Has the Propensity to Pay Out Declined?

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Abstract

Recent studies document both a significant decline in firms' propensity to pay dividends and a significant increase in firms' propensity to repurchase shares and issue equity over the past 30 years. In this paper we test whether firms' net cash disbursements to equity-holders have declined in a pattern similar to firms' propensity to pay dividends. Contrary to the evidence using dividends, we find no evidence that the conditional propensity to distribute net cash to equity holders (dividends + share repurchases – equity issues) has declined over the past three decades. In fact, we find that firms with relatively low retained earnings have become more willing to pay out cash to shareholders.

1. Introduction

Over the past 30 years, public firms in the U.S. appear increasingly reluctant to return cash to their shareholders through dividend payments. For example, Fama and French (2001) show that the proportion of firms paying dividends falls sharply from 1978 to 1999, even after conditioning on firm characteristics. Such a widespread disappearance of dividends might suggest that firms' earnings have become less permanent and more transitory (see Dittmar and Dittmar (2007)). However, DeAngelo et al (2006) find that the declining propensity to pay is especially large among firms with high retained earnings. This is surprising given that Almeida and Campello (2008) argue that such firms generally have low external financing costs and a relatively moderate need to hoard cash for investment purposes.

From a capital markets perspective, evidence of a declining propensity to pay dividends raises important questions about the allocation of corporate funds. Has the decline in dividends been fully offset by an increase in share repurchases or a decrease in equity issues? Or, alternatively, does the decline in the incidence of dividend payments reflect a broader shift in the pattern of net cash exchanges between firms and shareholders? If it does, then the unexplained, large-scale disappearance of net payouts represents a significant puzzle in corporate finance. In this paper we test whether firms' net cash disbursements to equity-holders have declined in a pattern similar to firms' propensity to pay dividends.

Theoretically, investors should be more concerned about net capital market flows than about the amount of cash distributed through any particular channel. For example, in Miller and Rock's (1985) signaling model, investors infer the firm's level of earnings by observing the firm's net dividends (dividend payments minus additional funds raised). Moreover, agency theories such as the free cash flow hypothesis (e.g., Jensen (1986)) imply that net payouts are

critical because excess cash declines only when firms make positive net cash disbursements to investors.

It is important to note that a measure of net payout to equity-holders is not necessarily a better or worse measure than dividends, share repurchases, or equity issues alone. Rather, our measure of net payout is different in nature than a metric of any particular payout channel. By looking at changes in the net propensity to pay equity-holders, our question is focused more on the broad nature of cash transfers between firms and equity-holders over time. While the incidence of dividend payments have been declining and the incidence of share repurchases and equity issues have been rising, out tests focus on the extent to which these various effects either cancel out or amplify each other in data.

With a similar motivation, Boudoukh, Michaely, Richardson, and Roberts (2007) provide evidence that the net cash flows to shareholders (the same measure we use) are more informative about asset prices than any particular form of payout alone. For example, they find that the net payout yield (dividends plus repurchases minus equity issues) is a stronger predictor of future stock returns than the dividend yield. These results illustrate the potential value in focusing on net payouts when examining the time-series behavior of corporate payout policy in the U.S. In this paper we follow a similar approach to examine whether firms' net cash disbursements to investors has declined over time similar to firms' propensity to pay dividends.

Although net payout is a theoretically and empirically appealing measure, it is possible that dividends and net payout produce nearly the same classifications in the data. However, this is not the case. We find that, at any given time, a significant number of firms classified as non-dividend payers are actually positive net payers and a significant number of firms that are classified as dividend payers are actually negative net payers. Furthermore, we find that this

difference in classification is higher for firms with relatively high retained earnings. This is significant because the disappearing dividends puzzle is most severe for these firms as shown by DeAngelo, DeAngelo and Stulz (2006).

Weld (2008) provides evidence that many firms engage in "equity recycling," whereby firms return cash to investors (through dividends, repurchases, or both), while simultaneously issuing new equity. We show that a nontrivial fraction of firms in our sample recycle equity to the point that, when issuances are subtracted from total payout (dividends plus repurchases), the firm moves from being classified as a payer to being classified as a non-payer. Equity issuance patterns therefore also contribute to the discordance between our net payout indicator and a payout indicator based solely on dividends.

Since our net payout indicator *does* lead to a significantly different classification of firms that pay, we examine the extent to which net payout behavior trends over time. Consistent with the evidence in Fama and French (2001), we find that the unconditional proportion of net payers drops from approximately 63% in the 1970s to 30% in the 2000s. These results are also broadly consistent with recent studies by Skinner (2008) and Grullon and Michaely (2002) who show an increasing substitution from dividends to share repurchases, but still an overall decline in total payout. Thus, despite the fact that firms substitute repurchases for dividends and recycle equity, the disappearing payout puzzle documented by Fama and French (2001) is not resolved simply by broadening the definition of payout to a measure of net payout.

We then test the hypothesis that the *conditional* net propensity to return cash to shareholders has remained constant over time. Specifically, we use the framework in Fama and French (2001) and DeAngelo et al (2006) to estimate both actual and expected payers, focusing instead on the time-series behavior of firms with positive net payout. Not surprisingly, many of

the firm characteristics shown to predict dividend payment also predict positive net payout (e.g. Fama and French (2001), DeAngelo et al (2006), Hoberg and Prabhala (2007)). Importantly, we find that the conditional propensity to pay out has been relatively constant over the past 30 years. Our results are consistent across a number of alternative methods of measuring payouts and to different econometric specifications.

Our results reveal another intriguing pattern: for a subset of firms, there is actually a small *increasing* propensity to pay out cash to shareholders over the last several decades. We find that less profitable firms – those with relatively low retained earnings – are more likely today to return cash to their shareholders than they would have been in the 1980s. Since share buybacks give these firms a way to return cash to stockholders without committing to paying a certain level of dividends, they may now be more likely to distribute cash to shareholders than in the past. These findings are supported by recent survey evidence presented in Brav et al (2005), who show that many corporate managers now prefer share repurchases as a method of payment because of their perceived flexibility relative to dividends.

Finally, we also examine the time-series behavior of payout *yields*. We find that the average dividend yield and the average net payout yield experienced a significant decline after the 1970s. *Conditional on changes in firm characteristics*, though, actual net payout yields have been *increasing* relative to expected net payout yields. This finding suggests that, given the changes in firm characteristics, corporations are currently distributing more net cash to their shareholders than in the past.

Since Fama and French (2001), significant progress has been achieved in understanding the disappearing dividends phenomenon. DeAngelo, DeAngelo and Skinner (2004) show that, while the fraction of firms paying dividends has declined over the past several decades, the

aggregate level of dividends has increased, as dividends have become increasingly concentrated among the largest, most profitable firms. Skinner (2008) shows that firms increasingly substitute share repurchases for dividend payments and that the level of repurchases adjusts quickly to earnings. Denis and Osobov (2008) examine international evidence and conclude that the decline in the proportion of dividend-paying firms is driven by the failure of newly listed firms to pay dividends. Hoberg and Prabhala (2007) find that including firm volatility in the set of firm characteristics mitigates the size of the unexplained decline in the willingness of firms to pay dividends.

Against this backdrop, our study is the first to directly test whether *net* payout policy trends over time, both unconditionally and conditionally. This is a meaningful and important empirical question. One might conjecture, for example, that the availability of share repurchases as an alternative payout mechanism would *increase* firms' willingness to payout cash, conditional on firm characteristics. Alternatively (or simultaneously), the perceived benefits of distributing cash may have declined. Indeed, Fama and French (2001) suggest as one possible explanation for their results that improved corporate governance may have reduced the benefit of dividends in terms of controlling agency problems.

In this paper we find that, despite important changes in the corporate governance landscape in recent decades, there is no evidence of a significant shift in the perceived benefits of disbursing cash on *net* to shareholders. Since the propensity to pay out cash has not declined when net payouts are considered, it is entirely possible that disgorging cash through dividends or repurchases still plays an important role in reducing agency problems.

The remainder of the paper is as follows. Section 2 describes the sample selection procedure, defines the variables, and provides summary statistics. Section 3 discusses the

importance of measuring net payouts. In Section 4 we investigate whether the substitution of share repurchases for dividends can explain the declining propensity to pay dividends. Section 5 examines whether, after controlling for changes in firm characteristics, the proportion of firms making net payments to shareholders has been declining over time. Section 6 examines the propensity to pay in terms of payout levels. Section 7 provides a series of robustness checks for our results, and Section 8 presents concluding thoughts.

2. Sample and Data

Our sample selection procedure closely follows DeAngelo et al (2006). We select firms that: (a) are domestic firms present on both CRSP and Compustat; (b) are not utilities or financials (SIC codes 4900 through 4999 or codes 6000 through 6999); (c) are publicly traded on the NYSE, NASDAQ or AMEX; (d) have CRSP codes 10 or 11; (e) have available data on dividends and earnings. These selection criteria generate a sample of 133,194 firm-year observations from 1973 to 2006. On average, we have 4,031 firms in our sample each year. The highest number of firms is 5,605 in 1997 and the lowest is 3,015 in 1973.

To control for the effect of firm characteristics on the propensity to pay, we focus on the following variables in our main analyses:

1) Firm size (NYE): This variable is equal to the percentile in which the firm falls on the distribution of equity market values for NYSE firms in year *t*.
2) Market-to-book ratio (M/B): This variable is defined as the ratio of firm value to the book value of total assets (Compustat item # 6) where firm value is measured as the market value of equity (Compustat item # 25 times Compustat item # 199) plus the difference between total assets and total common equity (Compustat item # 60).

3) Return on assets (ROA): This variable is computed as the operating income before depreciation (Compustat item # 13) scaled by the book value of assets (Compustat item # 6).

4) Sales growth (SGR): This variable is computed as the annual percentage change in total sales (Compustat item # 12).

5) Volatility (VOL): This variable is computed as the annual standard deviation of daily stock returns.

6) Retained earnings to total assets (RE/TA): This variable is equal to retained earnings (Compustat item # 36) scaled by the book value of assets (Compustat item # 6).

7) Firm age (AGE): Following Fink et al (2007), we define age as the number of years since a firm's founding, incorporation, or listing date (whichever is earliest).[1] It is important to note that our methodology differs from the common alternative which is to use the date of a firm's earliest occurrence on CRSP. Using the first CRSP appearance can induce a significant bias because the average age of a firm at its IPO date has fallen dramatically over the last forty years.

Table 1 contains descriptive statistics for our entire sample.[2] While summary statistics over such a long time period are hard to interpret, it is useful to benchmark the magnitude of some sample characteristics. For example, most firms have a reasonable market-to-book ratio between one and two and the median return on assets (ROA) and sales growth rate (SGR) are both in the range of 11-12%. The average firm in our sample is 28.6 years old, though there are

[1] We rely on a variety of sources for this data. Some data are graciously provided by Jovanovich and Rousseau (2001) and Loughran and Ritter (2004). In addition to these samples, we have also filled in/supplemented this database using incorporation and founding dates collected from various issues of the Mergent's industrial manual, bank & finance manual, and OTC manual, all published by Moody's Investors Service.

[2] To mitigate the effect of outliers, all the control variables are winsorized at the 1st and 99th percentiles. However, our empirical results remain virtually the same if we do not winsorize the data.

many young firms. Given that the median age is 16 years old (in a 30 year sample), the declining propensity to pay dividends may be tied to the increase of listings by small, less profitable firms with more investment opportunities than the typical listed firm at the beginning of the sample. In general terms, our sample of firms represents the lion's share of the whole market and most of the firm-specific data that we collect is consistent with past studies in terms of means, medians, standard deviations, etc.

3. The Characteristics of Net Payout

Different channels of equity flows (both into and out of the firm) are often analyzed in isolation, rather than taken as a whole. When equity flows occur simultaneously through multiple channels, analyzing a single component provides a potentially incomplete picture of a firm's net payout behavior. For example, if a firm cuts its dividends, raises equity, and repurchases shares all at the same time (as many firms do), then it is not clear whether the firm is on net returning cash to the capital markets or raising additional funds. In this section we describe our measures of net payout and explore the degree of concordance when firms are classified based on net payout behavior versus a classification based on dividend payments alone.

Following Fama and French (2001) we classify a firm as a dividend payer if the total amount of dividends paid by the firm during a given fiscal year (Compustat item # 21) is greater than zero. Additionally, we classify a firm as a *net* payer if the net payout of the firm (dividends plus share repurchases minus equity issues) during a given fiscal year is greater than zero. Following Grullon and Michaely (2002) and Boudoukh et al (2007), we construct our main proxy of net payouts using data on share repurchases and equity issues from the flow of funds statement. Specifically, we define net total payouts as total dividends plus purchases of common

and preferred stock (Compustat item # 115) minus sales of common and preferred stock (Compustat item # 108). We label this proxy variable as *NTPAY*. One advantage of this proxy over alternative measures is that we do not need to make assumptions regarding the prices at which the company issues or buys back shares because equity issues and share repurchases are expressed in total dollar amounts.[3]

It is possible that dividend status serves as a very accurate proxy for net payout status. If this is the case, then there is little scope for an analysis of net payout to contribute significantly to our understanding of firms' payout policy relative to existing research. Table II displays the degree of concordance between the dividend payment dummy variable and the positive net payout dummy variable. For about 83% of the firm-year observations where the dividend indicator is zero, the net payout indicator is also zero. But this means that 17% (almost 13,000 observations) of the firms classified as non-dividend payers actually had positive net payout to shareholders once repurchases and equity issues are taken into account. Conversely, 4,755 firm-year observations which were classified as positive dividend payers actually had non-positive net payout. This represents about 11% of the positive dividend dummy observations.

In Table III, we dig deeper into the difference between measuring net payouts and dividends. Specifically, we identify all firm-year observations where the dividend payment status does not reflect the net payout status of a firm and report averages across three sub-periods and across retained earnings quintiles. A difference in classification occurs when a non-dividend payer pays out on net, or when a dividend payer does not pay out on net. Two patterns emerge from the data. First, the difference in classification occurs most frequently in the three highest retained earnings quintiles. This is intuitive, since firms with little retained earnings are often

[3] In a later section of the paper we examine the robustness of our main findings to several alternative measurement schemes for net repurchases. Our findings are robust to all measurement schemes that we examine.

relatively young, developing firms who are unlikely to be returning cash to investors under any definition of payout.

Second, for the two highest retained earnings quintiles, the difference in classification increases over time. This finding is consistent with the substitution hypothesis studied by Grullon and Michaely (2002) and Skinner (2008). Firms with high retained earnings have cash available to return to investors. Early in our sample period, dividends effectively served as the sole channel for returning cash to investors. Later in our sample, repurchases became available as an additional channel for distributing cash, contributing to a more substantial divergence in payout classification between the two measures.

It is worth emphasizing that discordance between dividend status and net payout status does not solely result from the substitution phenomenon. Equity issuance patterns also contribute significantly to differences in classification status. Consistent with evidence in Weld (2008), we find that a nontrivial fraction of firms are "recyclers": that is, they actually issue equity while paying a dividend or repurchasing equity (or both). Panel A of Table IV shows the fraction of firms in the various retained earnings quintiles that (a) pay a dividend or repurchase shares and (b) simultaneously issue equity in an amount that exceeds the total payout in dividends and repurchases. For firms in the middle three retained earnings quintiles, at least 10 percent of the firms are recyclers, and this holds true for each of the three subperiods examined. These firms would be classified as payers whether we used a dividend-only classification or a total payout classification (dividends plus repurchases). On net, however, they are raising cash from shareholders during the period. Panel B illustrates that, even for firms that are in fact positive net payers, a large fraction of payout is recycled. For example, firms in the lowest retained earnings quintile fund (on average) approximately 50% of their repurchases and

dividends through equity issues. The fraction of payout funded by equity issues increases from the first to the last subperiod for all of the retained earnings quintiles.

The results presented in this section highlight the importance of examining net payout patterns over time. Since sorting firms according to net payout status versus dividend status leads to substantially different classifications, and since this difference increases through time, studying net payout patterns may lead to new insights regarding firms' interactions with shareholders.

4. Variation in the Propensity to Pay

We first consider the time series behavior of the *unconditional* propensity to pay out. Given that the composition of publicly listed firms has shifted dramatically over the past thirty years toward firms that are younger and less profitable, it is natural to expect that the time series of the fraction of firms returning cash to shareholders trends downward over this period. This is indeed the case empirically for both the dividend and net payout indicator variables.

Figure 1 documents the fraction of firms in each year that had either (a) positive dividend payout, or (b) positive net payout (dividends plus repurchases less equity issues). Clearly, whether one considers dividends or net payout, the *unconditional* propensity to pay out cash declines over the period from the 1970's through the 2000's. With respect to dividend payout, Figure 1 replicates the unconditional pattern documented by Fama and French (2001). The time series for the propensity to pay out on *net* illustrates that, unconditionally, shifting to a net payout measure `explains' only about one quarter of the decline in payout observed using dividends alone as a measure of payout.[4]

[4] These results are broadly consistent with Skinner (2008) who finds a modest increase in the fraction of firms that do not pay dividends or repurchase shares though his sample starts in 1980. This misses much of the relatively large drop in *dividends* from the late 1970's to the early 1980's, which is not the focus of Skinner's paper.

Figure 1 demonstrates that a substantial portion of the overall decline in propensity to pay, whether measured using dividends or net payout, occurs between the 1970s and 1980s. While safe harbor provisions related to share repurchases were enacted in 1982, repurchasing activity accelerated only gradually until the mid 1990s (see, for example, Grullon and Michaely (2002), Allen and Michaely (2003) and Skinner (2008)). Thus in an unconditional setting, the substitution of repurchases for dividends cannot fully explain the declining propensity to pay from the late 1970s to the present. This is consistent with Fama and French (2001), who consider repurchases as a potential resolution to the puzzle but conclude that since repurchases are largely done by firms already paying dividends, repurchases alone cannot explain why firms are less likely to return cash to shareholders.

5. Changing Firm Characteristics and the Propensity to Pay

5.1 Has the conditional propensity to pay declined?

In this section, we turn to the central question of our paper: Is there a declining propensity to return cash to shareholders after controlling for the changing characteristics of firms over the last 30 years?

In order to benchmark our results against past studies, we begin by replicating the main findings in Fama and French (2001). The basic empirical strategy is simple. First, we run pooled logit regressions of the "pay/no pay" decision for some initial formation period (in our base case, we use 1973-1978). This provides a model of how firms' propensity to pay depends upon firm characteristics such as size, profitability and growth opportunities. We then use this estimated payout model to "forecast" the proportion of firms that will pay dividends over the period 1979-2006. Indeed, by accounting for future changes in firm characteristics, our

predictions capture the component of variation in propensity to pay that may be explained by changes in characteristics.

For each year during the 1979 to 2006 period, we compare the incidence of expected dividend payers (the forecast) to the incidence of actual dividend payers (the actual data). Since the expected fraction of payers incorporates changes in firm characteristics, any difference between the expected and the actual fraction of payers represents a surprise, i.e., variation in the fraction of payers that is unexplained by corresponding variation in firm characteristics. Our null hypothesis is that there is no time trend in the time series of "surprises" (expected payers less actual payers). Under the alternative, if there is, for example, a decreasing propensity to pay given firm characterisitcs, then the annual time series of expected proportions of payers would rise above the observed proportions of payers, generating an upward-trending times series of "propensity to pay deficits."

More formally, we first use data only from the formation period 1973-1978 to estimate the coefficients from a logit regression model:

$$\Pr(Y_{i,t} = 1) = F(\beta' X_{i,t}) \qquad (1)$$

where *Y* is an indicator variable equal to one if the firm pays and *X* is a vector of covariates and *F(.)* represents the logistic function. Using the estimated coefficients from (1) along with future values of *X*, we form a series of "forecasts" for each firm in the sample over the period 1979-2006. We then aggregate both the forecasts and actual data over the N firms in each year to form the following annual series:

$$\text{Expected propensity}_{\text{t}} = \frac{1}{N}\sum_{i=1}^{N}\hat{Y}_{i,t}$$

$$\text{Actual propensity}_{\text{t}} = \frac{1}{N}\sum_{i=1}^{N}Y_{i,t}$$

We then define the deficit in the propensity to pay as the difference between the expected propensity and the actual propensity.[5] If there is no change in the propensity to pay, conditional on firm characteristics, then the annual time series of the deficit in the propensity to pay should exhibit no trending behavior. Writing the deficit in the propensity to pay as

$$\text{Propensity to pay deficit}_{t} = \alpha + \gamma t + \varepsilon_{t+k}, \qquad (2)$$

we test the null hypothesis that γ=0. If there is a decreasing propensity to pay, then the OLS estimate of γ (the trend coefficient) should be positive and significant.

In Panel A of Table V we report results from the logit estimation of equation (1) for the formation period (1973-1978). In the first column, the dependent variable is simply equal to one if a dividend is paid, and zero otherwise. For this benchmark analysis we use the same control variables as in Fama and French (2001); namely, firm size, market-to-book ratio, return on assets, and sales growth. The results confirm that size, profitability, and measures of growth or investment opportunities are all significant determinants of the decision to pay dividends. Large and profitable firms with a high return on assets are more likely to pay dividends, while firms with high growth rates and high market-to-book ratios are less likely to pay dividends. The coefficient estimates are all similar in magnitude to those reported in Fama and French (2001).

Panel B of Table V presents our estimation of equation (2) over the period 1979-2006. The results in the first column show a positive and significant coefficient estimate for the time trend variable γ; that is, the gap between the expected fraction of payers and the actual fraction grows over time. The increasing deficit is economically significant as well: the deficit increases by about 82 basis points per year for a total increase of 23% (0.82*28 years). This is the declining propensity to pay dividends first documented by Fama and French (2001).

[5] Here, a negative deficit is naturally interpreted as a surplus in payers relative to expectations.

In the second column of Panel A, we augment the Fama-French logit estimation with three additional variables: the log of firm age, log of volatility (Hoberg and Prabhala (2007)), and the ratio of retained earnings to total assets (DeAngelo, et al (2006)). All three variables are significant at the 1% level, and in Panel B we see that the trend in the propensity to pay deficit is roughly cut in half: with the coefficient now 0.43 vs. 0.82 in the baseline estimation. This means the deficit increases by about 12% over the 1979-2006 period. Thus, as in Hoberg and Prabhala (2007), adding additional variables does help to explain the declining propensity to pay dividends, but there remains an economically significant decrease in the propensity to pay (at a rate of approximately 0.5% per year) even after accounting for changing firm characteristics.

Finally, in the third column we consider the positive net payout indicator rather than the dividend indicator as the dependent variable. In the logit estimations, all of the explanatory variables are highly significant with coefficients of the expected sign, indicating that the same variables that explain the dividend decision also explain the net payout decision. But most importantly, the trend regression results for the deficit in propensity to pay out (panel B) differ markedly from those for the dividend deficit. When we consider net payout, the coefficient on the trend variable is positive and insignificant, suggesting there is no declining propensity to return cash to shareholders over the 1979-2006 period, conditional on changes in firm characteristics.

Figure 2 presents a graphical representation of our basic result and helps to demonstrate the economic magnitude of our findings. For each of three sub-periods, we compute the average deficit based on the three models presented in Table V. Comparing the first column in each of the three sub-periods, there is a clear increase in the average dividend deficit over time. Even when a larger set of conditioning variables is considered (the second column in each sub-period),

there is still a large qualitative increase in the average deficit over time. However, comparing the third column in each sub-period reveals a very different picture. For the series of net payout deficits (NTPAY) there is no clear trend in the data over time.

5.2 The relationship between payout propensity and retained earnings

As DeAngelo et al (2006) show, the declining dividend puzzle is most pronounced in firms with positive retained earnings. For firms with negative retained earnings, there is no decline in the propensity to pay dividends over the last several decades. For more profitable firms, however, the declining propensity is even greater than the one documented in Fama and French (2001). Here we test whether similar patterns exist in the net payout series.

Our analysis begins by replicating the full sample results for various sub-samples based on retained earnings. Table VI presents results from regressing the deficit in the propensity to pay on a constant and a time trend variable for each of ten portfolios based on the ratio of retained earnings to total assets (RE/TA). On the left side of the table, we confirm the DeAngelo et al (2006) results using the deficit in the propensity to pay dividends: firms with negative retained earnings show no declining propensity to pay, while for profitable firms the declining propensity is magnified. These results are presented graphically in Figure 3. Panel A shows the deficit in propensity to pay dividends for each RE/TA portfolio for two subperiods: 1980-1988 and 1998-2006. For all but the negative RE/TA group, there is a large increase in the deficit from the first to the last subperiod.

In the last three columns Table VI, we present the trend regression results where the dependent variable is the net payout deficit. There are two important themes in the results. First, when we examine portfolios with low retained earnings (RE/TA values less than 0.6 as well as negative RE/TA values), the coefficient on the trend variable is actually negative. Thus for these

firms, we find evidence of an *increasing* propensity to return cash to shareholders, given firm characteristics, over the 1979-2006 period. For example, our estimates imply that for firms with negative retained earnings, the deficit in propensity to pay *shrinks* by 8.68% (-.31*28 years) over the 1979-2006 period. These findings suggest that, conditional on changes in firm characteristics, firms with relatively low retained earnings are paying out more often than expected and that this "surplus" is increasing over time. We do not necessarily view these results as a puzzle, however. The safe harbor provisions for stock repurchases enacted in the 1980s provided another channel for firms to return cash to shareholders. This may have lowered the cost of paying out cash rather than retaining it, particularly for firms early in their life-cycle (with negative or relatively low retained earnings). Given a downward shift in the cost of paying out cash for low RE firms, one might expect that these firms would increase their propensity to pay out cash, consistent with our findings.

Our second main finding is that, among firms with relatively high retained earnings, the magnitude of the increase in the propensity to pay deficit (the puzzle documented by DeAngelo et al (2006)) is substantially smaller using net payout relative to results using dividends. For example, for portfolio 8, comprised of firms having RE/TA values between 0.7 and 0.8, the estimated rate of increase in the propensity to pay deficit is 1.43% per year using dividends as a measure of payout but only 0.23% per year using net payout. Panel B of Figure 3 depicts our results graphically. Examining this figure, it appears that the lack of any trend in the full sample is the product of two components: 1) firms with relatively high RE earnings paying out less than expected given changes in firm characteristics (as in DeAngelo et al (2006) although with smaller magnitude) and 2) firms with relatively low retained earnings paying out more than expected given changes in firm characteristics.

6. Cash Distributions to Shareholders

In Section 5 we present evidence that there is little change in the propensity of firms to pay out on net over the last 30 years after accounting for changes in firm characteristics. This says nothing, however, about *how much* cash firms are paying to shareholders. As DeAngelo, DeAngelo, and Skinner (2004) show, total dollar dividends paid by industrial firms have actually increased since 1978, both in nominal and real terms. They also show that dividends have become increasingly concentrated among a small number of profitable firms. For example, the top 25 dividend paying firms typically pay more than 50% of aggregate dividends.

It may be the case that a similar result holds for net payouts; i.e., even though we show an increasing propensity to pay for firms in the lower end of the profitability spectrum, the actual amounts paid by such firms may be so small that they are of little economic consequence. To consider an extreme example, consider a firm which has a positive net payout of $100 in a given year. Our net payout dummy would equal 1 for this firm, but the real economic magnitude of this payout is very small. As a first step to resolving this question, we consider whether total payout has witnessed the same increase in concentration as dividends over the past few decades.

Table VII shows the percent of total dividends and total payout attributable to firms in various categories based on the given payout variables.[6] The dividend concentration results are very similar to those presented by DeAngelo, DeAngelo, and Skinner (2004): dividends have become increasingly concentrated in the largest 25 firms. For the 1980-1988 period, the top 25 firms (ranked by dividend payments) pay 47% of the total dividends in a typical year. In the 1998-2006 period, this has increased to 56.6%. For total payout (dividends plus share repurchases), two patterns are worth noting. First, the *level* of concentration is lower than for

[6] Note that we exclude concentration metrics for net payout. Given that net payout is often negative, the measures of concentration considered here would be difficult to interpret in considering the concentration of net payout.

dividends. In the 1998-2006 period, the top 25 firms in terms of total payout only pay 46.6% of all dividends and repurchases. This is a full 10 percentage points less than in the case of dividends. Second, the *increase* in concentration over the sample period is less dramatic than for dividends. The percent of total payout from the top 25 firms only increases from 43.8% to 46.6% from the first to the last subperiod. In short, the results presented in Table VII suggest that total payouts are less concentrated than dividends, and this gap has increased over the last several decades. Thus the total payouts made by firms outside of the top 25 are of real economic importance, and have not diminished much in their role since the late 1970's.

To directly determine whether our main findings are sensitive to the use of a dichotomous indicator variable for payout, we repeat our analysis using payout yields rather than indicator variables. A first question of interest is whether, unconditionally, there is a disappearing payout puzzle for yields similar to that for the propensity to payout. Figure 4 shows that this is indeed the case. Both the average dividend yield and the average net payout yield have fallen markedly since the 1970's. This suggests that, as with the propensity to pay, substitution from dividends to repurchases cannot, on its own, explain lower payout yields over time.

Can changing firm characteristics account for decreasing payout yields over the past few decades? In Table VIII, we repeat the analysis of Table V, but now our dependent variables are payout *yields* rather than the 0/1 dummy variables. More explicitly, we first model the relationship between payout yield, defined alternatively as either dividends yield or net payout yield, and the set of firm characteristics. We again use 1973-1978 as the estimation period. Using this model, we produce "forecasts" of the expected payout yield conditional on future values for firm characteristics.[7] These represent predicted variation in payout yields due to changes in firm

[7] We fit a Tobit model to account for clustering of payout yield values at zero, which is particularly prevalent for the dividend yield.

characteristics. Then, we form a time series of the difference between the expected payout yield and the observed payout yield. These differences represent variations in payout yield that cannot be explained by changes in firm characteristics. Finally, we test for the existence of a time trend in this "payout deficit" series.

Panel A of Table VIII presents the formation period estimation results. All of the control variables are significant in the expected direction in explaining yields. Panel B presents results from regressing the deficit in the propensity to pay (i.e., expected yield less actual yield) on the time trend variable. In the first column, we see that there is indeed a decreasing propensity to pay dividends. For net payout yield, though, the coefficient on the trend variable is actually *negative* and significant at the 5% level. Thus, once we account for repurchases and equity issues as pieces of the payout pie, firms actually appear to be returning more cash to shareholders than we would expect given the changing characteristics of firms.

7. Robustness Tests

This section explores the robustness of our key results along several dimensions. First, we test whether our main findings hold when we measure repurchases in an alternative way. Second, we consider whether alternative econometric specifications alter our main findings. Third, we examine an alternative, still broader, measure of payout that includes firms' interactions with debt holders. Finally, we explore the sensitivity of our results to the choice of the sample split-point that defines the estimation and forecast periods in our analysis. Overall, the results remain strong and are qualitatively insensitive to changes in measurement, estimation, and sub-periods.

7. 1 Alternative Measure of Total Repurchases

Earlier, we classified a firm as a net payer using data on share repurchases and equity issues from the flow of funds statement. Several other approaches for measuring net repurchases have appeared in the literature, and in this section we explore the robustness of our main findings to using these alternative schemes. One alternative employs changes in shares outstanding reported by CRSP to construct a measure of net repurchases, following Stephens and Weisbach (1998). In this approach, we define the number of shares acquired (issued) by the firm as the decrease (increase) in the number of shares outstanding over a quarter. We adjust the number of shares outstanding for stock splits, stock dividends, and other events using the cumulative factor to adjust shares. We do not know, however, at what prices the firm acquired or issued the shares. In light of this missing information, we multiply the change in the number of shares by the average share price (scaled by the cumulative factor to adjust prices) over the same quarter to estimate the quarterly amount of net equity issues (equity issues minus share repurchases). Finally, we calculate an annual measure of net equity issues by aggregating the quarterly data over a year. Our alternative measure of NTPAY is thus equal to total dividends minus the annual net equity issues.

As a second alternative measurement scheme for NTPAY, we follow the methodology in Fama and French (2001) and use the change in the dollar value of Treasury stock (Compustat item # 226) as a proxy for net share repurchases. Using this measure, we define net payouts as total dividends plus the change in the dollar value of Treasury stock. If the firm uses the retirement method, we then use the difference between share repurchases and equity issues from the flow of funds statement as a proxy for net repurchases (see Fama and French (2001) for a detailed discussion of this issue). Although this is an intuitive approach, it has one serious limitation: data on the change in the dollar value of Treasury stock are only available after 1982.

Thus, it is impossible for us to determine using this measure whether a firm is a net payer before 1983. This is a significant issue because for our main analysis, we need to estimate the parameters of logit regressions modeling the probability of being a net payer over the 1970s. As a compromise, we use our main proxy for net payouts (based on the flow of funds statement) to estimate the parameters of the logit regressions during the pre-estimation period and use the proxy for net payouts based on the changes in the dollar value of Treasury stock during the post-estimation period.

Our results (not reported in a table) show that the use of the alternative measures for net payout has little effect on either the statistical or economic magnitude of our main results. In particular, we continue to find that the estimated time trend coefficient for the deficit between the expected and actual propensity to distribute cash over the period 1979–2006 is not statistically different from zero. Indeed, under these alternative measures the point estimate of this time trend is in fact *negative*, suggesting that, if anything, there is an unexplained *increase* in the propensity of firms to distribute cash over the years 1979–2006. These results give us confidence that none of our main findings are attributable to a particular measurement scheme for net payouts.

7.2 Including the Lagged Payout Indicator in the Conditioning Set

At the firm level there is a substantial degree of persistence in the incidence of dividends and in the tendency to return cash to shareholders. Put simply, a firm that paid a dividend last year is likely to pay a dividend this year. As a robustness check, we conduct a variant of the empirical analysis in which the lagged dependent variable is included in the conditioning set.

Our results (not reported in a table) continue to show the same basic result. As expected, the lagged dependent variable is an important and significant explanatory variable. However, we continue to find evidence of a statistically significant increase in the deficit for dividend

payments. On the other hand, when we examine the net propensity to distribute cash, the time trend is *negative*, suggesting that the propensity to distribute cash given firm characteristics has actually increased over the period 1979–2006. If anything, specifying an autoregressive model for the propensity to pay out actually strengthens our evidence.

7.3 Net flows to both debt and equity

Throughout the paper we focus mainly on net cash flows to equity-holders. But leaving out flows to and from debt-holders may cause us to miss an important part of the firm's interaction with the capital markets. For example, suppose a firm has positive net payout to shareholders but finances this with a large debt issue. Then in fact the firm's interactions with capital markets might lead to an increase in excess cash, while looking only at cash flows to and from equity holders would suggest that the firm is returning funds to external markets. To examine the effects of debt financing on our conclusions, we replicate all of our tests using net payments to all owners of the firm, that is, dividends + repurchases - equity issues + debt repayments – debt issues. Our main findings (not reported in a table) are qualitatively unchanged by this broader definition of total capital market net payout. Conditional on changes in firm characteristics, we find no evidence of substantial time-variation in firms' propensity to pay out cash.[8] Overall, after accounting for changing characteristics, firms are about as likely to return cash to the capital markets in any form today as they were 30 years ago.

[8] *Unconditionally*, when net debt payments are included in the payout measure the decrease in the propensity to pay is significantly less pronounced over time. Given our earlier findings for firms' interactions with equity holders, this implies that firms' unconditional propensity to reduce debt increased over our sample period.

7.4 Robustness to the Choice of Estimation Window

One potential drawback of our approach is that the researcher must break the data into estimation and forecast sub-samples in an ad hoc way. Following previous studies, most of our analysis specifies the period 1973–1978 as the estimation period. While this facilitates comparison of our results to existing literature, the choice of 1978 as the "splitting point" is somewhat arbitrary. In this sub-section we test whether our results are robust to alternative splits. We repeat our analysis using 1973–1982 as the estimation period and 1983–2006 as the forecast period. As mentioned earlier, the year 1982 corresponds to the passage of legislation (Rule 10b-18) that substantially changed the usage of repurchases as a means to return cash to shareholders and therefore seems like a natural alternative choice for the sample split-point (see Grullon and Michaely (2002) for a detailed discussion of this regulatory change). Results under this alternative split-point (not separately reported) are very similar to those reported and discussed earlier.

8. Conclusion

In this paper we test the hypothesis that the net propensity for firms to return cash to shareholders has remained constant over time. Using various measures of the net cash flowing back to shareholders, we find that the propensity to pay out has been relatively constant over the past 30 years. Moreover, we find that among firms with low retained earnings there is actually an increasing propensity to distribute cash to equity holders.

We show that using net payouts instead of dividends has a tremendous impact on the conclusions drawn concerning the changing nature of payout policy. Conditional on their characteristics, firms are just as likely to return cash to shareholders as they were in the 1970's. Thus, the puzzles posed by Fama and French (2001) and DeAngelo et al (2006) do not

materialize when one jointly considers firms' net cash disbursements to investors. Additionally, we find that firms with negative or relatively low retained earnings are actually *more* likely to return cash to shareholders than they were in the 1970's, a finding that may reflect the loosening of restrictions regarding repurchases that have facilitated the use of stock buybacks among smaller, less mature firms.

Our findings are an important step in understanding the payout behavior of U.S. public firms. For example, our findings bear interesting implications for tax policy. One argument in favor of the Jobs and Growth Tax Relief Reconciliation Act of 2003 (the "JGTRRA") was that in the wake of the corporate scandals of 2001-2002, firms needed to be encouraged to return cash to shareholders to reduce agency problems. Bratton (2005) notes that "According to the JGTRRA's proponents, this adjustment will help jumpstart a staggering economy, jolt stock prices upward, *and release a cascade of corporate cash into the pockets of upscale consumers*" [emphasis added]. The presumption behind such arguments seems to be that firms were much less likely to distribute cash to investors than they had been in the past, and that altering the tax code could help alleviate such agency conflicts. Our results suggest that firms were actually just as likely to return cash in 2003 as they were in 1978. Moreover, by shifting cash distributions to repurchases instead of dividends, firms were actually moving toward an optimal policy of minimizing the tax burden of their investors.

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Table 1
Summary Statistics

This table reports summary statistics for various firm characteristics based on annual firm-year data over the sample period 1973-2006. The sample consists of firms that: (a) are present on both CRSP and Compustat; (b) are not a utility (SIC codes 4900 through 4999) or a financial firm (SIC codes 6000 through 6999); (c) are publicly traded on the NYSE, NASDAQ or AMEX; (d) have securities with CRSP codes 10 or 11; (e) are incorporated in the U.S. as per Compustat; (f) have available data on dividends and earnings. NYE is equal to the percentile in which the firm falls on the distribution of equity market values for NYSE firms in year t. M/B is equal to the ratio of firm value to the book value of total assets where firm value is measured as the market value of equity plus the difference between total assets and total common equity. ROA is equal to the operating income before depreciation scaled by the book value of assets. SGR is equal to the annual percentage change in total sales. AGE is defined as the number of years since the firms' founding, incorporation, or listing date, whichever is earliest. VOL is equal to the annual standard deviation of daily returns. RE/TA is equal to the ratio of retained earnings to total assets. To mitigate the effect of outliers, all the variables are winsorized at the 1% and the 99% of their empirical distribution.

	Mean	S.D.	25%	50%	75%
NYSE equity value percentile (NYE)	0.22	0.26	0.02	0.09	0.34
Book-to-market ratio (M/B)	1.83	1.57	0.98	1.30	1.98
Return on assets (ROA)	0.07	0.22	0.04	0.12	0.18
Sales growth rate (SGR)	0.24	0.70	-0.01	0.11	0.27
Firm age (AGE)	28.63	31.80	7.00	16.00	38.00
Volatility (VOL)	0.04	0.03	0.02	0.03	0.05
Earned equity to total assets (RE/TA)	-0.18	1.26	-0.12	0.16	0.36

Table II
The Congruence between the Dividend Payer Dummy and the Positive Net Payout Dummy

This table reports the number and fraction of non-dividend payers with non-positive and positive net payouts and the number and fraction of dividend payers with non-positive and positive net payouts. The dividend dummy is equal to one if the total amount of dividends paid by the firm during a given fiscal year is positive, zero otherwise. The positive net payout dummy is equal to one if the net payout of the firm (dividends plus share repurchases minus equity issues) during a given fiscal year is positive, zero otherwise.

		Positive Net Payout Dummy		
		0	1	Total
Dividend Dummy	0	62,254 (82.97%)	12,781 (17.03%)	75,035 (100%)
	1	4,755 (11.07%)	38,196 (88.93%)	42,951 (100%)
	Total	67,009 (56.79%)	50,977 (43.21%)	117,986 (100%)

Table III
Differences in Classification

This table reports the total fraction of observations in which the dividend dummy variable does not reflect the net payout status of a firm across three sub-periods and across retained earnings quintiles. A difference in classification occurs when a non-dividend payer has a positive net payout or a dividend payer has a non-positive net payout. A firm is classified as a dividend payer if the total amount of dividends paid by the firm during a given fiscal year is greater than zero. A firm is classified as a net payer if the net payout of the firm (dividends plus share repurchases minus equity issues) during a given fiscal year is greater than zero.

Retained Earnings Quintile	Full Sample	1980-1988	1989-1997	1998-2006
1	0.09	0.10	0.08	0.08
2	0.15	0.18	0.13	0.15
3	0.20	0.21	0.18	0.21
4	0.22	0.19	0.21	0.25
5	0.19	0.13	0.18	0.26

Table IV
Equity Recycling

This table presents the proportion of "recycling" firms in our sample, where recycling refers to the practice of simultaneously issuing equity and either paying dividends or repurchasing shares (or both). Panel A presents the proportion of firms that pay a dividend or repurchase shares *and* simultaneously issue equity in excess of the value of total payout (dividends plus repurchases). Panel B depicts the proportion of total payout that is recycled. This is computed for each firm as the positive level of payout net of equity issues (1-(*max [0, dividends + repurchases – equity issues]*)/(dividends + repurchases)).

Panel A: Proportion of "Recycling" Firms

Retained Earnings Quintile	Full Sample	1980-1988	1989-1997	1998-2006
1	0.09	0.10	0.06	0.12
2	0.13	0.15	0.12	0.15
3	0.13	0.15	0.14	0.16
4	0.10	0.10	0.11	0.14
5	0.04	0.04	0.05	0.06

Panel B: Proportion of Total Payout that is Recycled

Retained Earnings Quintile	Full Sample	1980-1988	1989-1997	1998-2006
1	0.52	0.58	0.55	0.65
2	0.39	0.35	0.49	0.51
3	0.35	0.36	0.42	0.44
4	0.27	0.26	0.31	0.39
5	0.18	0.14	0.21	0.29

Table V
The Propensity to Distribute Cash to Shareholders

This table reports estimation results for firms' conditional propensity to pay out as a function of time. Panel A presents results for a pooled logistic regression model over the annual period 1973–1978. The column headings describe the dependent variable for the model. In columns labeled "Dividends," the dependent variable is an indicator that takes the value of one if the firm pays a dividend in year *t* and zero otherwise. In columns labeled "Net Payout," the dependent variable is an indicator that takes the value of one if the total payout for the firm is positive, where total payout is defined as dividends plus total repurchases less equity issues. Repurchases less equity issues is calculated using data from the statement of cash flow. NYE is equal to the percentile in which the firm falls on the distribution of equity market values for NYSE firms in year *t*. M/B is equal to the ratio of firm value to the book value of total assets where firm value is measured as the market value of equity plus the difference between total assets and total common equity. ROA is equal to the operating income before depreciation scaled by the book value of assets. SGR is equal to the annual percentage change in total sales. AGE is defined as the number of years since the firms' founding, incorporation, or listing date, whichever is earliest. VOL is the standard deviation of the firms' daily stock returns. RE/TA is equal to the ratio of retained earnings to total assets. To mitigate the effect of outliers, all the control variables are winsorized at the 1% and the 99% of their empirical distribution. We report standard errors based on two-way clustering (firm and year) in parentheses below the corresponding coefficient estimate. Statistical significance at the 1%, 5% and 10% levels is indicated by an "a," "b," or "c" superscript, respectively. Panel B reports OLS coefficients from a regression of the aggregate propensity to pay deficit on a constant and an annual time trend. As in Panel A, standard errors are presented in parentheses below the coefficient estimates.

Panel A: Formation Period Logit Regressions (1973 – 1978)			
		DIV	NTPAY
NYE	5.29 [a]	2.96 [a]	1.04 [a]
	(0.13)	(0.14)	(0.11)
M/B	-1.18a	-0.65a	-0.70a
	(0.05)	(0.05)	(0.04)
ROA	7.83 [a]	2.40 [a]	2.45 [a]
	(0.26)	(0.31)	(0.28)
SGR	-0.92 [a]	-0.48 [a]	-0.80 [a]
	(0.08)	(0.08)	(0.08)
Ln(AGE)		0.25 [a]	0.20 [a]
		(0.02)	(0.02)
Ln(VOL)		-87.91 [a]	-45.93 [a]
		(2.30)	(1.77)
RE/TA		3.85 [a]	3.04 [a]
		(0.15)	(0.12)
Constant	-0.02	1.55 [a]	1.17 [a]
	(0.05)	(0.12)	(0.11)
N	16338	16338	16338

Panel B: Trend Models for Deficit in the Propensity to Pay (1979 – 2006)			
		DIV	NTPAY
Trend	0.82 [a]	0.43 [a]	0.06
	(0.14)	(0.09)	(0.12)
Constant	0.00	0.04 [a]	0.05 [a]
	(0.02)	(0.01)	(0.02)
N	28	28	28
R-squared	0.68	0.52	0.01

Table VI
Firm Retained Earnings and the Deficit in the Propensity to Pay

This table reports OLS coefficients from a time trend regression of the propensity to pay deficit for equal-weighted portfolios of firms formed based on retained earnings levels. In all cases, the expected propensity to pay for each year from 1979 – 2006 is computed based on coefficient estimates from the pooled logistic regression model (across all firms) over the annual period 1973–1978 reported in Table III. We then form various portfolios of firms based on retained earnings levels. First we form ten retained earnings portfolios based on the absolute level of the RE/TA, following DeAngelo, DeAngelo and Skinner (2006). We also form two separate portfolios comprised of the largest 500 and 1,000 firms in terms of RE/TA. All portfolios are rebalanced annually. For each of these portfolios, we compute the actual fraction of firms with positive payouts, according to either the DIV or NTPAY metric of payout, and compare this to the expected proportion of firms paying out. The table displays intercept and trend estimates for the regression of the deficit in the propensity to pay, defined as the expected proportion of paying firms less the actual proportion for each of the RE/TA-based portfolios of firms. Statistical significance at the 1%, 5% and 10% levels is indicated by an "a," "b," or "c" superscript, respectively.

	Dividend Deficit			Net Payout Deficit		
RE/TE	Constant	Trend	Adj. R^2	Constant	Trend	Adj. R^2
<0.00	0.01	0.01	-0.03	0.01	-0.31 [a]	0.36
0.00-0.10	0.04	0.44 [a]	0.31	0.11	-0.35 [b]	0.12
0.10-0.20	0.02	0.82 [a]	0.67	0.13	-0.21	0.03
0.20-0.30	0.08	0.76 [a]	0.58	0.17	-0.34 [b]	0.10
0.30-0.40	0.10	0.90 [a]	0.56	0.18	-0.25	0.03
0.40-0.50	0.08	1.06 [a]	0.57	0.20	-0.39 [c]	0.09
0.50-0.60	0.05	1.17 [a]	0.73	0.17	-0.18	-0.01
0.60-0.70	0.00	1.55 [a]	0.81	0.11	0.14	-0.01
0.70-0.80	-0.04	1.43 [a]	0.86	0.03	0.23	0.05
0.80-0.90	0.01	0.76 [a]	0.46	-0.01	0.18	0.03
0.90+	0.01	0.51 [a]	0.79	-0.03	-0.06	-0.02

Table VII
The Concentration of Dividends and Total Payout

This table reports the concentration of dividends and total payout among firms in our sample over different sub-periods. We form portfolios of firms according to their rank in terms of payout, where payout is alternatively measured using dividends and total payout (dividends plus repurchases). For each portfolio of firms, we report the portfolio's payout as a percentage of total payout for all firms. The rows in the table are ordered according to increasingly large portfolios of "top-payers," and we also present the cumulative percentage of total payout found by summing payout among firms with payout levels in the same tier or higher tiers. Results are presented over both the 1980-1988 and 1998-2006 sub-intervals.

Payout ranking	Percent of total dividends (%)		Cumulative % of total dividends (%)		Percent of total payout (%)		Cumulative % of total payout (%)	
	1980-88	1998-06	1980-88	1998-06	1980-88	1998-06	1980-88	1998-06
Top 25	47.0	56.6	47.0	56.6	43.8	46.6	43.8	46.6
26-50	12.9	13.7	59.9	70.3	15.0	14.1	58.7	60.7
51-100	12.9	12.8	72.7	83.1	14.2	13.6	72.9	74.4
101-200	12.0	9.4	84.7	92.6	11.8	11.9	84.7	86.3
201-300	5.8	3.6	90.5	96.2	5.4	5.4	90.1	91.7
300-400	3.3	1.8	93.8	98.0	3.2	3.0	93.3	94.7
401-500	2.0	1.0	95.8	99.0	2.0	1.8	95.3	96.5
501-1000	3.7	1.0	99.5	100.0	3.8	3.0	99.1	99.5
1001-1500	0.5	0.0	100.0	100.0	0.8	0.4	99.9	100.0
1501-2000	0.0	0.0	100.0	100.0	0.1	0.0	100.0	100.0

Table VIII
Payout Yield Regressions

This table reports results for firms' payout normalized by the market value equity. In the first column of the table, the dependent variable is DIV/M, the firm's annual dividend payment divided by its year-end market value. In the second column of the table, the dependent variable is NPAY/M, the firm's annual net payout (dividends plus repurchases less equity issuances), divided by year-end market capitalization. For each year during the 1979 – 2006 period the expected payout yield, where payout is measured alternatively as dividends, total payout, or net payout, is computed based on estimates from a pooled linear regression model over the 1973 – 1978 period. We apply a Tobit model rather than the linear regression due to the clustering of values at zero. The firm-level characteristics included in the model are NYE, M/B, SGR, ROA, Ln(AGE), Ln(VOL) and RE/TA . All control variables are winsorized at the 1% and the 99% of their empirical distribution and a constant term is also included in the model. We report standard errors based on two-way clustering (firm and year) in parentheses below the corresponding coefficient estimate. We then compute the difference between the expected yield and the actual yield for each firm-year over 1979 – 2006. These are then averaged by year to produce an annual time series of deficits in the level of payout. Panel B reports OLS coefficients from a time trend regression of these deficits for 1979 – 2006. As in Panel A, standard errors are presented in parentheses below the coefficient estimates. Statistical significance at the 1%, 5% and 10% levels is indicated by an "a," "b," or "c" superscript, respectively.

Panel A: Formation Period Logit Regression (1973 – 1978)		
	Dividend Yield	Net Payout Yield
NYE	1.16 [a]	-1.34 [a]
	(0.11)	(0.25)
M/B	-1.84 [a]	-0.94 [a]
	(0.05)	(0.09)
ROA	1.49 [a]	2.71 [a]
	(0.35)	(0.63)
SGR	-1.05 [a]	-2.45 [a]
	(0.11)	(0.17)
Ln(AGE)	0.40 [a]	0.56 [a]
	(0.03)	(0.06)
Ln(VOL)	-12.96 [a]	-8.12 [a]
	(0.26)	(0.44)
RE/TA	4.79 [a]	1.81 [a]
	(0.15)	(0.17)
Constant	4.68 [a]	4.19 [a]
	(0.14)	(0.28)
N	16,337	16,337

Panel B: Trend Model for Deficit in the Propensity to Pay (1979 – 2006)		
	Dividend Yield	Net Payout Yield
Trend	4.65 [a]	-8.72 [b]
	(0.91)	(3.49)
Constant	-1.18 [a]	3.16 [a]
	(0.17)	(0.66)
N	28	28
R-squared	0.64	0.20

Figure 1
Time Series Plots of Unconditional Payout Behavior

This figure presents the average proportion of firms paying dividends, and the proportion of firms with positive net payout (dividends plus repurchases less equity issues). Repurchases less equity issues is calculated using data from the statement of cash flow.

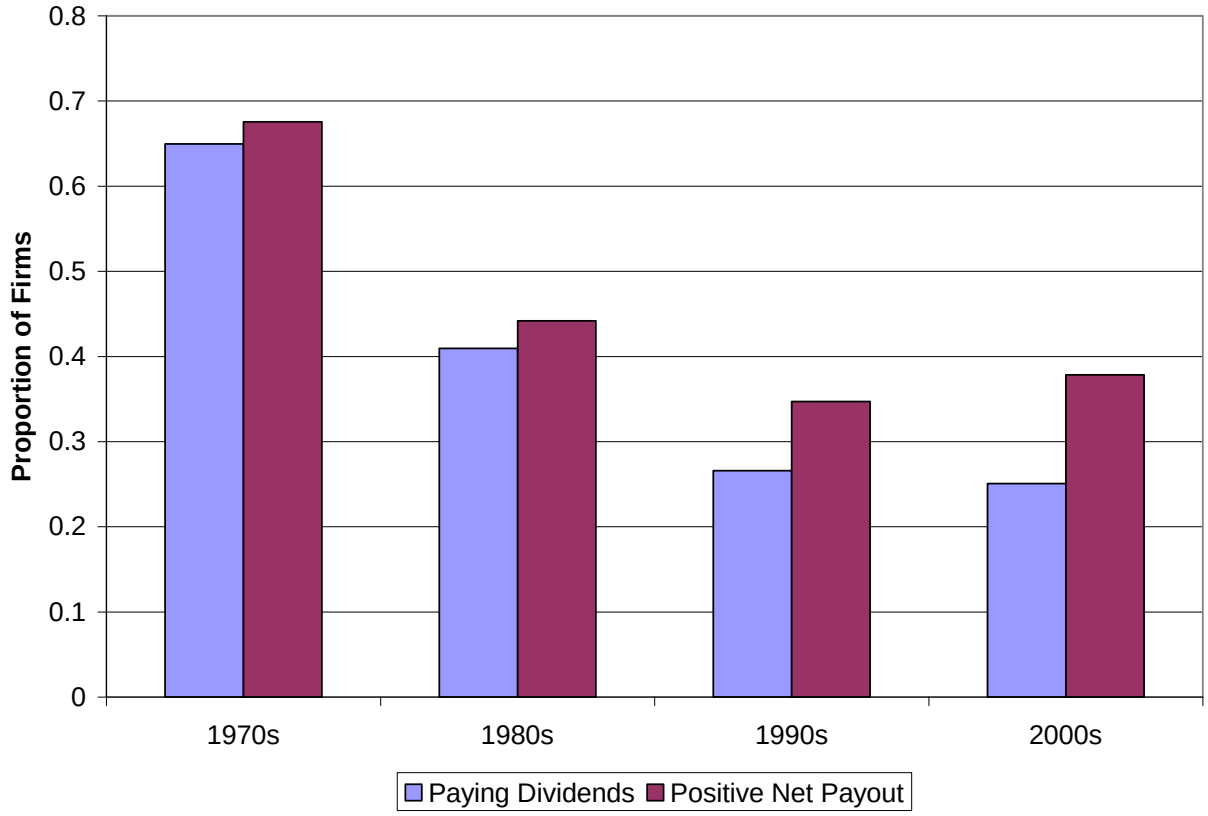


Figure 2
Deficit in the Propensity to Pay

The figure tracks the deficit in the propensity to pay over time for alternative models of firm payout. The deficit in the propensity to pay for each year is defined as the proportion of firms expected to pay less the actual proportion of paying firms. The deficit in the propensity to pay is presented for three pooled logit models: 1.) a model in which the dependent variable is a dummy that takes the value one if the firm pays a dividend (DIV) with the explanatory variables SIZE, M/B, ROA and SGR (collectively labeled "Fama-French controls"); 2.) a model in which the dependent variable is DIV with the explanatory variables SIZE, M/B, ROA, SGR, the natural logarithm of AGE, the natural logarithm of VOL and RE/TA (collectively labeled "all controls"); and 3.) a model in which the dependent variable is a dummy that takes the value of one if the net payout of the firm in a given year is positive (NTPAY), where net payout is defined as dividends plus repurchases less equity issuances, with all controls included. Table V presents coefficient estimates for these models and fits linear trends to the time series of deficits presented here. The figure includes deficits for the out-of-sample period of 1979 – 2006, during which the expected proportion of paying firms is computed using coefficient estimates from the 1973 – 1978 period.

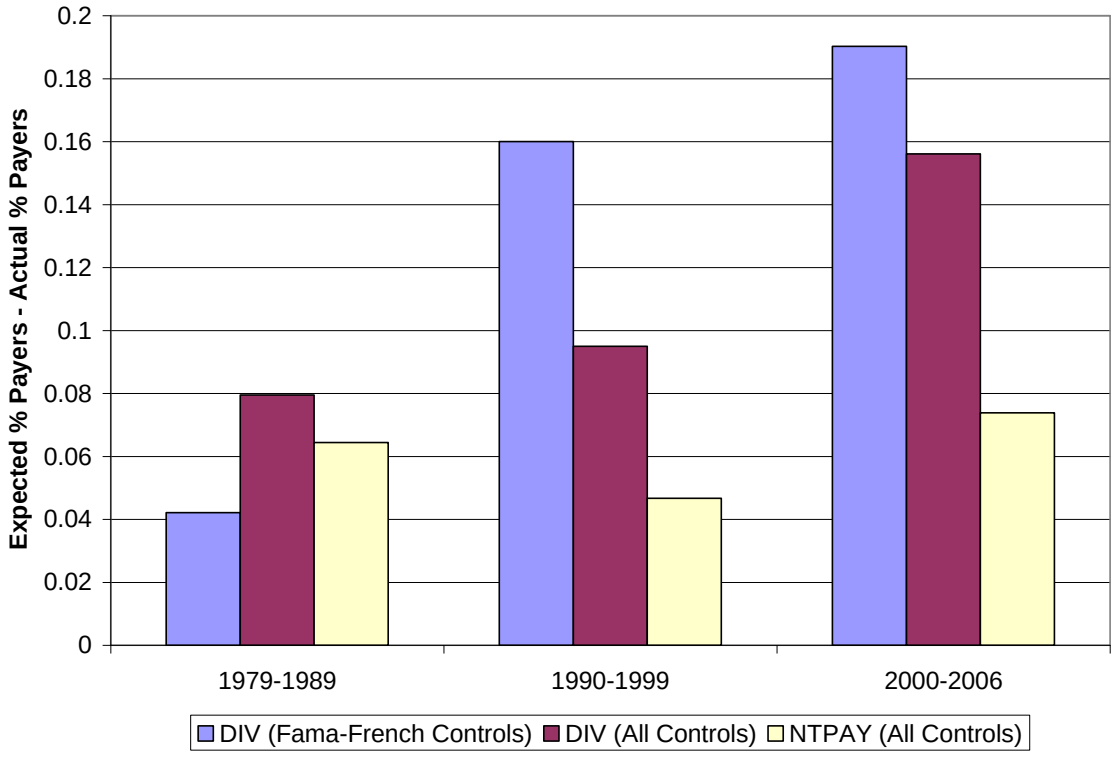
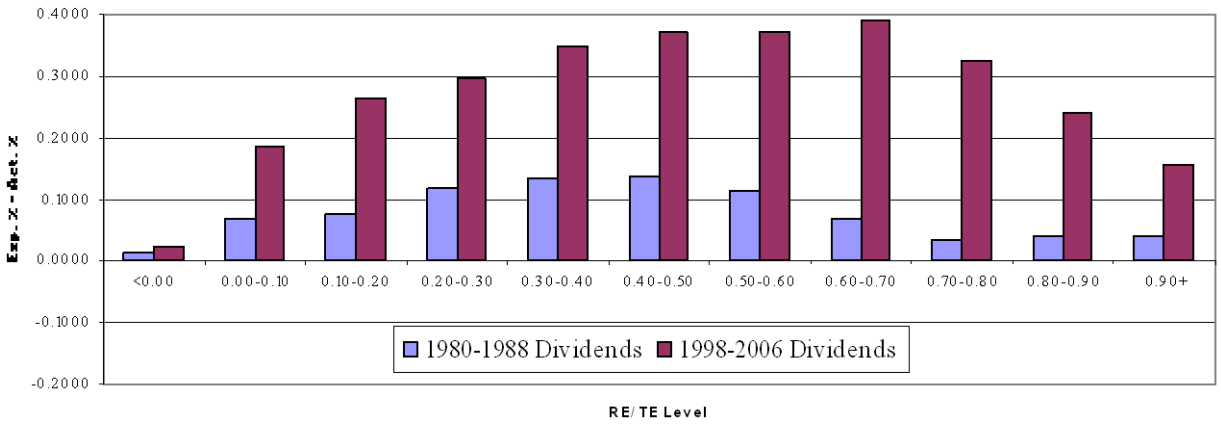


Figure 3
Deficit in the Propensity to Pay Dividends vs. Deficit in the Propensity to Pay Cash for Firms Sorted by Retained Earnings

This figure depicts the proportion of expected payers minus the proportion of actual dividend payers by groups of firms sorted on the ratio of retained earnings to total equity (RE/TE). This information is presented both for dividends as a measure of payout and for net payout, defined as dividends plus repurchases less equity issuances. Panel A depicts results for dividends, while Panel B depicts results for net payout.

Panel A: Dividends



Panel B: Net Payout

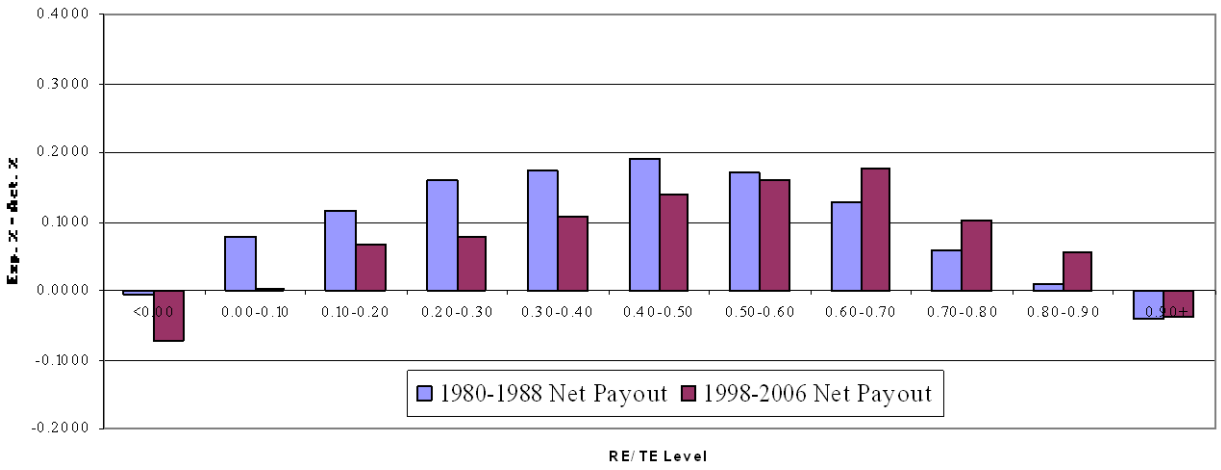


Figure 4
Time Series Plots of Unconditional Yields

This figure depicts the average dividend yield and net payout yield for each decade in the sample period. The dividend yield for a given year is defined as the aggregate dividend paid across all firms in our sample in that year divided by the total market capitalization of firms in our sample in the corresponding year. The net payout yield is defined by the aggregate net payout, equal to the sum of dividends plus repurchases less equity issuances, divided by aggregate market capitalization.