

DIVIDEND SIGNALING AND SUSTAINABILITY

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ABSTRACT

Since the 1970s, dividends have not only become less common (Fama and French, 2001), they have become less sticky, too. Today, it is not uncommon for a firm to cease dividend payments within three years of initiation. I examine the differences between firms that continue to pay dividends for a long period of time after initiation and those that do not. Although investors do not distinguish between the two groups at the time of the dividend initiation announcement, the firms that pay over a long period of time experience superior operating performance in subsequent years. I construct a model that predicts, at the time of the initiation announcement, whether a firm is likely to pay dividends well into the future. My predictions also extend to performance; the firms that I predict to pay for a long period of time also outperform those whose payments I predict to be temporary. Thus, it appears that the relationship between dividend stickiness and long-run performance is not fully reflected in stock returns surrounding the announcements of dividend initiations.

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CHAPTER 1: INTRODUCTION

1.1 Introduction to the Signaling Theory

The signaling theory of dividends posits that firms convey their optimism for the future by initiating dividend payments. The basis of this theory derives from a study by Lintner (1956), in which managers from 28 companies were interviewed to determine which factors were most instrumental in firms' payout policies. Lintner found that not only were dividends dependent upon the amount of cash needed to finance projects in the short-term, but that they also represented management's belief in the sustainability of company earnings over the long-term. Thus, managers tended to increase or initiate payouts only when they believed that subsequent earnings would be high.

Empirical evidence indicates that investors respond favorably to dividend increases and initiations; the stock prices of firms that initiate dividends tend to increase around the time of the initiation announcement (see Asquith and Mullins (1983) or Healy and Palepu (1988)). Likewise, the signaling theory implies that any subsequent decrease or elimination of dividends will be viewed with extreme disfavor by the financial markets (Benartzi, Michaely and Thaler (1997), Healy and Palepu (1988), Michaely, Thaler and Womack (1995)). The perception that the market punishes dividend omitting firms more than it rewards dividend initiating firms is, according to Brav, Graham, Harvey and Michaely (2005), the primary cause of dividend "conservatism" – the reluctance of management to increase payments if it feels there is a chance that long-run earnings will not be able to sustain those payments.

Empirical tests of theories concerning the information content of dividends can be traced at least as far back as Watts (1973). Watts studied the impact of dividends on both

stock prices and future earnings to see whether dividends contained any information for investors. Watts found that after conditioning on current and past earnings, dividends could not be used by investors to reliably predict future earnings, and thus concluded: "...in general, the information content of dividends can only be trivial." More recently, Benartzi, Michaely and Thaler (1997) reported that while changes in dividend policy were generally unrelated to changes in future earnings, there was some evidence to suggest that firms that increased dividends were relatively unlikely to experience subsequent earnings *decreases*. They interpret their results to be consistent with the signaling hypothesis; if managers initiate dividends only when they believe that such dividends are sustainable, then we expect that these initiations will rarely be followed by significant earnings decreases. They need not, however, be followed by large increases in profitability.

Bhattacharya (1979) argues that because a company's future cash position is determined by the quality of the projects in which it invests today, the only way that it will commit to a high level of dividends is if those projects are of high quality. Therefore, managers can signal their optimism regarding project quality to investors by declaring a sustainable and preferably high level of dividends. Miller and Rock (1985) follow Bhattacharya's line of reasoning by focusing on the credibility of the signal. The authors argue that almost any firm, regardless of whether its prospects are good, can pay a relatively small dividend to its shareholders. Thus, in order for a dividend to be considered a credible signal of good news, it must be large enough so that only firms that have good prospects can afford to pay it.

1.2 The Free Cash Flow Hypothesis

An alternative view of the relationship between dividends and project quality is implicit in the free cash flow argument detailed by Jensen (1986) among others. The free cash flow argument states that after a firm has invested in all of its positive NPV projects, it should pay out its remaining cash in the form of dividends. By this logic, firms that have few positive NPV projects in which to invest should pay a higher proportion of their current earnings in dividends. DeAngelo, DeAngelo and Stulz (2004) state similarly that managers who do not have good investment opportunities and do not pay dividends quickly create a situation where they very little debt and enormous cash balances. These managers can then easily use their high cash balances to benefit themselves at the expense of the stockholders.

It is important to examine the aforementioned theories of signaling in light of the empirical evidence. A number of studies have documented the market's reaction to changes in dividend policy as positive and statistically significant. Asquith and Mullins (1983) found that companies that initiate dividend payments enjoy abnormal stock returns of 5.1% for the 21-day period surrounding the announcement. Furthermore, Healy and Palepu (1988) found that abnormal stock returns around dividend initiations and omissions are correlated with earnings changes in the year of and year after the dividend announcements. Grullon, Michaely and Swaminathan (2002) found that increases in dividends tend to reflect decreases in the systematic risk of the paying firms. They argued that the concomitant positive stock returns were the market's reward for this reduction in risk. Brickley (1983) examined the market's reaction to what he termed "special dividends," or dividends with unusual codes. This reaction, although favorable, was not as

strong as the reaction to regular dividends, which were more likely to be sustained over a long period of time. Lie (2000) finds that announcement-period returns are directly related to the amount of cash in the firm, particularly for firms with low Q ratios. This result supports the excess funds hypothesis and suggests that investors are well aware of the potential of firms with little growth and much cash to invest in negative NPV projects. Therefore, the payment of dividends may constitute a signal of management's fiscal discipline.

1.3 Outline and Purpose of the Study

This study addresses five questions that have not been thoroughly examined in the existing literature. First, just how sticky are dividends in light of the signaling theory? Second, how closely related is the sustainability of dividends to the future operating performance of the firm? Third, does the market react differently to the initiation announcements of long-term payers than it does to the initiation announcements of short-term payers? Fourth, *can* the market distinguish between long-term and short-term payers at the time of the initial dividend, or are subsequent payments determined merely by luck or some other unpredictable factor? Fifth, to the extent that dividend sustainability can be predicted, can long-run operating performance also be predicted?

In sections II, III and IV of this study, I address the first two questions by examining a sample of companies that paid their first dividend after having not paid any dividends for at least five years. I then divide this sample into two groups of companies. The first group (which I define as "permanent payers") consists of firms that continued to pay dividends for at least seven years following initiation. The second group (termed

“temporary payers”) consists of firms that stopped paying within three years of the initial dividend. Interestingly, the temporary payers outnumbered the permanent payers, particularly among those firms that initiated in the late 1970s and beyond. This decrease in dividend stickiness offers an additional explanation for the decrease in the percentage of firms paying dividends documented by Fama and French (2001). I then compare the long-run operating performance of the temporary payers to that of the permanent payers to see whether the permanent payers outperform the temporary payers in the years following dividend initiation. I find that this is indeed the case; permanent payers enjoy significantly higher earnings in the years subsequent to initiation than do temporary payers.¹

The fifth section of this study compares the announcement-period returns of the two groups to see whether investors distinguish, a priori, between them. If investors can tell which companies are unlikely to continue paying dividends well into the future, then one might expect those companies to have lower abnormal announcement-period returns than companies that are likely to pay for a long time. Furthermore, if dividends are regarded as a signal of future performance, then the credibility of that signal depends to some degree upon the ability of investors to distinguish between companies that can sustain their payments and those that cannot. I find that there is no significant difference between the announcement-period abnormal returns of the temporary firms and those of the permanent firms. Thus it appears that investors do not distinguish between the two groups ex-ante.

¹ Although the relationship between dividend sustainability and firm performance has not been thoroughly examined before, DeAngelo and DeAngelo (1990) conduct an analysis of 80 financially distressed firms and find that most of them subsequently reduced dividends. However, the authors report that even in times of trouble, managers are extremely reluctant to stop paying dividends completely.

In section VI of this study, I examine several variables that are available to investors at the time of initiation and that may distinguish the two groups of companies. Univariate tests report that several of these variables, which relate both to the operating performance of the firm in years prior to the initiation announcement as well as to the initial dividend itself, do contain information regarding the subsequent sustainability of dividend payments. This suggests that even though the market does not differentiate between the two groups ex-ante, there is information available that could help make such a distinction.

Section VII expands on the analysis from section six by employing a rolling logistic model that attempts to predict, out of sample and at the time of the initiation announcement, which firms will become permanent payers. This is done by chronologically dividing the sample into two sub-samples: an “estimation sample” and a “prediction sample,” where information from the estimation sample is fully available to investors by the time the firms in the prediction sample begin to initiate dividends. I find that this information can predict which firms will continue to pay dividends for at least seven years and which firms will not. Thus, it appears that even the existence of severe time-trends, such as the decrease in the propensity to initiate and then sustain payments, does not render such out-of-sample predictions useless. I then compare, in a multivariable logistic framework, the different variables used in my model. This comparison indicates which variables are the most helpful in distinguishing the permanent and temporary payers from one another.

The final section of this study tests whether my model’s predictive value regarding dividend sustainability extends to future profitability. I find that the average annual post-initiation performance of the companies that were predicted to be permanent payers is

higher than that of the companies predicted to be temporary payers. This indicates that not only does dividend sustainability go unrewarded by investors at the time of the initiation announcement but that the relationship between sustainability and future profitability is also not incorporated into firms' announcement period stock returns. This result is inconsistent with the signaling theory in that both dividend sustainability and future operating performance can be predicted.

CHAPTER 2: DATA AND METHODOLOGY

2.1 Sample Selection Procedure

To construct my sample, I begin with monthly CRSP data from 1962 through 2000. For every month within this period, I group all firms into two categories: those that pay dividends and those that do not. A firm is considered to be paying dividends if, at any time during the preceding twelve months, it has paid any U.S. cash dividends, which are denoted by distribution codes ranging from 1200 to 1299.² Other types of distributions, including liquidations, foreign currency dividends, and payments related to mergers and acquisitions are not included for the purposes of this study.

My study then requires that each firm had gone at least five years without paying any dividends prior to the initiation of payments. Similar to Asquith and Mullins (1983) and Healy and Palepu (1983), the requirement of a lengthy non-payment period prior to initiation suggests that the ensuing dividend is more of a surprise to investors. This initial dividend need not be the first in the company's history, however; it can also represent a

² The distribution code gives an indication of the type and expected frequency of a company's payments and is utilized extensively in Brickley (1983). The most common distribution codes encountered in this study are the following: 1212 – unspecified frequency, 1232 – quarterly dividend, 1242 – semi-annual dividend, 1252

resumption of payments after a hiatus of at least five years. For simplicity, I refer to the date on which this resumption or initiation was announced as the “initiation announcement date,” regardless of whether the dividend constituted an initiation or merely a resumption of payments.

2.2 Definition of Temporary Payers and Permanent Payers

I then determine how long each company continued to pay dividends following initiation. Companies that paid dividends for a period of three years or less (including the initial dividend) are classified as “temporary payers,” while companies that paid dividends for more than three but less than or equal to seven years were classified as “intermediate payers.” Companies that paid dividends for more than seven years were considered to be “permanent payers.” All companies with non-missing initiation announcement dates were then merged with the Compustat financial database in order to obtain accounting figures for long-run performance evaluation. At this point, the sample consists of 929 firms. Although my study later omits financial firms, utilities, and intermediate payers for the purpose of testing, it is in the interest of examining a larger, more comprehensive group of dividend initiators that I provide some descriptive statistics for these 929 firms in the next section of this paper.

– annual dividend, 1262 – year-end or final dividend, 1272 – extra or special dividend, and 1292 – non-recurring dividend.

CHAPTER 3: DESCRIPTIVE STATISTICS

3.1 Literature on the Time-Varying Propensity of Firms to Pay Dividends

DeAngelo, DeAngelo and Skinner (2002) report that the aggregate level of real dividends was 16.3% higher in 2000 than it was in 1978, but find that this is the result of dividends becoming increasingly concentrated rather than widely distributed. Although the percentage of companies paying dividends decreased by the end of the twentieth century (a finding consistent with Fama and French (2001), who document that between 1978 and 1999 the percentage of firms paying dividends decreased from 66.5% to 20.8%), the dividends themselves generally became much larger. Julio and Ikenberry (2004) show a reversal of this trend; since 2001, more firms have begun making payments, but the percentage of U.S. firms that pay dividends is still far less than it was in the 1970s.

3.2 Dividend Initiations 1962-2000

There are two potential reasons for this dramatic decline in the percentage of firms that pay dividends - companies may have become less likely to initiate payments, and/or companies that do initiate may have become less likely to continue making payments afterward. Figure 1 corroborates the findings of Fama and French and also lends support to the first explanation; between 1978 and 1982, the number of dividend initiating firms drops from a high of 87 to a low of 15. Though the number of initiating firms begins to increase again after 1982, there are still fewer of them in any two-year period between 1983 and 1993 than there were in 1978 alone, notwithstanding the sharp increase in new listings that occurred after 1978.

3.3 Dividend Sustainability 1962-2000

In addition to the results presented in Figure 1, which are consistent with Fama and French (2001), I also find evidence to support the second explanation for the “disappearing dividends” phenomenon. Between 1967 and 1978, there were 381 companies that initiated dividends. Of these, 134 stopped paying within three years, compared to 86 that paid for between three and seven years and 161 that paid for more than seven years. Thus, prior to 1979, if a firm initiated dividends, it was more likely to continue paying for more than seven years than it was to stop paying within three years. However, for the 470 dividend initiations between 1979 and 1993 (the last year during which a company entering my sample can fall under any of the three categories), temporary payers outnumbered permanent payers 221 to 132, with the other 117 eventually being classified as intermediate payers. Thus, the fact that the average company was less likely to be paying dividends in the mid-1990s than it was in the mid-1970s appears to stem from two trends that have taken place over that period of time. Consistent with Fama and French (2001), companies have become less likely to initiate dividends. In addition to this first explanation, however, it appears that the dividends themselves have become less “sticky” - once initiated, they are less likely to be sustained for many years than they were during the 1970s.

CHAPTER 4: THE LENGTH OF PAYMENTS AND LONG-RUN OPERATING PERFORMANCE

4.1 Introduction and Previous Literature

The signaling theory posits that companies that initiate dividends are sending a positive signal to the capital markets regarding high future cash flows and profits. The credibility of this signal rests with the prevailing view (c.f. Lintner (1956)) that the initiation of dividends represents a commitment to sustained payments. Therefore, the firms that send out a credible signal – that is, the firms whose expected future cash positions are high enough to enable sustained payments – should be the firms that are most rewarded by investors at the time of the initiation announcement. Similar to Healy and Palepu (1986), D'Angelo, D'Angelo and Skinner (1996), and others, I examine the performance of firms in the years surrounding dividend initiation. This study differs from theirs, however, in that it seeks to determine the strength of the relationship between the length of payments and the operating performance of initiating firms, rather than examine the ex-post performance of all initiating firms regardless of payment length. By separating the companies in this sample into two groups based on payment length, the credibility aspect of the signaling theory can be more deeply explored.

4.2 Measures of Operating Performance

I begin by identifying several variables related to firm profitability, investment and growth opportunity. Measures of profitability include (1) operating income before depreciation, (2) cash flow (defined as operating income before depreciation minus interest expense, taxes and preferred dividends), and (3) net income. Each of these three measures

of profitability is standardized separately by assets, sales and common equity, yielding a total of nine different ratios. For simplicity, the results reported in this paper refer to return on assets, defined as operating income before depreciation scaled by total assets, unless otherwise stated. The primary measure of growth and investment that I use is the ratio of the firm's market value to the book value of its assets (hereafter, MTBA). All variables were obtained using the Compustat database from Wharton Research Data Services. Finally, my study eliminates all financial firms and utilities as well as all intermediate payers. My final sample consists of 553 companies that initiated dividends between 1967 and 2000. Of these 553 companies, 240 are classified as permanent payers and 313 are classified as temporary payers.

4.3 Operating Performance Before and After Initiation

Figures 2 and 3 show how the two groups of firms compare over time with regard to return on assets. In each graph, figures from the five years preceding initiation (years -5 through -1), year of initiation (year 0) and five years following initiation (years 1 through 5) are used. Year 0 is defined as the fiscal year during which the initiation announcement took place. The figures show an interesting picture of firm performance. In each of the five years prior to initiation, the return on assets of the average permanent company was higher than that of the average temporary company. However, the two groups experienced simultaneous run-ups during these years. For both groups, the average return on assets was 4-5% higher in the year of initiation than it had been five years earlier.

Following initiation, however, the groups' paths diverge. While the permanent companies experience a mild tapering of profitability between year zero and year five, the

temporary companies' return on assets drops from 14.3% to less than 6% during the same period. By the end of the second year following initiation, the return on assets of the average permanent payer is twice that of the average temporary payer. Figure 3 shows the trend in group medians rather than means, but the pattern is the same. Shortly after the initiation of dividends, the companies that will eventually go on to become permanent payers are already outperforming those that will cease payments within three years. The median graphs for the other eight performance measures are not shown in this paper, but they tell a story similar to that of return on assets. This result extends the findings of DeAngelo and DeAngelo (1990) to dividend omissions and suggests that although distressed firms may be hesitant to cease making payments altogether, they sometimes do so very quickly after initiation.

4.4 Conclusions

In light of Figures 2 and 3, let us again consider the signaling theory's implication that dividends portend a rosy future for the firms that initiate them. Setting aside the differences between temporary and permanent payers for a moment, we can see that for the entire sample, average return on assets actually *decreases* in the five years following initiation. Even for the permanent group, firm performance declines between year zero and year five. These findings are consistent with Grullon, Michaely, Benartzi and Thaler (2005), who find little correlation between changes in dividends and subsequent firm profitability. This suggests that on the basis of ex-post performance, the initiation of dividends should actually convey negative news to the market.

CHAPTER 5: THE LENGTH OF PAYMENTS AND THE ANNOUNCEMENT PERIOD STOCK PRICE EFFECT

5.1 Objective

The previous findings show that, following initiation, the firms that go on to become permanent payers perform better than those that become temporary payers. Therefore, even though the group of permanent payers does not perform particularly well in the post-initiation period, there is still some evidence that dividend sustainability is directly related to future performance. Given this result and the prevailing view that dividend initiation is a positive signal in part because of the implicit suggestion that the payments will persist, I now examine whether investors distinguish, at the time of the initiation announcement, between temporary and permanent payers.

5.2 Abnormal Announcement-Period Returns

Table I shows the announcement-period abnormal returns of permanent and temporary companies for three different window lengths. The first window, (-1,-10), indicates an abnormal return calculation for the ten days just before the initiation announcement. The other windows, (-1,+1) and (-2,+2), respectively represent the three days and five days surrounding the initiation announcement. To mitigate the biases associated with bid-ask bounce and nonsynchronous trading, the average abnormal returns shown for each event window are calculated using the buy-and-hold method.

For the permanent payers, Table I shows three-day and five-day average abnormal returns of 3.10% and 3.67%, respectively. For the temporary payers, the three- and five-day returns are 3.27% and 3.86%, respectively. All of these figures are statistically

significant at the 1% level, constituting further evidence that investors respond favorably to dividend initiations. Additionally, both groups report significant and positive abnormal returns for the ten days immediately preceding the initiation announcement, suggesting that at least some of the news regarding the dividend is being leaked prior to the announcement itself.

When the abnormal returns of the permanent sample are compared to those of the temporary sample, I find that temporary payers experience slightly higher abnormal returns for each of the three event windows. However, the difference is not statistically significant, and thus it does not appear that investors treat temporary firms differently from permanent firms at the time of the initiation announcement.

CHAPTER 6: IS THE DURATION OF PAYMENTS PREDICTABLE?

6.1 Research Question

Up to this point, I have found that even though permanent payers outperform temporary payers in the long run, investors seem not to distinguish between the two groups ex-ante. This raises the following question: can the duration of dividend payments be predicted using only information that is available at the time of the announcement, or is the separation between temporary and permanent payers simply an a posteriori phenomenon, whereby certain companies become luckier and/or more efficient than others, independent of the previous decision to initiate dividends? If the duration of payments can in fact be predicted, then the traditional signaling explanation for the market's reaction to dividends can be called into question. To address this issue, I begin by selecting a few variables that

are available to investors on or before the date of the initiation announcement. The investors could then use this information to form opinions regarding the announcement.

6.2 Variable Selection

The first variables that I select are dividend-specific. Each dividend that a firm pays is accompanied by a “distribution code” at the time of its announcement. This code states whether the dividend is to be paid quarterly, semi-annually or annually, or whether it is an “extra” or “special” distribution and not likely to be repeated. Brickley (1983) assigns these distribution codes to two categories: “specially designated dividends” (SDDs), and regular dividends. SDDs are dividends that the distribution codes label as extra, special or non-recurring, while regular dividends can be expected to continue on a quarterly, semi-annual or annual basis. I take Brickley’s analysis one step further and divide the “regular” category into two groups that I call “specified frequency” and “unspecified frequency.” “Specified frequency” dividends are those specified to be quarterly, semi-annual or annual by their distribution codes. “Unspecified frequency” dividends do not have a specified frequency of payments (e.g. quarterly, annual), but they are not labeled as extra or non-recurring, either. Assuming that the firm’s announcements regarding the frequency of future dividend payments have at least some credibility, I hypothesize that a firm is most likely to become a permanent payer when its initial dividend is of a specified frequency. Firms that don’t specify the frequency of their initial dividends are less likely to become permanent payers, therefore, and initial dividends labeled “extra,” “special” and “non-recurring” are the least likely to become permanent.

The second dividend-specific variable that I will select is the dividend yield. I define dividend yield to be the size of the dividend (per share) divided by the stock price on the date of the initiation announcement. I then annualize the dividend yield on the basis of the stated frequency of payments; if the dividend is announced to be quarterly then I multiply the yield by four, and if the dividend is announced to be semi-annual then I multiply the yield by two. I hypothesize that the higher the dividend yield, the less likely the firm will be to sustain payments over a long period of time, owing to the fact that natural fluctuations in a firm's cash flow will make a high cash outlay more difficult to maintain than a low cash outlay.

For the firm-specific variables, I use measures of operating performance for the period leading up to the initiation announcement, as well as the natural logarithm of total assets, the debt ratio and the market-to-book ratio, to try and differentiate the two groups from one another. Although I have nine different measures of performance, all results reported in this paper are based, for the sake of simplicity, on return on assets.³ I examine performance in two ways; first, I compute the average return on assets over the five years leading up to the initiation announcement, and second, I take the difference between year -5 and year -1. Total assets, the debt ratio, and the market-to-book ratio are calculated for the year immediately preceding the initiation announcement.

³ The nine performance measures derive from combinations of three numerators and three denominators. The numerators are: 1) operating income, 2) operating income less interest expense, taxes and preferred dividends, and 3) net income. Each of these is then standardized separately by: 1) total assets, 2) total equity, and 3) total sales.

6.3 Univariate Tests

Table II reports the results from univariate tests of the differences between the means of the permanent sample and those of the temporary sample in panel A and the differences between the medians of the two groups in panel B. Many of these variables are in fact useful for predicting whether a firm that is initiating dividends will go on to become a permanent payer. Large firms, which tend to be well established and have high cash balances, are more likely than small firms to continue making payments for seven years or more. Firms with low dividend yields and thus a less demanding cash commitment are also more likely to become permanent payers. Companies that specify the frequency of their payments to be quarterly, semi-annual or annual are much more likely to become permanent payers than are companies that make no specification at all, and these two groups together are much more likely to become permanent payers than companies that declare their dividends to be extra, special, or one-time payments. Finally, the operating performance of firms during the pre-initiation period can be used to predict the sustainability of dividends after initiation.

6.4 The Role of Earnings Volatility

I hypothesize that another determinant of the sustainability of dividends is earnings volatility. Grullon, Michaely and Swaminathan (2002) find that increases in dividends correspond to decreases in systematic risk. Additionally, the firms that increase dividends do not increase their capital expenditures and in subsequent years experience a decrease in profitability. This suggests that dividend increases signal, above all else, a maturing on the part of the firm. I address this topic from a slightly different angle – I examine the firm in

terms of its total risk as measured by the standard deviation of profitability in the pre-initiation period. For the purposes of this study, it is preferable to examine total risk to systematic risk for two reasons. First, because unsystematic risk affects the short- and long-term financial position of firms, it should not be ignored. Second, it is primarily the managers who determine their firms' dividend policies rather than the market as a whole, and these managers should incorporate firm-specific risk into their decisions. All else equal, a firm with a high degree of unsystematic risk is just as likely to be forced to cease dividend payments as a firm with less unsystematic risk but the same amount of total risk.

To calculate the volatility of corporate profits, I use quarterly data from Compustat to measure the standard deviation of profitability over the five years immediately preceding the initiation announcement. Only firms that had data for at least 15 of the 20 pre-initiation quarters were included in this analysis. I hypothesize that since dividend sustainability requires stability of earnings (a view consistent with Lintner (1956) and Bhattacharya (1979)), the firms whose profits fluctuated the most severely in the pre-initiation period are less likely to become permanent payers than are the less volatile firms. To adjust for industry effects, I also subtract each company's industry-average standard deviation, based on the first two digits of its SIC code, from its own standard deviation over the same time period. Table III supports this hypothesis; the temporary payers in the sample had significantly higher pre-initiation period performance volatility than did the permanent payers. Adjusting for industry effects mitigates this difference to some degree, although for all variables the temporary payers' standard deviations are higher than the permanent payers' standard deviations, and these differences generally remain significant.

6.5 Combining the Level and Volatility of Earnings to Predict Sustainability

Last, I combine the concepts of risk and return to produce another univariate separation between permanent payers and temporary payers. Even on a theoretical level, the stability of earnings is not a completely satisfactory predictor of dividend sustainability, as the following example illustrates. Consider two companies with the same level of assets. The first company experienced average operating profits of \$100 per quarter over its pre-initiation period, while the second averaged \$10,000 per quarter. It seems almost a given that between these two companies, the second would have a higher standard deviation of ROA, and on that basis would be considered less likely to become a permanent payer. To correct for this problem, I compute a measure of risk-adjusted profitability by dividing each firm's average pre-initiation period return on assets by the standard deviation of its return on assets. Table IV shows that the two groups differ significantly in terms of their risk-adjusted pre-initiation period returns. All nine of the performance measures are significant at the 5% level, while seven of them are significant at the 1% level.⁴ When the median values of the two groups are substituted for the means, the differences become slightly more significant. Thus, even though investors do not distinguish between the two groups a priori, the temporary payers differ greatly from the permanent payers in their volatility-adjusted performance during the years leading up to initiation.

⁴ In addition to the analysis presented here, I analyzed a subset of my sample in which all companies with stock prices of less than \$5 or total assets of less than \$10 were excluded. Not surprisingly, a disproportionate number of these firms (more than two-thirds) were later defined as Temporary payers. When these firms are removed from the study, some of the size-related variables in Table II, as well as the "Specified" dummy variable, become insignificant, suggesting that some of the predictability of payment length is concentrated within the very smallest firms. However, the results in tables III and IV, as well as those of the subsequent tables in this study, remain largely unchanged.

CHAPTER 7: A PREDICTION MODEL OF TEMPORARY VS. PERMANENT PAYERS

7.1 Introduction

In Table I, I documented a statistically similar market reaction to the initiation announcements of temporary and permanent payers. Despite this, there are several characteristics of both the firm and the dividend that are available at the time of initiation that can be used to predict which firms are likely to sustain payments and which are not. In this section, I create a prediction model that uses information related to the firm itself, the initial dividend, and other firms that had initiated dividends in the past. This model differs from the preceding analysis in that it explores whether dividend sustainability is predictable *through time*; it tests not only the cross-sectional determinants of sustainability but also whether trends such as the overall decrease in dividend stickiness could have been predicted ahead of time.

7.2 The Prediction Model

The model uses one of two criteria to predict whether a given company will become a permanent payer. First, if the company has enough quarterly accounting data available to compute its risk-adjusted pre-initiation period operating performance as defined in the previous section of this study, then that risk-adjusted performance is compared with the risk-adjusted performance of the previous 50 dividend initiators. If this risk-adjusted performance is higher than the average of the past 50 initiators, the company is predicted to become a permanent payer; otherwise, the company is predicted to cease payments within three years. Second, if the company does not have enough quarterly data

available to compute a risk-adjusted pre-initiation period return, then a logistic regression is estimated on the basis of the other firm- and dividend-specific variables and then used to predict whether that company will become a permanent payer. In this manner, the primary model that I use remains simple while the rolling logistic model is reserved for cases where the quarterly data are scarce but other useful information is available.

For these logistic regressions, I begin by sorting the data set by the date of the first dividend payment and then using the first 50 firms as a benchmark for analyzing future dividend initiations. I then estimate a logistic regression across these 50 firms using the following independent variables: firm size, defined as the natural logarithm of total assets in the year immediately preceding initiation; the annualized dividend yield; a distribution code dummy, entitled “regular,” which takes a value of 1 if the distribution code does not specify the dividend to be “extra,” “special” or “one-time” and a value of 0 otherwise; the average return on assets in the pre-initiation period, using annual data from Compustat; and the market-to-book and debt ratios for the year immediately preceding initiation.

I then use the coefficients from this regression for both explanatory and predictive purposes. In order to make my predictions of which firms will become permanent payers truly out of sample, I first look eight years beyond the initiation date of the 50th company. This ensures that each of the first 50 firms in the sample will have been established as either a temporary or permanent payer by that time. I then take the coefficients from the original logistic regression and apply them to the first company to initiate dividends eight or more years after the 50th firm had initiated (this is the 306th firm in my entire sample to initiate payments). The model then moves forward through time in the following manner. Another logistic regression is estimated for the second company to initiate dividends after

the eight year period has passed (the 307th initiator from the larger sample), but this regression replaces the 1st company in the estimation sample with the 51st company. The new regression coefficients are then applied to make a second prediction. The model continues to evolve in this manner, with the oldest remaining firm in the estimation sample being replaced at each step with the first company to initiate afterwards, thereby keeping a total of 50 firms in each regression. Each company in the prediction sample is forecasted to become a permanent payer if the predicted probability of permanence is greater than 50%.

7.3 Results

I made predictions for a total of 243 companies that initiated dividends after July of 1981. Of these 243 companies, 172 had sufficient accounting data available to make the prediction on the basis of risk-adjusted pre-initiation period performance alone. Predictions for the other 71 were made using the logistic regression coefficients of previous initiators.

Using this model, I was able to correctly predict 150 of the 243 out-of-sample firms. This result is significant at the 1% level (t-statistic = 3.66) if one assumes the null model forecasts each firm with a 50% probability of success. Given the dramatic decrease in the stickiness of dividends during the late 1970s, one could assume a less than 50% probability of success for the null, given that it might predict more permanent payers than temporary payers on the basis of older data. In any event, this bias would likely strengthen my model rather than weaken it.

7.4 A Cross-Sectional Logistic Model

Although the coefficients of my logistic model change with each firm in the sample (and are computed only for those firms that have no risk-adjusted performance calculation), it is important to determine, overall, which of these variables are the most useful in prediction. Table V shows the results of a logistic regression estimated over all 243 companies in my prediction sample. Using different combinations of these variables, it appears that firm size, risk-adjusted pre-initiation period performance, dividend yield, and the specification of payments as “regular” (i.e. not “extra,” “special” or “one-time”) are most important in determining whether an initiating firm will continue to make payments for more than seven years. This does not come as much of a surprise, given that these variables were among the most significant when tested individually. When risk-adjusted performance is omitted from the regression, the standard deviation of performance becomes marginally significant, with the more volatile firms being more likely to cease payments within three years of initiation.

CHAPTER 8: PREDICTING FUTURE OPERATING PERFORMANCE

My final area of inquiry is the model’s ability to predict which firms will perform best after the dividend initiation. First I examine the model by comparing the firms that I had predicted to become permanent payers to those I had predicted to become temporary payers. The results are given in table VI. Panel A shows that for most measures of operating performance, the firms that I had predicted to become permanent payers do significantly better in the years following initiation than the companies I had predicted to

become temporary payers; for example, the firms that I predicted to become permanent payers experienced an average annual ROA of 15.42% in the five years subsequent to initiation, while the firms that I predicted to become temporary payers experienced an average annual ROA of less than 7%. Panel B shows comparisons of the medians rather than the means, and for all nine performance measures, the predicted permanent payers do significantly better than the predicted temporary payers.⁵ This suggests that not only is there a relationship between payment length and variables such as pre-initiation period performance, dividend yield and the stated frequency of payments, but that this relationship extends to future performance as well.⁶

CHAPTER 9: CONCLUSIONS

9.1 Previous Research

In the fifty years that have passed since Lintner's examination of managers' payout policies, the prevailing view has been that managers who initiate dividends are sending a signal to the capital markets that they can sustain those dividends over a long period of time. Recently, Brav, Graham, Harvey and Michaely (2004) reaffirmed this view in a

⁵ In an alternative analysis, I address the skewness of some of the performance measures shown in Table VI by Winsorizing them at the 1st and 99th percentiles. The results for the performance measures that are standardized by sales all become stronger, with Net Income divided by Sales attaining significance at the 1% level and Return on Sales attaining significance at the 10% level.

⁶ Additionally, I exclude from the sub-sample of Temporary payers nine companies that were delisted from CRSP with a year and a half of their final recorded dividend payments. These firms experienced abnormally poor post-initiation period performance, and in some cases this poor performance was the stated reason for the delisting. The results in Table VI weaken considerably when such companies are removed from the sample; although the median post-initiation period performance of the predicted Permanent payers is significantly higher than that of the predicted Temporary payers for most measures, the means are not significantly different at the 10% level for six of the nine measures. However, the results in Tables II through V remain unchanged, suggesting that these cases of severe post-initiation performance failure do not drive the predictability of payment length at the time of the initiation announcement.

survey of 384 corporate executives. The sustainability aspect of dividend initiation has been an integral component of many different theories of dividend signaling over the years, including the theory of high future profitability (c.f. Bhattacharya (1979), Miller and Rock (1985)) and the theory of firm maturity (Grullon, Michaely and Swaminathan (2002), DeAngelo, DeAngelo and Stulz (2005)), but had never been explored thoroughly from an empirical standpoint.

9.2 Objectives of the Study and Empirical Findings

This study examines five questions. First, given the degree to which the signaling theory relies on sustainability, just how sticky are dividends? Second, how closely related is sustainability to future operating performance? Third, does the market react differently to the initiation announcements of long-term and short-term payers? Fourth, *can* the market distinguish between long-term and short-term payers at the time of the initial dividend? Fifth, to the extent that dividend sustainability can be predicted, can long-run operating performance also be predicted?

The results from this study indicate that of the 855 firms that initiated dividends between 1967 and 1993, only 293 (34.3%) continued to make payments for at least seven years subsequent to initiation, while 355 (41.5%) ceased payments within three years. This suggests that during the latter third of the 1900s, dividends were not as “permanent” as is generally believed. This finding is mainly the result of a dramatic shift over time; in the 1960s and 1970s, more companies did in fact continue to make payments for at least seven years following initiation than ceased payments within three years. In the 1980s, however, a much smaller percentage of the companies that initiated dividends continued to

pay them for at least seven years afterward. Thus, the decrease in the sustainability of dividends offers a new and additional explanation for the “disappearing dividends” phenomenon that occurred during the last part of the twentieth century. Although Fama and French (2001) documented a decrease in the percentage of firms that initiated dividends after the 1970s, it is also true that the firms that did initiate became more likely to cease making payments within three years. Therefore, the percentage of companies that paid dividends decreased over time not only because firms grew more reluctant to initiate them, but also because once they did initiate dividends, they became much less hesitant to omit them afterward.

This study then explores the relationship between sustainability and long-run operating performance. I document that the firms that pay dividends for a longer period of time perform better after initiation than those that do not. This relationship suggests that if the signaling theory holds and if the firms that go on to be classified as permanent payers could have credibly signaled their future status to the market at the time of their initiation announcement, then the market should have rewarded them relative to the firms that would later cease payments within three years of initiation.

I then compare the market’s reaction to the initiation announcements of permanent payers and temporary payers. Although, both groups experience increases in their stock prices, these increases are not significantly different from one another in magnitude. Therefore, the market’s reaction to dividend initiations seems to have more to do with a desire for cash disbursements in the short-term (as per the free cash flow argument propounded by Jensen (1986)) than with any signal regarding long-term sustainability.

The failure of the market to differentiate a priori the permanent payers from the temporary payers raises the question of whether payment length is even predictable or if it is instead driven by luck or other factors that are unknowable ahead of time. To address this issue, I perform univariate analyses of several firm- and dividend-specific variables that investors could have used on the day of the initiation announcement to try and distinguish between the two groups. Many of these variables, including firm size, dividend yield, distribution code, and the pre-initiation period return on assets are significantly different for the sample of temporary payers than they are for the sample of permanent payers. Additionally, the level of pre-period risk, as measured by the volatility of earnings, is significantly higher for the temporary payers than it is for the permanent payers. When the average earnings themselves are standardized by their volatility, the difference between the two groups becomes even more significant.

In order to extend the analysis further, I then divide the sample chronologically to perform out-of-sample testing. First, each firm is compared to the 50 firms that initiated dividends immediately before it on the basis of average volatility-adjusted return on assets during the pre-initiation period. If the firm's volatility-adjusted performance was higher than the mean of its immediate predecessors, then that firm was predicted to become a permanent payer. If the firm's volatility-adjusted performance was lower than the mean of its immediate predecessors, then it was predicted to become a temporary payer. In the event that insufficient quarterly performance data were available, a rolling logistic model incorporating other accounting data, firm size, dividend yield, and distribution code was used to predict which dividend initiating companies would become permanent payers and which would become temporary payers. Using data from companies that had initiated

payments at least eight years earlier and thus whose status as temporary or permanent payers had already been established, I estimate a series of logistic regressions to predict the eventual status of the firms that initiated later. Although there was a drastic and widespread change in the stickiness of dividends during these eight-year lags (particularly during the late 1970s), the regressions remained largely successful in predicting which companies would eventually become temporary payers and which would become permanent payers.

Last, I test whether the predictability of dividend sustainability translates into predictability of post-initiation operating performance. Although it is true ex-post that the firms that became permanent payers performed better after initiation than the firms that ceased making payments within three years, it is also possible that imperfections in my model and exceptions to the relationship between sustainability and performance render my predictions useless with regard to the subsequent profitability of dividend initiating firms. However, when I compare the post-initiation performance of the firms that I had predicted to become permanent payers to that of the firms I had predicted to become temporary payers, the predicted permanent payers are significantly more profitable.

9.3 Conclusions

I interpret the above results as evidence that the market's reaction to the likelihood of dividend sustainability is inconsistent with the signaling theory. Although dividend sustainability is positively related to the future operating performance of the firm, investors do not differentiate ex-ante between permanent and temporary payers, even though such a differentiation can be made on the basis of past performance, earnings volatility, firm size

and information specific to the initial dividend itself. Moreover, my prediction model also successfully forecasts operating performance; the firms that I predict to become permanent payers significantly outperform the firms that I predict to become temporary payers. This can be viewed as further evidence against the traditional signaling theory in one of two ways: either dividends convey little if any *new* information to investors about future profitability, or the market is inefficient in its interpretation of managers' signals. With regard to the latter possibility, it may be a fruitful avenue for future research to explore long-term stock price performance in addition to the measures of operating performance examined here. In either case, however, I find no evidence that the positive market reaction to dividends can be attributed to the signal of a long-term commitment by the firms that initiate them.

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Figure 1
Number of Dividend Initiators Per Year and the Proportion of Temporary, Intermediate and Permanent Initiators from Each Year

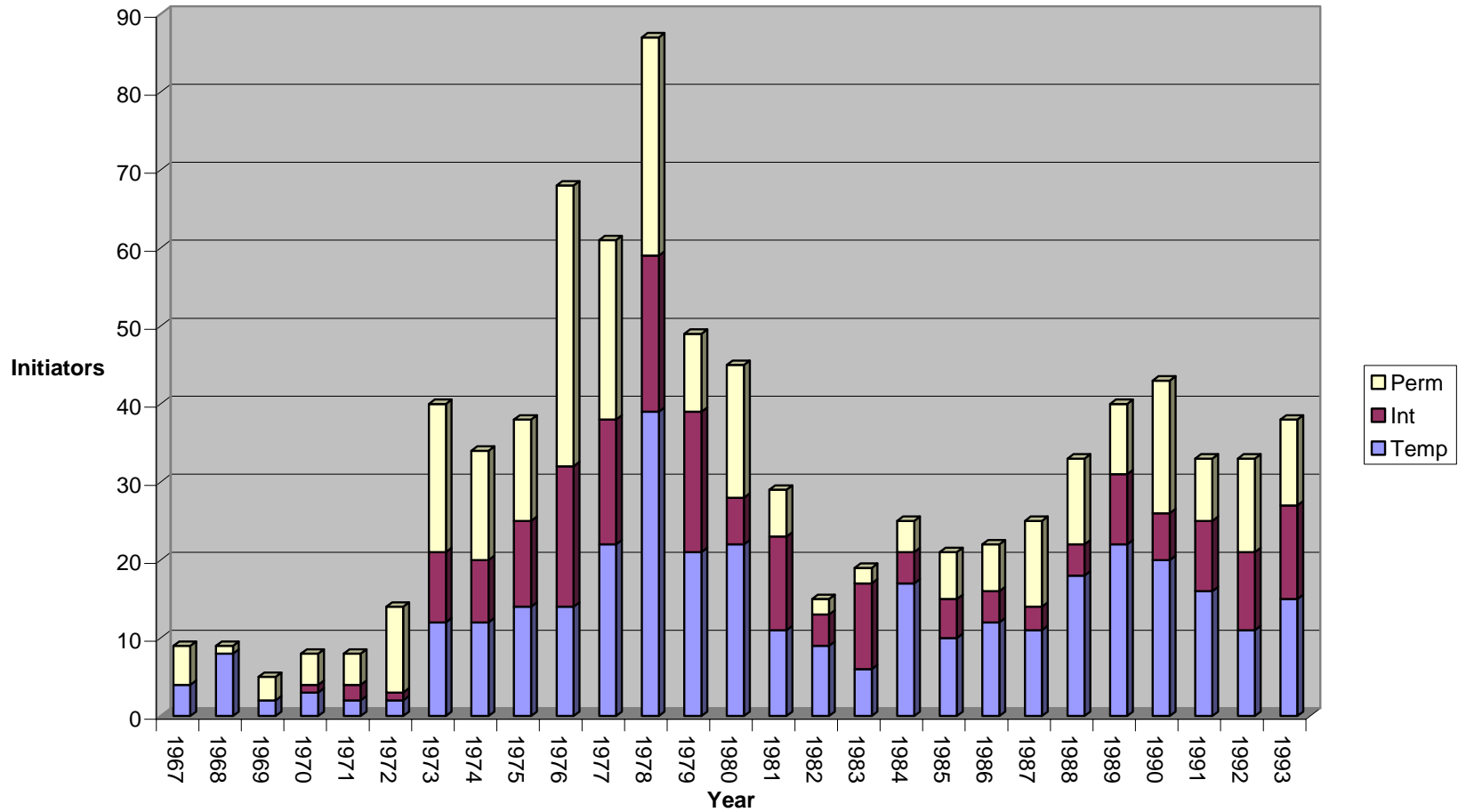


Figure 2
Mean ROA (Annual) for Temporary and Permanent Payers

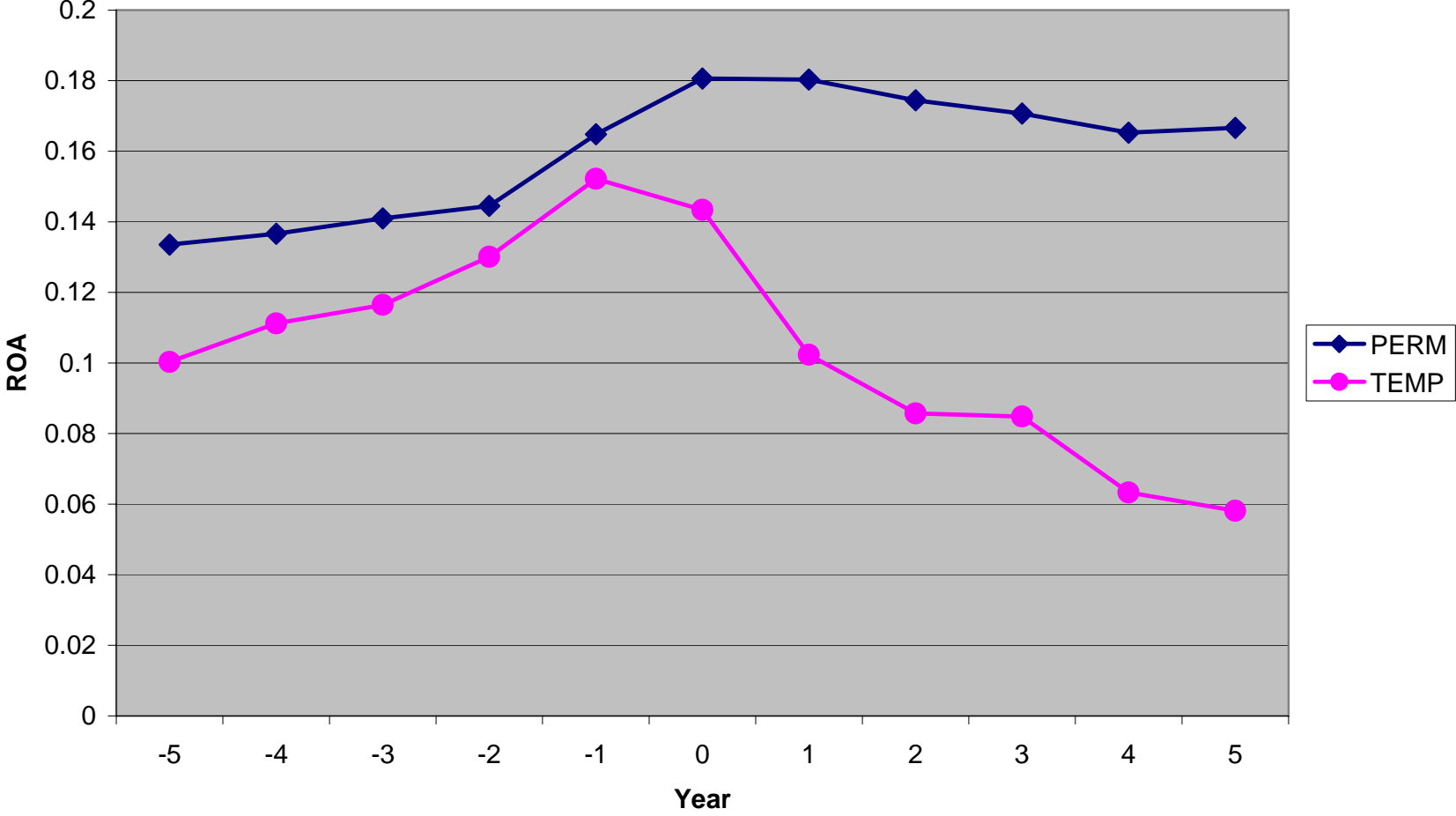


Figure 3
Median ROA (Annual) for Temporary and Permanent Payers

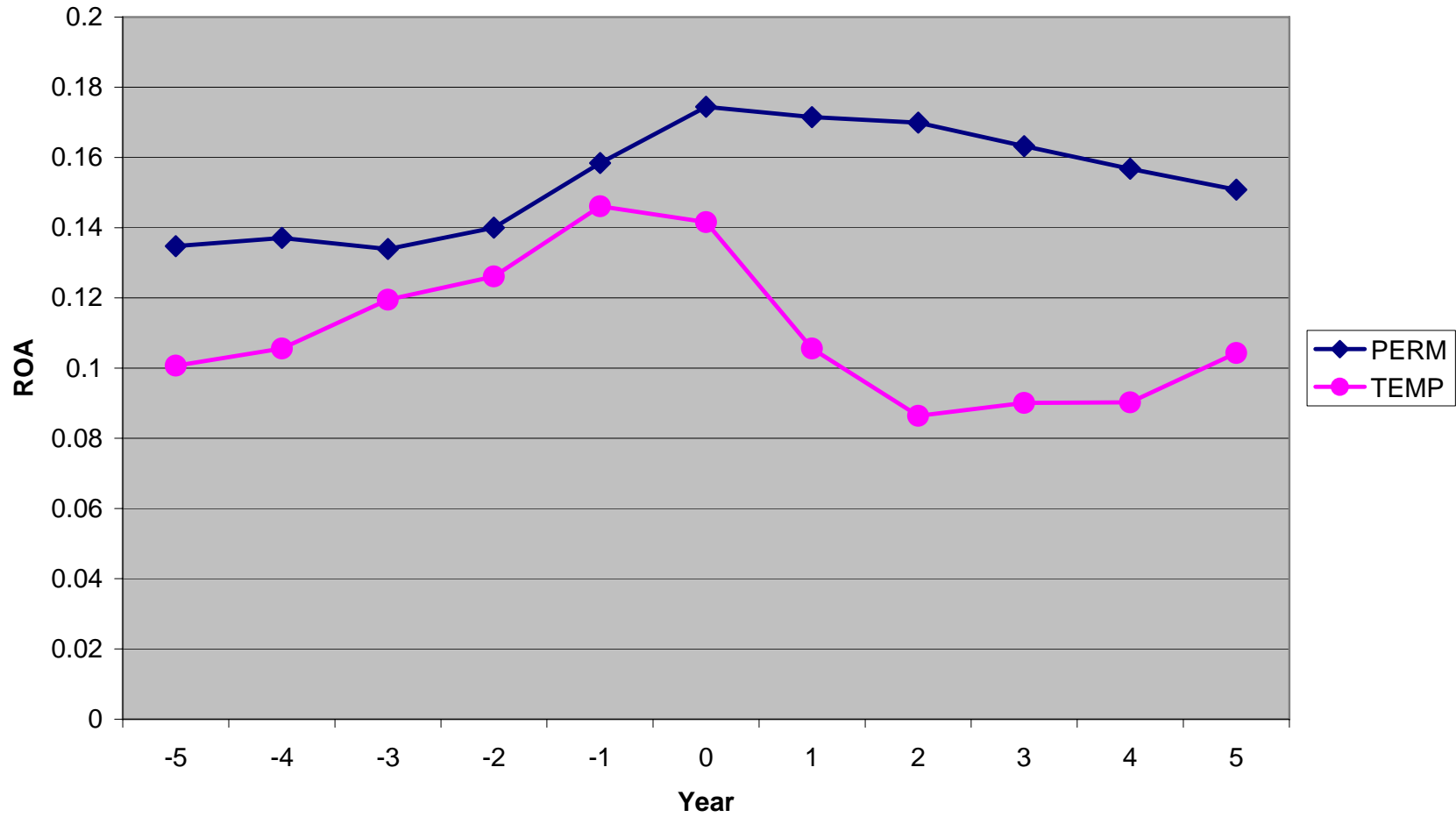


TABLE I**Announcement Period Returns**

PANEL A: Comparison of the announcement-period abnormal returns of the permanent sample to those of the temporary sample. Returns are derived from the market model of abnormal returns and are cumulated using the buy-and-hold method.

Variable	PERMANENT		TEMPORARY		Perm-Temp	T-statistic	P-Value
	N	Mean	N	Mean			
(-1,-10)	237	1.64%	305	1.76%	-0.12%	-0.13	.8934
(-1,+1)	237	3.10%	305	3.27%	-0.17%	-0.28	.7812
(-2,+2)	237	3.67%	305	3.86%	-0.19%	-0.27	.7884

TABLE II**Comparison of Permanent Companies to Temporary Companies on the Basis of Pre-Initiation Period and Dividend-Specific Information**

Comparison of the pre-initiation period and dividend-specific characteristics of the temporary sample to those of the permanent sample. Mean ROA represents the firm's mean return on assets during the five years immediately preceding the initial dividend announcement. Trend ROA represents the change in the firm's annual ROA over the pre-initiation period. Log Assets, Market-to-Book ratios, and Debt ratios were calculated for the year immediately preceding the initiation announcement. Dividend yield has been annualized by incorporating the frequency of payments stated by the distribution code. "Regular" is a dichotomous variable that takes a value of 1 if the dividend is not announced to be "extra," "special," or "one-time," and "Specified" is a dichotomous variable that takes a value of 1 if the dividend is of a specified frequency and a value of 0 if the dividend is of an unspecified frequency but is not announced to be "extra," "special," or "one-time."

PANEL A: Means

Variable	PERMANENT		TEMPORARY		Perm-Temp	P-Value
	N	Mean	N	Mean		
Mean ROA	239	14.37%	310	12.19%	2.18%	.0044
Trend ROA	239	3.31%	308	5.13%	-1.82%	.1263
Log Assets (-1)	239	4.137	311	3.807	0.330	.0094
MTBA (-1)	233	1.291	296	1.334	-0.043	.5949
Debt Ratio (-1)	233	32.17%	296	31.47%	0.71%	.7415
Dividend Yield	237	1.64%	311	9.16%	-7.53%	.0006
Specified	228	.5877	247	.4696	.1181	.0099
Regular	240	.9500	313	.7891	.1609	<.0001

PANEL B: Medians. Median values for both the permanent and temporary samples are given below. The t-approximation to the Wilcoxon Rank-Sum test is then used to compare the average rank of the permanent companies to the average rank of the temporary companies.

Variable	PERMANENT		TEMPORARY		Perm-Temp	P-Value
	N	Median	N	Median		
Mean ROA	239	14.19%	310	11.91%	2.28%	.0003
Trend ROA	239	2.88%	308	3.57%	-0.69%	.1126
Log Assets (-1)	239	3.978	311	3.656	0.322	.0089
MTBA (-1)	233	1.027	296	1.039	-0.012	.7991
Debt Ratio (-1)	233	29.87%	296	28.41%	1.46%	.6617
Dividend Yield	237	1.28%	311	1.67%	-0.39%	.0003
Specified	228	1.000	247	0.000	1.000	.0104
Regular	240	1.000	313	1.000	0.000	<.0001

TABLE III**Comparison of Permanent Companies to Temporary Companies on the Basis of Pre-Initiation Period Standard Deviation of Profitability**

Comparison of the pre-initiation period volatility of the temporary sample to that of the permanent sample. These standard deviations derive from Compustat quarterly data and represent the standard deviation of a firm's profitability during the pre-period. Standard deviation is calculated only for those firms that have data available for at least 15 of the 20 quarters immediately preceding the initiation announcement. SDROA, SDROE, SDROS, SDCFA, SDCFE, SDCFS, SDNIA, SDNIE and SDNIS represent the pre-initiation period standard deviation of return on assets, return on equity, return on sales, cash flow on assets, cash flow on equity, cash flow on sales, net income on assets, net income on equity and net income on sales, respectively.

PANEL A: Means

Variable	PERMANENT		TEMPORARY		Perm-Temp	P-Value
	N	Mean	N	Mean		
SDROA	54	1.88%	134	2.66%	-0.78%	.0023
SDROE	58	5.16%	144	7.38%	-1.82%	.0420
SDROS	65	5.54%	149	37.89%	-32.35%	.0894
SDCFA	41	1.33%	105	1.99%	-0.66%	.0014
SDCFE	45	3.16%	114	5.95%	-2.79%	.0014
SDCFS	50	4.76%	118	43.27%	-38.51%	.1063
SDNIA	77	2.38%	179	3.96%	-1.58%	.0817
SDNIE	154	13.35%	231	10.37%	2.98%	.6260
SDNIS	201	19.13%	252	41.48%	-22.35%	.2209

PANEL B: Medians. Median values for both the permanent and temporary samples are given below. The t-approximation to the Wilcoxon Rank-Sum test is then used to compare the average rank of the permanent companies to the average rank of the temporary companies.

Variable	PERMANENT		TEMPORARY		Perm-Temp	P-Value
	N	Median	N	Median		
SDROA	54	1.66%	134	1.91%	-0.25%	.0256
SDROE	58	3.61%	144	4.71%	-1.10%	.0286
SDROS	65	4.65%	149	6.08%	-1.43%	.0020
SDCFA	41	1.12%	105	1.52%	-0.40%	.0328
SDCFE	45	2.55%	114	3.38%	-0.83%	.0075
SDCFS	50	3.34%	118	5.10%	-1.76%	.0133
SDNIA	77	1.67%	179	1.91%	-0.24%	.0359
SDNIE	154	2.66%	231	3.81%	-1.15%	.0029
SDNIS	201	3.74%	252	5.12%	-1.38%	.0007

TABLE IV**Comparison of Permanent Companies to Temporary Companies on the Basis of Pre-Initiation Period Risk-Adjusted Profitability**

Comparison of the pre-initiation period volatility of the temporary sample to that of the permanent sample. These standard deviations derive from Compustat quarterly data and represent the standard deviation of a firm's profitability during the pre-initiation period. Standard deviation is calculated only for those firms that have data available for at least 15 of the 20 quarters immediately preceding the initiation announcement. SDROA, SDROE, SDROS, SDCFA, SDCFE, SDCFS, SDNIA, SDNIE and SDNIS represent the pre-initiation period standard deviation of return on assets, return on equity, return on sales, cash flow on assets, cash flow on equity, cash flow on sales, net income on assets, net income on equity and net income on sales, respectively.

PANEL A: Means

Variable	PERMANENT		TEMPORARY		Perm-Temp	P-Value
	N	Mean	N	Mean		
ROA / SDROA	54	12.21	134	7.75	4.46	.0017
ROE / SDROE	58	11.81	144	7.05	4.76	.0002
ROS / SDROS	65	17.31	149	9.85	7.45	.0006
CFA / SDCFA	41	8.75	105	6.16	2.59	.0327
CFE / SDCFE	45	9.68	114	5.87	3.81	.0012
CFS / SDCFS	50	12.27	118	7.39	4.88	.0036
NIA / SDNIA	77	5.63	179	3.69	1.94	.0334
NIE / SDNIE	154	5.56	231	3.72	1.84	.0042
NIS / SDNIS	201	6.31	252	4.25	2.06	.0016

PANEL B: Medians. Median values for both the permanent and temporary samples are given below. The t-approximation to the Wilcoxon Rank-Sum test is then used to compare the average rank of the permanent companies to the average rank of the temporary companies.

Variable	PERMANENT		TEMPORARY		Perm-Temp	P-Value
	N	Median	N	Median		
ROA / SDROA	54	8.99	134	6.28	2.71	.0005
ROE / SDROE	58	8.26	144	6.25	2.01	.0000
ROS / SDROS	65	12.39	149	7.67	4.71	.0000
CFA / SDCFA	41	7.20	105	4.70	2.50	.0100
CFE / SDCFE	45	8.06	114	4.73	3.33	.0006
CFS / SDCFS	50	9.44	118	5.34	4.09	.0006
NIA / SDNIA	77	3.59	179	2.08	1.51	.0184
NIE / SDNIE	154	3.60	231	2.48	1.12	.0034
NIS / SDNIS	201	3.83	252	2.26	1.57	.0002

Table V**Logistic Regressions of Portfolio (Temp vs. Perm) on Pre-Initiation Data and Dividend Characteristics**

Regression coefficients correspond to the probability that a dividend-initiating firm will become a permanent payer.

Variable	Coeff. P-Value	Coeff. P-Value	Coeff. P-Value	Coeff. P-Value
Intercept	-3.4302 .0039	-2.9365 .0261	-1.7505 .1043	-1.0998 .3594
Log Assets (-1)	0.3348 .0272	0.3305 .0306	0.4784 .0121	0.4747 .0127
ROA / SDROA	0.0437 .0737		0.0574 .0621	
Mean ROA		2.5277 .3029		-0.2165 .9672
SDROA		-24.511 .1209		-30.7249 .1203
MTBA (-1)	-0.1913 .3835	-0.1164 .6230	-0.1668 .5354	-0.0029 .9912
Debt Ratio (-1)	-1.3014 .1998	-1.1959 .2425	-1.6095 .1876	-1.3836 .2381
Regular	2.1593 .0031	2.1076 .0035		
Specified			0.0801 .8665	0.0820 .8623
Dividend Yield	-36.698	-34.9121	-49.9316	-44.2488

.0633 .0636 .0778 .0889

TABLE VI

Comparing the Long-Run Post-Initiation Performance of Predicted Permanent Payers to that of Predicted Temporary Payers

These performance measures are computed as the average over the five years immediately following dividend initiation.

PANEL A: Means

Variable	PERMANENT		TEMPORARY		Perm-Temp	P-Value
	N	Mean	N	Mean		
ROA	94	15.42%	122	8.70%	6.73%	.0000
ROE	94	52.00%	120	21.57%	30.43%	.1155
ROS	94	-81.38%	122	-3.88%	-77.5%	.4226
CFA	92	9.64%	122	4.05%	5.59%	.0001
CFE	92	32.69%	120	4.71%	27.98%	.0626
CFS	92	-171.5%	122	-10.07%	-161.5%	.3723
NIA	94	5.89%	122	-0.90%	6.79%	.0008
NIE	94	7.92%	120	-14.20%	22.12%	.0190
NIS	94	410.9%	122	-10.85%	421.7%	.3016

PANEL B: Medians. Median values for both the permanent and temporary samples are given below. The t-approximation to the Wilcoxon Rank-Sum test is then used to compare the average rank of the permanent companies to the average rank of the temporary companies.

Variable	PERMANENT		TEMPORARY		Perm-Temp	P-Value
	N	Median	N	Median		
ROA	94	15.68%	122	9.45%	6.23%	.0001
ROE	94	32.45%	120	22.26%	10.20%	.0013
ROS	94	10.77%	122	7.76%	3.01%	.0139
CFA	92	9.73%	122	5.88%	3.85%	.0003
CFE	92	18.23%	120	13.80%	4.44%	.0010
CFS	92	6.64%	122	4.31%	2.33%	.0165
NIA	94	6.19%	122	2.18%	4.01%	.0002
NIE	94	12.22%	120	6.54%	5.68%	.0003
NIS	94	4.13%	122	1.97%	2.17%	.0010