importance of understanding dividend payout policy is still of extreme importance, however, because in 2014, 84% of S&P 500 companies are expected to pay dividends, the highest rate of participation since 1997 (Cox, 2014).

In this paper, we examine one aspect of dividend payout policy, the so-called "ratchet effect". The ratchet effect, as first introduced by Lintner (1956), suggests that firms are slow to cut dividends, and will increase dividends only if supported by higher expected future earnings growth. In other words, once managers increase, or "ratchet up", the dividend level, they do not want to be forced to reduce dividends in the future as a result of insufficient earnings. An implication of the ratchet effect is that firms strive toward maintaining a long-term target dividend payout ratio.

In the context of the ratchet effect, changes in the dividend level of the firm are believed to act as a signal of future earnings. Since managers are insiders of the firm, they are presumed to have better knowledge of potential future earnings growth relative to shareholders of the firm. This may explain, in part, why the market often reacts favorably to announcements of increases in the dividend level and unfavorably to announcements of decreases in the dividend level. This notion is often referred to in the literature as the information content hypothesis.

The purpose of this paper is to empirically examine the existence of Lintner's (1956) ratchet effect at the firm level and seeks to discover if firms do, on average, attempt to maintain a long-term target dividend payout ratio. Using firm-level data for publicly traded U.S. dividend-paying firms from 1962-2012, we find support for the ratchet effect. We find that when a firm's current dividend payout ratio is above its long-term target dividend payout ratio, earnings growth is higher for up to five years

in the future, and dividend growth is relatively flat in the future, effectively moving future dividend payout ratios downward and closer to the long-term target dividend payout ratio. Conversely, when a firm's current dividend payout ratio is below the long-term target dividend payout ratio, dividend growth tends to be higher in the future and earnings growth tends to be relatively flat, effectively moving future dividend payout ratios upward and closer to the long-term target dividend payout ratio. Collectively, our results provide support for the existence of the ratchet effect and the targeting of a long-term dividend payout ratio at the firm level.

We make two important contributions in this paper. First, we extend both the length and breadth of the samples of previous work on the ratchet effect at the firm level. In a related study, Shirvani and Wilbratte (1997) study the ratchet effect using a sample of S&P 500 firms from 1948-1994. The markets and economic environment have changed considerably since 1994, however, as there have been numerous stock market crashes, a financial crisis, and major tax law changes with respect to the taxation of dividends. Our sample runs through 2012 and covers all dividend paying firms in the Compustat universe (not just large S&P 500 firms). Second, we employ the use of interactive dummy variables in our empirical procedures to estimate separate coefficients for firms that are either above or below their target payout ratio. In doing so, we are able to examine the relationship between future earnings and future dividends with the long-term dividend payout ratio, conditional upon whether the firm is currently above or below its long-term target.

The remainder of the paper is organized as follows. Section 2 summarizes the relevant literature. Section 3 describes the data used in the study. Section 4 describes the methodology and empirical results, and Section 5 concludes.

2. Literature Review

Lintner (1956) was the first to introduce the concept of a "ratchet effect", which is consistent with the notion of a long-term target payout ratio[1]. In contrast, Miller and Modigliani (1961) claim there is no optimal dividend policy at the firm level, and that dividend policy is essentially irrelevant in the eyes of investors. However, if dividends are irrelevant, then why do so many companies continue to pay dividends? This question becomes even more paradoxical when taken in the context of the fact that throughout much of U.S. capital market history, dividends received by investors were taxed at rates higher than capital gains[2]. Black (1976) refers to this contradiction as the "dividend puzzle".

One possibility is that maintaining or increasing dividends over time reduces risk in the eyes of the investor. Brav, Graham, Harvey, and Michaely (2005) find that 77.9% of companies do not wish to make dividend changes that could be reversed in the future. This implies that investors should expect that firm dividend policy reflects long-run earnings ability. This is the same idea behind Lintner's (1956) proposed ratchet effect, and suggests that a target payout ratio should exist for most firms.

The existence of firm level ratchet effect is complemented by the information content hypothesis of dividend payments, which suggests that dividends act as a predictor of future earnings. However, empirical evidence on the ability of dividends to signal future earnings is mixed[3]. For example, studies such as Ofer and Siegel (1987), Healy and Palepu (1988), and Nissim and Ziv (2001) find that increases in a firm's dividends are related to higher future profitability. At the aggregate level, Arnott and Asness (2003) find that expected future earnings growth, as measured by earnings per share on an index fund holding the S&P 500, has a positive relationship with payout ratios. Survey

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[1] Marsh and Merton (1987) suggest that firms may consider average industry payout ratios when determining a target payout ratio.

[2] Julio and Ikenberry (2004) find that the increased propensity for firms to pay dividends during the early 2000's reflects a reversal from the decline in dividends[2] during the 1990s, as documented by Fama and French (2001). Not surprisingly, the increase in the propensity to pay dividends coincides with a reduction of the tax rate on dividends in May 2003 (Brav, Graham and Harvey, 2008).

[3] Some studies have suggested that dividends actually signal changes in risk instead of changes in earnings. See for example Venkatesh (1989), Dyl and Weigand (1998), Grullon, Michaely, and Swaminathan (2002), and Jones, Gu, and Liu (2014).

results from Brav, Graham, Harvey, and Michaely (2005) also substantiate Lintner's (1956) findings that firms decide to increase dividends when expected future earnings are strong.

Conversely, Benartzi, Michaely, and Thaler (1997) and Grullon, Michaely, Benartzi, and Thaler (2005) find no relationship between dividend changes and future earnings at the firm level. Instead, these studies find that dividend changes reflect the realization of past earnings, rather than as predictor of future earnings. In addition, Grullon, Michaely, and Swaminathan (2002) examine a sample of firms that increase dividends by more than 10%. They find that return on assets is actually lower in the three years following a dividend increase, but that systematic risk of the firm also declines.

Empirical evidence on the reluctance of firms to cut dividends, however, has greater concurrence. The empirical results of Kalay (1980), Ghosh and Woolridge (1988), and Fehrs, Benesh, and Peterson (1988) all support Lintner's ratchet effect, finding that firms are very hesitant to cut dividends, as a firm's stock generally declines substantially when dividend cuts are announced. The decline in stock price accompanying a dividend cut might be related to a signal of lower earnings in the future, or perhaps to the existence of a clientele effect (Miller and Modigliani, 1961).

Only a few studies have specifically examined the existence of a long-term target dividend payout ratio and a ratchet effect for dividends. Shirvani and Wilbratte (1997) find some support for the ratchet effect by examining quarterly data on S&P 500 companies from 1948-1994. Specifically, when current dividends result in a payout ratio that is below the long-term target payout ratio, firms tend to move towards the target payout ratio by increasing dividends. When current dividends result in a payout ratio that is below the long-term target payout ratio, however, firms slow the growth of dividends, allowing earnings to catch up and return the firm to its target payout ratio. In addition, Shirvani and Wilbratte (1997) find that current earnings better explain long-term dividend payout ratios than either cash flow or stock prices.

Wann and Long (2009) provide evidence of the ratchet effect at the aggregate level. Using macroeconomic date obtained from the Federal Reserve's Flow of Funds Release for nonfarm Nonfinancial Corporate Business, Wann and Long (2009) show that aggregate payout ratios signal aggregate future earnings growth for several years in the future. They posit that examining dividends at the aggregate level, instead of the firm level, may filter out the idiosyncrasies of firm-specific earnings information, allowing the general macroeconomic trends to be observed. In specific support of the ratchet effect, Wann and Long show that the ability of aggregate payout ratios to predict future earnings is strongest when the current payout ratio is above its long-term target. This suggests that firms allow higher future earnings to bring the payout ratio back to the long run target, instead of cutting the dividend. In addition, Wann and Long (2009) find that the relationship between the payout ratio and future earnings is affected by aggregate liquidity.

3. Data

3.1. Construction of Sample

We obtain annual financial data for U.S. firms from Compustat for the years 1962 to 2012. Firms in the financial services industry (SIC codes in the 6000s), American Depository Receipts (ADRs), utilities (with SIC codes 4911-4971), and those that do not pay dividends or those that experience negative earnings are excluded from the sample. Financial companies are excluded because regulators have the ability to influence dividend policy, and utilities are excluded due to the regulation of cash levels by some state utility commissions. To control for inflation, all dollar values are converted into constant 2012 dollars using the CPI provided by the Bureau of Labor Statistics. The first five years of data are used for the calculation of five-year rolling average payout ratios for the first year studied in the paper. Therefore, the time frame for the analysis in the study is from 1967 to 2012. Table 1 provides descriptions for the main variables used in the study.

Table 1: Variable Descriptions

Earnings	Earnings are equal to earnings before taxes.
Payout Ratio:	The payout ratio is equal to dividends divided by earnings before taxes.
Target Payout Ratio:	The target payout ratio is equal to the five-year rolling average payout ratio for each firm.
Dividends	Dividends are equal to total dividends paid.
Payout Ratio Deviation:	The payout ratio deviation is equal to the payout ratio minus the target payout ratio.

Notes: This table provides descriptions for the main variables used in this study.

3.2. Variable Descriptive Statistics

Descriptive statistics for the variables analyzed in this study are reported in Table 2. The mean (median) payout ratio is 24.72% (17.31%), suggesting a rightward skew in the distribution. The prior year's 5-year rolling average of cash dividends to earnings is used as a proxy for the firm's target payout ratio. A similar pattern is observed with the target payout ratio, as the mean (median) target payout ratio is 33.1% (17.04%). The percentage difference in the current payout ratio from the target payout ratio is captured by the variable *ln(Payout /Target Payout),* and has a mean (median) value of 7.80% (3.42%). The percentage changes in future earnings are reflected by the variables $\Delta ln(Earnings_{t+j})$, where j ranges from 1 to 5 years in the future. The percentage changes in future dividends are reflected in a similar fashion using the variables $\Delta ln(Dividends_{t+j})$, with j again ranging from 1 to 5 years in the future. Note that on average, both earnings and dividends tend to have positive future growth.

Table 2: Descriptive Statistics of the Sample

Variable	Mean	25th Quartile	Median	75th Quartile	Standard Deviation	*N*
Earnings ($million)	412.26	7.38	43.29	204.61	1761.68	64,470
Payout Ratio	24.72%	7.14%	17.31%	30.12%	651.79%	64,463
Target Payout Ratio	33.11%	4.83%	17.04%	29.93%	1627.70%	65,617
ln(Payout /Target Payout)	7.80%	-31.32%	3.42%	43.46%	112.28%	55,074
Payout - Target Payout	-8.97%	-6.61%	0.45%	7.91%	1685.64%	64,291
Dividends ($million)	115.77	1.86	8.98	46.38	509.95	66,428
Δln(Earnings$_{t+1}$)	-0.36%	-20.14%	4.87%	25.03%	74.14%	55,637
Δln(Earnings$_{t+2}$)	0.35%	-29.61%	7.29%	37.29%	90.22%	50,506
Δln(Earnings$_{t+3}$)	1.63%	-35.46%	8.85%	45.83%	98.53%	46,599
Δln(Earnings$_{t+4}$)	3.22%	-38.56%	10.69%	52.45%	104.68%	43,382
Δln(Earnings$_{t+5}$)	4.97%	-40.04%	13.05%	58.52%	109.02%	40,421
Δln(Dividends$_{t+1}$)	4.19%	-4.82%	1.33%	13.03%	57.74%	60,319
Δln(Dividends$_{t+2}$)	6.96%	-8.71%	4.25%	23.99%	71.40%	55,319
Δln(Dividends$_{t+3}$)	9.53%	-11.99%	7.47%	33.77%	81.84%	50,937
Δln(Dividends$_{t+4}$)	12.50%	-14.42%	10.80%	42.57%	89.17%	47,062
Δln(Dividends$_{t+5}$)	15.45%	-16.76%	13.99%	51.12%	95.56%	43,529

Notes: This table provides descriptive statistics that summarize the sample data for the time period 1967-2012. N is the number of non-missing observations for each variable in the sample.

4. Methodology and Empirical Results

Higher-than-target payout ratio deviations occur when the current payout ratio is greater than the target payout ratio. Lower-than-target payout ratio deviations occur when the current payout ratio is less than the target payout ratio. The ratchet effect suggests that if a firm's current payout ratio is above the long-term payout ratio, to bring the ratio back down to target either future earnings

must increase or future dividends must decrease. Since firms are reluctant to cut dividends (Kalay, 1980), if a firm's current payout ratio is above its target payout ratio, we expect this will be a signal of higher earnings growth in the future. Higher future earnings growth will bring the payout ratio in future years back towards the target payout ratio.

Conversely, if a firm's current payout ratio is below the target ratio, either future earnings must decrease or future dividends must increase. In this instance, we expect that firms will tend to increase dividends in order to bring the payout ratio back towards the target payout ratio.

4.1. Do Payout Ratio Deviations from Target Predict Future Earnings Growth?

We first examine whether there is a relationship between payout ratio deviations and future earnings growth by estimating annual cross-sectional regression from 1967-2012 (a total of 45 regressions). This procedure follows the methodology of Fama and MacBeth (1973). Additionally, we use Maximum Likelihood Estimation (MLE) to control for the nonlinear patterns in the behavior of earnings as discussed in Brooks and Buckmaster (1976), Elgers and Lo (1994), and Fama and French (2000). The following regressions are estimated using MLE with corrections for autocorrelated errors:

$$\Delta\ln(\text{Earnings})_{i,t+j} = \alpha_i + \beta_i[\ln(\text{Payout}_{i,t}/\text{Target Payout}_{i,t})] + \varepsilon_{i,t} \quad (1)$$

The dependent variable, $\Delta ln(Earnings_{i,t+j})$, reflects the cumulative percentage change in earnings before taxes in the future period $t+j$ where j denotes the number of future years used in the summation. We perform five sets of regressions for j = 1 through 5. The independent variable, $ln(Payout_{i,t}/Target\ Payout_{i,t})$, represents the percentage deviation of the current payout ratio from the target payout ratio for each firm i. The current payout ratio is equal to dividends divided by earnings before taxes in the current year. The target payout ratio is equal to the five-year historical rolling average payout ratio by firm.

We do not imply that firms manage payout ratios over dividend payments. The five-year rolling payout ratio is chosen to allow for payout ratios to change down even if dividend payments are steady or increasing depending on earnings. A completely constant payout ratio would imply significant variability in dividend payments if earnings are volatile, which is contrary to signaling theories and the evidence of stickiness of dividends. We posit that changes in payout ratios relative to five-year rolling average payout ratios signal future earnings and dividend changes. Additionally, the usage of five years allows for a dynamically changing target payout ratio and a larger number of yearly regressions for statistical significance.

The results of equation (1) regressions are presented in Table 3. Reported coefficients reflected the average coefficients across all 45 annual regressions, and t-statistics are computed as described in Fama and MacBeth (1973). Of particular interest is the sign, magnitude and statistical significance of the average yearly estimated β. If managers exhibit a ratchet effect with respect to a firm's dividend policy, then the coefficient β should be positive, as higher-than-target payout ratio deviations will be positively related to future earnings growth. The coefficient is positive and statistically significant at the 1% level for all five regressions. Moreover, β exhibits a monotonic upward trend as the period over which the change in earnings is computed widens.

As previously discussed, whether the current payout ratio is above or below the target payout ratio may influence the relationship between the payout ratio deviation and future earnings. To account for this possibility, we introduce interactive dummy variables into the regression equation to capture when the payout ratio is higher than target (H) and lower than target (L). The following regressions are estimated:

$$\Delta\ln(\text{Earnings}_{i,t+j}) = a_i + \phi_i[\ln(\text{Payout}_{i,t}/\text{Target Payout}_{i,t})*H_{i,t}] + \gamma_i[\ln(\text{Payout}_{i,t}/\text{Target Payout}_{i,t})*L_{i,t}] + \varepsilon_{i,t} \quad (2)$$

where H=1 if the current payout ratio is above the target payout ratio, otherwise H=0, and L=1 if the current payout ratio is below the target payout ratio, otherwise L=0. Equation (2) is once again estimated annually using MLE and the methodology of Fama and MacBeth (1973).

The results of equation (2) regressions are presented in Table 4. Reported coefficients reflected the average coefficients across all 45 annual regressions, and t-statistics are computed as described in Fama and MacBeth (1973). The coefficients ϕ and γ reflect the impact of higher-than-target payout deviations and lower-than-target payout deviations, respectively, on future earnings growth.

Table 3: Future Growth in Earnings and Payout Ratio Deviations from Target

Dependent Variable	α Intercept	β ln(Payout$_{i,t}$/Target Payout$_{i,t}$)	Average R^2
Δln(Earnings$_{i,t+1}$)	-0.0298	0.0786***	3.25%
Average n = 1,084			
N= 45 Yearly Regressions			
Δln(Earnings$_{i,t+2}$)	-0.0110	0.1248***	4.79%
Average n = 1,019			
N= 44 Yearly Regressions			
Δln(Earnings$_{i,t+3}$)	-0.0023	0.1497***	5.45%
Average n = 969			
N= 43 Yearly Regressions			
Δln(Earnings$_{i,t+4}$)	0.0119	0.1542***	5.24%
Average n = 928			
N= 42 Yearly Regressions			
Δln(Earnings$_{i,t+5}$)	0.0325	0.1612***	4.85%
Average n = 889			
N= 41 Yearly Regressions			

Notes: Over the time period 1967 to 2012, this table reports the average coefficients of firm level regressions of the growth in future profits before tax against the natural log of yearly payout ratios. N is the number of yearly regressions performed. The average number of observations used in the yearly regressions is represented by n.

The coefficients for ϕ are positive and statistically significant at the 1% level in all five regression models. This suggests that as higher-than-target ratio deviations become larger, the increase in future earnings is larger. The results are consistent with the existence of a ratchet effect, and are also consistent with those reported previously in Table 3. Additionally, the coefficients also exhibit a monotonic trend similar to that in Table 3, where the magnitude of the coefficients increase as the period over which the change in earnings is computed widens.

The coefficients for γ are also positive in all five regression models, however, none of the coefficients are statistically significant. Thus, we conclude that lower-than-target ratio deviations are not associated with future earnings.

4.2. Do Payout Ratio Deviations from Target Predict Future Dividend Growth?

Having shown that deviations from target payout ratios, particularly higher-than-target deviations, are positively associated with future changes in earnings, we explore whether payout ratio deviations are related to changes in future dividends. The ratchet effect suggests that when lower-than-target payout ratios exist, future dividends will increase in order to move the dividend payout ratio back closer to target. We modify the equation (2) by replacing the dependent variable, the percentage change in future earnings, with the percentage change in future dividends. Accordingly, the following cross-sectional regression is estimated:

$$\Delta\ln(\text{Dividends}_{i,t+j}) = \alpha_i + \lambda_i[\ln(\text{Payout}_{i,t}/\text{Target Payout}_{i,t})*H_{i,t}] + \theta_i[\ln(\text{Payout}_{i,t}/\text{Target Payout}_{i,t})*L_{i,t}] + \varepsilon_{i,t} \quad (3)$$

The dependent variable in equation (3), $\Delta ln(Dividends_{i,t+j})$ reflects the cumulative percentage change in dividends in the future period $t+j$ where j denotes the number of future years used in the summation. We perform five sets of regressions for j=1 through 5. Similar to equation (2), H=1 if the current payout ratio is above the target payout ratio, otherwise H=0, and L=1 if the current payout ratio is below the target payout ratio, otherwise L=0. Equation (3) is once again estimated annually using MLE and the methodology of Fama and MacBeth (1973).

Table 4: The Ratchet Effect and Future Growth in Earnings

Dependent Variable	α Intercept	ϕ ln(Payout$_t$/Target Payout)*H	γ ln(Payout$_t$/Target Payout)*L	Average R^2
Δln(Earnings$_{t+1}$)	-0.0462	0.1490***	0.0143	4.98%
Average n = 1,083				
N= 45 Yearly Regressions				
Δln(Earnings$_{t+2}$)	-0.0556	0.2248***	0.0194	7.04%
Average n = 1,018				
N= 44 Yearly Regressions				
Δln(Earnings$_{t+3}$)	-0.0544	0.2675***	0.0256	7.75%
Average n = 968				
N= 43 Yearly Regressions				
Δln(Earnings$_{t+4}$)	-0.0429	0.2748***	0.0150	7.07%
Average n = 923				
N= 42 Yearly Regressions				
Δln(Earnings$_{t+5}$)	-0.0268	0.2987***	0.0070	6.65%
Average n = 888				
N= 41 Yearly Regressions				

Notes: Over the time period 1967 to 2012, this table reports the average coefficients of firm level regressions of the growth in future profits before tax against the natural log of yearly payout ratios. H is a dummy variable, where H=1 represents a payout ratio higher than the target payout ratio. L is a dummy variable, where L=1 represents a payout ratio lower than the target payout ratio. The target payout ratio is the five year rolling average payout ratio. N is the number of yearly regressions performed. The average number of observations used in the yearly regressions is represented by n.

The results from estimating equation (3) are presented in Table 5. The sign, magnitude, and statistical significance of the coefficients λ and θ are important to the research findings. The coefficient λ provides evidence on the relationship between deviations in payout ratios when the deviation is positive, or above the long-term target, with future changes in dividends. The coefficient θ provides evidence on the relationship between deviations in payout ratios when the deviation is negative, or below the long-term target, with future changes in dividends. If managers exhibit a ratchet effect with respect to a firm's dividend policy, then the coefficient θ should be negative, as lower-than-target payout ratio deviations (i.e. negative in sign) should predict higher future dividend growth.

The coefficient λ is negative, suggesting that larger higher-than-target deviations (i.e. positive in sign) result in slower dividend growth in the future. However, λ is not statistically significant at the 5% level for any of the models. The coefficient θ is also negative, and demonstrates statistical significance at the 1% level in all five models. This suggests that as lower-than-target deviations

become larger (i.e. a larger negative number), dividend growth in the future is more positive. Additionally, θ exhibits a monotonic downward trend as the period over which the change in dividends is computed widens. The findings are consistent with firms trying to maintain a long-term target payout ratio.

Note also that the intercept term α is positive and statistically significant in four of the five models. The magnitude of α increases as the period over which the change in dividends is computed widens. This is consistent with firms generally trying to increase their dividend, by at least some amount, as time progresses.

Table 5: The Ratchet Effect and Future Growth in Dividends

Dependent Variable	α Intercept	λ ln(Payout$_t$/Target Payout)*H	θ ln(Payout$_t$/Target Payout)*L	Average R^2
Δln(Dividends$_{t+1}$)	0.0277	-0.0393	-0.1092***	4.05%
Average n = 1,143				
N= 45 Yearly Regressions				
Δln(Dividends$_{t+2}$)	0.0550**	-0.0580	-0.1381***	4.01%
Average n = 1,081				
N= 44 Yearly Regressions				
Δln(Dividends$_{t+3}$)	0.0761***	-0.0678	-0.1688***	4.11%
Average n = 1,025				
N= 43 Yearly Regressions				
Δln(Dividends$_{t+4}$)	0.1006***	-0.0740	-0.1826***	4.16%
Average n = 976				
N= 42 Yearly Regressions				
Δln(Dividends$_{t+5}$)	0.1249***	-0.0653	-0.2170***	4.34%
Average n = 929				
N= 41 Yearly Regressions				

Notes: Over the time period 1967 to 2012, this table reports the average coefficients of firm level regressions of the growth in future dividends against the natural log of yearly payout ratios. H is a dummy variable, where H=1 represents a payout ratio higher than the target payout ratio. L is a dummy variable, where L=1 represents a payout ratio lower than the target payout ratio. The target payout ratio is the five year rolling average payout ratio. N is the number of yearly regressions performed. The average number of observations used in the yearly regressions is represented by n.

4.3. Robustness

There could be alternative explanations for the positive relationship between payout ratio deviations and future earnings growth. For example, if dividends are stable and earnings are mean reverting, then the payout ratio will have a strong positive correlation with future earnings growth. In this situation, a high (low) payout ratio caused by a temporary trough (peak) in earnings would predict higher (lower) future earnings growth when the trough (peak) reversed.

Another possible explanation would be that if earnings are stable and dividends are mean reverting, then the payout ratio would have a strong negative correlation with future dividend growth. This explanation is highly unlikely, however, due to the strong empirical evidence demonstrating that firms are extremely reluctant to cut dividends.

Unreported results provide evidence neither of these possible alternative explanations is plausible, as we find that neither earnings changes nor dividend changes exhibit characteristics of

mean reversion. Moreover, the correlation between the payout ratio and future earnings growth is only +0.05. Finally, the correlation between the payout ratio and future dividend growth is also low (-0.07).

5. Conclusion

Early work by Lintner (1956) suggests that firms strive to maintain a long-term dividend payout ratio by making dividends changes in accordance with a ratchet effect. The ratchet effect implies that firms are slow to cut dividends, and will increase dividends only if supported by higher expected future earnings growth. In this paper, we provide evidence of the ratchet effect at the firm level by examining the relationship between deviations from long-term target dividend payout ratios with both future earnings and future changes in dividends.

We find that when firms have higher-than-target payout ratios, earnings tend to grow at a faster rate for up to five years in the future. In effect, higher-than-target payout ratios signal a firm's confidence that earnings growth will be higher in the future, thus bringing future payout ratios back down to the long-term target payout ratio. When firms have lower-than-target payout ratios, however, there is little to no growth in future earnings. In addition, firms that have lower-than-target payout ratios tend to increase dividends at a higher rate for up to five years in the future, which effectively raises future dividend payout ratios. Collectively, our findings provide support for the notion that firms attempt to maintain a long-term target dividend payout ratio, and that this is accomplished through a process consistent with the ratchet effect.

References

Arnott, R. D., and C. S. Asness, 2003. Surprise! Higher dividends=higher earnings growth. *Financial Analysts Journal* 59, 70-88.

Benartzi, S., G. Grullon, R. Michaely, and R. Thaler, 2005. Dividend changes do not signal changes in future profitability. *Journal of Business* 78, 1659-1682.

Benartzi, S., R. Michaely, and R. Thaler, 1997. Do changes in dividends signal the future or the past? *The Journal of Finance* 52, 1007-1034.

Brav, A., J. R. Graham, and C. R. Harvey, 2008. The effect of the May 2003 dividend tax cut on corporate dividend policy: empirical and survey evidence. *National Tax Journal* 61, 381-396.

Brav, A., J. R. Graham, C. R. Harvey, and R. Michaely, 2005. Payout policy in the 21st century. *Journal of Financial Economics* 77, 483-527.

Brooks, L. D., and D. A. Buckmaster, 1976. Further evidence on the time series properties of accounting income. *Journal of Finance* 31, 1359-1373.

Cox, J., (2014, January 6). Dividend party just getting started on Wall Street, Retrieved January 10, 2014 from http://www.cnbc.com/id/101307702

Dyl, E., and R. Weigand, 1998. The information content of dividend initiations: additional evidence. *Financial Management* 27, 27-35.

Elgers, P. T., and M. H. Lo, 1994. Reductions in analysts' annual earnings forecast errors using information in prior earnings and security returns. *Journal of Accounting Research* 32, 290-303.

Fama, E., and K. French, 2000. Forecasting profitability and earnings, *Journal of Business* 73, 161-175.

Fama, E., and K. French, 2001. Disappearing dividends: Changing firm characteristics or lower propensity to pay? *Journal of Financial Economics* 60, 3-43.

Fama, E., and J. MacBeth, 1973. Risk, return, and equilibrium: Empirical tests. *Journal of Political Economy* 81, 607-636.Fehrs, D., G. Benesh, and D. Peterson, 1988. Evidence of a relation between stock price reactions around cash dividend changes and yields. *Journal of Financial Research* 11, 111-123.

Ghosh, C., and J. R. Woolridge, 1988. An analysis of shareholder reaction to dividend cuts and omissions. *Journal of Financial Research* 11, 281-294.

Grullon, G., R. Michaely and B. Swaminathan, 2002. Are dividend changes a sign of firm maturity? *The Journal of Business* 75, 387-424.

Healy, P., and K. Palepu, 1988. Earnings information conveyed by dividend initiations. *Journal of Financial Economics* 21, 149-175.

Jones, J. S., J. Gu, and P. Liu, 2014. Do dividend initiations signal a reduction in risk? Evidence from the option market. *Review of Quantitative Finance and Accounting* 42, 143-158.

Julio, B., and D. L. Ikenberry, 2004. Reappearing dividends. *Journal of Applied Corporate Finance* 16, 89-100.

Kalay, A., 1980. Signaling, information content and the reluctance to cut dividends. *Journal of Financial and Quantitative Analysis* 15, 855-869.

Lintner, J., 1956. Distributions of incomes of corporations among dividends, retained earnings, and taxes. *American Economic Review* 46, 97-113.

Marsh, T. A., and R. C. Merton, 1987. Dividend behavior for the aggregate stock market. *Journal of Business* 60, 1-40.

Miller, M. H., and F. Modigliani, 1961. Dividend policy, growth, and the valuation of shares. *Journal of Business* 34, 411-433.

Nissim, D., and A. Ziv, 2001. Dividend changes and future profitability. *Journal of Finance* 61, 2111-2134.

Ofer, A., and D. Siegel, 1987. Corporate financial policy, information, and market expectations: An empirical investigation of dividends. *Journal of Finance* 42, 889-911.

Shirvani, H., and B. Wilbratte, 1997. An empirical investigation of asymmetric behavior in corporate dividend policy. *Economic Inquiry* 34, 847-857.

Venkatesh, P., 1989. The impact of dividend initiation on the information content of earnings announcements and return volatility. *Journal of Business* 62, 175-197.

Wann, C., and D. M. Long, 2009. Do liquidity induced changes in aggregate dividends signal aggregate future earnings growth? *Journal of Economics and Finance* 33, 1-12.

Weigand, R. A., and H. K. Baker, 2009. Changing perspectives on distribution policy. *Managerial Finance* 35, 479-492.