THE CASH FLOW PERMANENCE AND INFORMATION CONTENT
OF DIVIDEND INCREASES VS. REPURCHASES

Wayne Guay
The Wharton School
University of Pennsylvania
2400 Steinberg-Dietrich Hall
Philadelphia, PA 19103-6365
guay@wharton.upenn.edu
215.898.7775 (voice)
215.573.2054 (fax)

Jarrad Harford[*]
Lundquist College of Business
1208 University of Oregon
Eugene, OR 97403-1208

jarradh@oregon.uoregon.edu
541.346.3242 (voice)
541.346.3341 (fax)

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We hypothesize that the payout method chosen to distribute a cash flow shock is primarily determined by the permanence of the shock. Dividend increases will be observed following cash flow shocks with a relatively large permanent component while repurchases will be used to distribute shocks that are primarily transient. Further, this implies that the market will use the announcement of the payout *method* to update its beliefs about the permanence of past and contemporary cash flow shocks. Using a large sample of dividend increases and repurchases, we find support for these hypotheses. The post-shock cash flows of dividend increasing firms do not fully revert back to pre-shock levels. Those of repurchasing firms completely revert to pre-shock levels, even settling below them. The stock price reactions to the announcements of both repurchases and dividend increases show strong evidence that the information in a payout announcement is not only the size of the payout, but also the *method* used to distribute the cash. The announcement of a payout method that does not match the market's expectations causes the market to update its previous assessment of the permanence of the cash flow shock.

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1. INTRODUCTION

Dividends and share repurchases are the two primary methods used by corporations to distribute cash to shareholders. While each method has received considerable attention in the academic literature, relatively few studies examine the choice between repurchases and dividends. We hypothesize that firms choose between repurchases and dividends to distribute cash flow shocks based on the permanence of the shocks. We argue that because dividend increases are implicitly permanent, repurchases are used to disburse transient cash flow shocks while dividend changes are used when the shock is relatively more permanent. Further, if management's choice of payout method is driven by its expectations about cash flow permanence, this hypothesis also has implications for the information conveyed by a dividend change or repurchase announcement. To the extent that stock prices do not fully anticipate a firm's method of payout, the market is expected to use the firm's choice of payout method to update its estimate of cash flow permanence. Thus, we focus on the information conveyed by the method used to make the distribution, as opposed to the information contained in the amount or occurrence of the distribution.

We find that the size of the cash flow shock experienced by repurchasing and dividend-increasing firms is similar. However, shocks followed by substantial dividend increases are significantly more permanent than those followed by repurchases. Compared to a control sample of non-distributing firms, dividend-increasing firms have significantly higher permanence, while the permanence of repurchasing firms' shocks is

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indistinguishable from that of non-distributing firms. Further, we find that the market anticipates the permanence of the cash flow shock, on average. The stock price reaction to cash flows preceding dividend increases is significantly higher than the reaction to cash flows preceding repurchases.

Although, on average, the stock market correctly separates transient and permanent cash flow shocks, it is wrong on occasion. When the market identifies a cash flow shock as transient and management chooses to increase dividends, the market should positively update its belief about the permanence of the shock. Similarly, when a repurchase is used to distribute a shock that the market believed to be relatively permanent, the stock price reaction to the announcement should include a negative reassessment of the permanence of that shock. We find that stock price reactions to dividend changes and repurchases are consistent with both of these conjectures. We conclude that part of the information in a payout announcement is the method of distribution, and that the market uses this information to update its assessment of the permanence of contemporaneous cash flow shocks. Thus, our evidence contributes to the understanding of the factors driving the choice between alternative payout methods, as well as the nature of the information content of the payout announcements.

In the next section, we review the relevant literature and develop our hypothesis. Section 3 describes the data and sample selection. The empirical tests are carried out in section 4 and conclusions are presented in section 5.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Literature Review

This study compares the two primary payout alternatives: dividend increases and repurchases. While there are very few empirical studies that examine both methods simultaneously, there are extensive literatures studying each method in isolation. Since Lintner's (1956) seminal paper on dividends and earnings, there has been a steady academic quest to identify the information content of dividends for earnings. An early study by Watts (1973) examines dividend announcements and finds that the information content in dividends about future earnings is trivial. Subsequent studies have used larger samples and different techniques, and have produced mixed results. Dividend changes do seem to cause analysts to change their earnings forecasts (Ofer and Siegel, 1987, Denis, Denis and Sarin, 1994, Carroll, 1995). However, there is little consistent evidence that dividends have incremental information relative to contemporaneous earnings in predicting future earnings (Leftwich and Zmijewski, 1994, DeAngelo, DeAngelo and Skinner, 1996, Benartzi, et al., 1997). Benartzi, et al. (1997) study a comprehensive sample of dividend changes and conclude that if dividend increases signal anything about future earnings, it is that earnings are less likely to fall than for similar firms without dividend increases. They conclude that dividends are a reaction to past and contemporaneous earnings changes rather than a signal of higher future earnings. Kormendi and Zarowin (1996) also examine the relation between dividends and permanent earnings changes. They conclude that while permanent changes in earnings are a factor that affects dividends, there are other factors as well, such as taxes and transaction costs.

The evidence on repurchases as signals of future earnings is also mixed. Dann (1981) provides evidence that the stock price reaction to self-tender offers is due to positive information conveyed by the repurchase. Dann, Masulis and Mayers (1991) show that analyst forecast changes and earnings surprises follow repurchase tender offer announcements, and that these surprises are related to the stock price reaction to repurchases. Bartov (1991) finds what he terms "weak" evidence that positive earnings surprises occur in the same year as an open-market repurchase. Finally, Lie and McConnell (1998) find little evidence that repurchase tender offers are followed by improved earnings. Their only evidence of superior performance is that the sample firms exhibit less mean reversion in return on assets than other firms in the same industry.

Overall, the recent empirical evidence questions the roles of dividends and repurchases as signals of higher future cash flows. The evidence in Benartzi, et al. (1997) implies that changes in regular quarterly dividends can be best explained as a reaction to past and contemporaneous earnings shocks rather than as signals of improved future earnings. Similarly, the study of repurchase tender offers by Lie and McConnell (1998) shows that there is little evidence that repurchases precede higher future performance. Rather, they show that the return on assets observed prior to the repurchase is less likely to fall in the future. One implication of these findings, tested here, is that different payout choices signal varying degrees of permanence of contemporaneous performance shocks, rather than higher future performance.

Few studies have jointly examined dividends and repurchases. One of the earlier studies, Bagwell and Shoven (1988), provides descriptive evidence regarding the increased distribution of cash through repurchases and acquisitions as alternatives to

dividends. They conclude that tax arguments are unlikely to explain the use of repurchases and suggest a contagion/learning model instead. Most research that has examined the two payout methods together has focused primarily on their relative efficacy as signals of future performance. For example, Ofer and Thakor (1987) demonstrate theoretically that repurchase tender offers should be used to correct large misvaluations while dividends are more efficient for smaller misvaluations. Choi and Chen (1997) test the predictions of Ofer and Thakor (1987) on a sample of dividend changes and tender offer share repurchases. In support of Ofer and Thakor, they find the stock price reaction is larger for a repurchase tender offer announcement, even after controlling for the size of the distribution.

A recent paper by Bartov, Krinsky and Lee (1998) examines a sample of 260 firms, half of whom repurchase shares and half of whom pay dividends. They hypothesize that the managers will choose a repurchase over a dividend if: management views its shares as greatly undervalued, management has options that are not dividend-protected, or a large fraction of equity ownership is held by institutions, which seem to show a preference for repurchases. Their evidence generally supports their predictions. While we agree that all of these factors are important on the margin in making the distribution decision, we view our paper as complementary in that we focus on a fundamental determinant of the decision—the stability of the underlying cash flows.

Hypothesis Development

We hypothesize that both dividend increases and repurchases are used to distribute past and contemporaneous cash flow shocks. This view is broadly consistent with the evidence in Bartov (1991) and Benartzi, et al. (1997). We argue that the choice

between these two payout methods depends upon the expected permanence of the realized cash flow shock. Lintner (1956), Fama and Babiak (1968), and Asquith and Mullins (1983), among others, provide evidence that dividend increases are intended to be and are, on average, permanent. Repurchases, by comparison, are generally stand-alone actions that must be taken each time shares are acquired (though they may be part of a pattern of planned repurchases).[1] Therefore, because a dividend increase is implicitly more permanent, we hypothesize that dividend increases follow cash flow shocks that are more permanent than those followed by repurchases.

This expected relation between payout method and the permanence of future cash flows has implications for the information content of dividend increases relative to repurchases, assuming the market does not perfectly anticipate these actions. Since dividend changes are relatively more permanent, an increase in the dividend provides the market with favorable information about the extent to which past and contemporaneous cash flows are likely to continue. On the other hand, when a repurchase is used instead of a dividend change, the market is expected to adjust downward its estimate of the permanence of cash flow shocks, on average.[2] The magnitude of this price reaction will depend upon the extent to which a payout announcement causes the market to change its expectations about the permanence of a firm's cash flows. As such, it is important to consider the information content of the payout choice *conditional* on the market's expectations about cash flow permanence.

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[1] In a comprehensive study of actual share acquisitions in open market repurchase programs in the 1980s, Stephens and Weisbach (1998) find that only 10% of the sample firms have more than one repurchase in any three-year period.

[2] This hypothesis is consistent with the evidence presented in Brickley (1983) for specially designated dividends. Brickley finds that the labeling of a dividend increase as special is a less positive signal than a regular, unlabelled increase, and that earnings are more likely to increase following the latter.

A simple model will aid in the exposition of our predictions. Assume that cash flow shocks can either completely dissipate or be completely permanent. The firm receives a cash flow shock at time 1. Its cash flows for time 1 are its normal level of cash flows plus the shock: *CF+Shock*. In the future, its cash flows will be *CF+p·Shock*, where *p* is the permanence parameter, taking the value of either 0 or 1. The firm exists for two periods and makes a distribution announcement between times 1 and 2.

Assuming a discount rate of zero without loss of generality, the price of the firm in period 1 when the shock is observed will be $P_1=(CF+Shock)+[CF+\Pr(p=1 \mid \gamma)Shock]$. The managers observe the permanence parameter, *p*, but the market does not. Therefore, the market must assess the probability that the permanence parameter equals 1 based on its information at the time of the shock, represented by γ. The managers then make a distribution announcement. If the shock is permanent, they choose a dividend, but if the shock is temporary, they choose a repurchase.[3] The market observes the choice of distribution method and updates its belief about the permanence of the shock. Thus, the price after the distribution announcement will be $P_2 = 2(CF+Shock)$ if a dividend is announced, and $P_2 = (CF+Shock)+CF$ if a repurchase is announced.

The change in price due to the announcement of the distribution will be decreasing in $\Pr(p = 1 \mid \gamma)$. If the managers announce a dividend increase, then $\Pr(p=1)$ goes to 1, and the increase in price is a decreasing function of the probability the market placed on observing a dividend increase. If the managers announce a repurchase, then

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[3] While this model is intended only to ease the exposition of the paper, this choice by managers can be made to be a separating equilibrium by continuing the life of the firm past two periods and making it prohibitively costly for managers of temporary shock-type firms to continue paying a dividend if they

Pr($p=1$) goes to 0. In this case, the price will fall, unless Pr($p = 1 \mid \gamma$) = 0, meaning the market completely anticipated the repurchase. As the market puts more weight on the possibility that the distribution will be a dividend increase, the price change upon announcement of a repurchase decreases. Thus, for both types of distribution announcements, the announcement return, conditional on the chosen method, will be decreasing in the prior weight put on *p* being equal to 1.

To summarize, the two predictions of the *permanence hypothesis* are: 1) the cash flow shock preceding a dividend increase will have a larger permanent component than cash flow shocks preceding a repurchase, and 2) the market will use management's choice of payout method to update its belief about the permanent component of the cash flow shock.

3. DATA

We identify a sample of firms that declare either dividend increases or open-market repurchase authorizations. Working from the distribution decision date, we collect data on cash flows for 8 years centered on the year of the distribution decision, year *t*. For each sample firm, we compute baseline cashflows over years *t-4* through *t-2*, the cash flow shock during years *t-1* through *t*, and future cash flows from years *t+1* through *t+3*. Using these cash flow measures, we compare the permanence of cash flows between the two types of firms.[4]

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chose one in period 2. Costly external financing and a properly designed compensation package for managers would achieve the separation.

[4] An alternative approach would be to start with a cash flow shock and then track what the firm does. We feel that the alternative approach would be better suited to addressing a different question—a question of

We begin with a comprehensive set of open market repurchases from 1981 to 1993. These data are gathered from the Securities Data Company database of repurchases. Further, if a firm announces two repurchases within 4 quarters of each other, we eliminate the second one. These second repurchases could be reauthorizations of the previously announced program. To this repurchase sample, we add all of the dividend increases made by firms in the CRSP database over the same time period. We define a dividend increase to occur when the current year's total dividend payout is greater than the previous year's dividend payout. Annual dividend increases are included only when each quarterly dividend change within a fiscal year is either positive or zero; that is, when both negative and positive quarterly changes occur within the same fiscal period, the observation is excluded. The resulting dataset contains 1153 repurchases and 5010 dividend changes. Table 1 presents the distribution of the events across time.

We further subdivide the dividend sample by identifying dividend increases that could be characterized as regular or recurring. Some firms try to increase their dividend by a very small fraction every year, presumably so they can tell their shareholders that dividends have increased so many years in a row. This can be viewed as a signal of managerial and firm quality and is similar to the rationale given in the accounting literature for steadily increasing earnings streams. Another concern is that some of these dividend increases are actually smaller than the increase in the prior year, and should not be viewed as the primary payout reaction in the two-year shock window. Therefore, we segment the dividends into two categories. The first category contains increases that are

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why some firms distribute cash flow shocks and others do not. Our approach has two advantages: first, it does not force the sample firms to have a cash flow shock of some arbitrary magnitude; second, by its design, it identifies all firms that make a distribution decision. This second point is important because it allows us to begin with a complete sample of distribution changes.

not preceded by a dividend in the previous year, or are larger than the dividend increase in the previous year. The second includes the remainder, which we will term small/routine dividend increases. This type of dividend increase is expected to carry significantly less information about cash flows than a more substantial increase. There are 2962 observations in the first category and 2048 in the second.

4. EMPIRICAL RESULTS

We begin by testing the hypothesis that the distribution method is related to the permanence of previous and contemporaneous cash flows. Establishing that, we move on to examine whether the market's expectations about permanence are consistent with our findings, on average. We do this by measuring the stock return associated with the cash flows, in a manner similar to the measurement of earnings response coefficients. Finally, we examine the announcement returns for both repurchases and dividend increases to test the prediction that the market uses information in the payout method to update its expectations about cash flow permanence. These final tests indicate that the announcement return contains an adjustment component reflecting the new information relayed by the payout method about the permanence of the cash flow shock.

Summary Statistics

Table 2 presents summary statistics for the samples of repurchasers and dividend increasers. While the repurchasers and substantial dividend increasers are similar in size, the small/routine dividend increasers are somewhat larger. The median market value of equity for repurchasers and substantial dividend increasers is about $440 million

compared to $655 million for small/routine dividend increasers. This difference is consistent with the notion that, on average, larger, more mature firms use dividends more regularly. Although the market-to-book ratios differ statistically across the samples, the mean and median values for the repurchasers are within 5% of the respective mean and median values for both samples of dividend increasers. The leverage ratios indicate that dividend increasers tend to be more levered than their repurchasing counterparts.

Finally, the table provides information about the size of the cash distributions. The median increase in dividends is 13.2% for substantial increasers and 8.6% for small/routine increasers. However, there appear to be some large outliers, as evidenced by the substantially larger mean values. The SDC database only contains information on the number of shares sought for 696 of the repurchasing firms. For those firms, the mean and median percentages of outstanding shares sought were 8.6% and 6.3%, respectively.

The Size and Permanence of the Cash flow shock

Consistent with previous studies (e.g., Dechow, 1994), cash flow from operations is computed as:

$$CFO_t = \text{Operating income before depreciation}_t - \text{Interest}_t - \text{Taxes}_t - \Delta\text{Working capital}_t$$

Cash flow from operations is scaled by beginning-of-period assets to reduce heteroscedasticity and spurious correlations due to firm size.

Table 3 indicates that the size and permanence of the cash flow shocks experienced by the sample firms are broadly consistent with our predictions. The timing and definition of these measures are illustrated in Figure 1. Year 0 is the year in which the dividend is increased or repurchase is authorized. The cash flow shock is measured

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by comparing the cash flows in years -1 and 0 with the cash flows in years -4, -3 and -2. The size of the shock is defined as :

$$\frac{\text{Avg Cash Flow in years } -1 \text{ and } 0 - \text{Avg Cash flow in years } -4 \text{ to } -2}{\text{Avg Cash flow in years } -4 \text{ to } -2}$$

The mean size of shocks experienced by repurchasers is 0.320, and is bigger than the mean size for the substantial dividend-increasing firms, 0.247. However, the distribution of these shocks is substantially skewed. The median shock for repurchasers is 0.040, and is significantly *smaller* than the 0.064 shock for substantial dividend firms. The mean and median shocks for the small/routine dividend increasers, 0.098 and -0.005, are considerably smaller than for either of the other two samples. Thus, the two dividend subsamples appear to make their payout choices in response to substantially different cash flow patterns.

The table also includes two measures of the permanence of the shock. The first is defined as:

$$\frac{\text{Avg Cash flow in years } +1 \text{ to } +3 - \text{Avg Cash flow in years } -1 \text{ and } 0}{\text{Avg Cash flow in years } -1 \text{ and } 0}$$

This variable captures the permanent component of the shock by measuring the extent to which future cash flows remain at the level of the shock. We argue that managers who react to a cash flow shock by increasing dividends expect some portion of that shock to be permanent. Further, the proportion of the shock that is permanent for substantial dividend increasing firms should be greater than the proportion for repurchasing firms. We call this first measure, the "permanence" of the shock.

The second measure of the permanence of the shock differs from the first by its comparison period. It is designed to measure the degree to which future cash flows revert back to their pre-shock level. We calculate the average size of the cash flows in years +1 through +3 relative to the average size of the cash flows in years -4 to -2. Even if very little of the actual shock remains into the future, we predict that firms with substantial dividend increases should expect their cash flows to exhibit less reversion back to prior levels than repurchasing firms' cash flows. We call this measure the "stability" of cash flows and define it as:

$$\frac{\text{Avg Cash flow in years } +1 \text{ to } +3 \ - \ \text{Avg Cash flow in years } -4 \text{ to } -2}{\text{Avg Cash flow in years } -4 \text{ to } -2}$$

The results presented in table 3 are consistent with expectations. As with the cash flow shocks, we concentrate on the medians because the distributions are skewed. The permanence measure indicates that shocks followed by substantial dividend changes are more permanent than those followed by repurchases. The medians of the permanence measure show that, after the change in payout, cash flows of substantial dividend increasers drop by about 5% from the shock level, compared to a 7% drop in the cash flows of repurchasers.[5] The greater median permanence for dividend increasers is statistically significant at the 5% level. The stability measure, which indicates persistence of cash flows above pre-shock levels, shows that future cash flows of the median

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[5] It is not surprising that the average permanence of the entire sample is negative. Dechow, Kothari, and Watts (1998) model the time-series properties of operating cash flows and the accounting process that incorporates expected future cash flows in earnings. They show that when demand for a firm's products varies over time, differences in the timing of cash outlays and inflows leads to negative serial correlation in cash flow changes. For example, a firm that experiences a positive shock in product demand is likely to make cash outlays in the current period for inventories and accounts payable, but not fully receive the cash inflows until some future period when sales are made and accounts receivable are collected. They also provide empirical support for their predictions by finding a significant negative serial correlation of –0.28 between cash flow changes.

substantial dividend increaser are significantly larger than the pre-shock level by about 2%. In contrast, repurchasing firms show a significant reduction in cash flows to approximately 93% of pre-shock levels.

The stability measure of the small/routine dividend increasers again indicates that these firms differ from the more substantial increasers. While the permanence of the shock is the same for these two samples, the stability measures are markedly different. In contrast to the 2% increase in the future cash flows of substantial dividend increasers relative to the pre-shock level, small/routine dividend increasers, like the repurchasers, experience a 7% drop in future cash flows. This difference is statistically significant at the 5% level. These results highlight the importance of the earlier supposition that not all dividend increases convey similar information about the stability of the firm's cash flows.

For robustness, we constrain the repurchase sample to only those firms that also pay dividends. One could argue that these firms legitimately had both methods of distribution available to them: an increase in their dividend or a repurchase. Firms that did not have an established dividend would have to initiate a dividend as an alternative to a repurchase—an event that we do not explicitly examine in this study.[6] Using this restricted sample does not change the inferences of Table 3. We will continue to discuss the robustness of our results to using the restricted sample throughout the remainder of the analysis and, where appropriate, present tabulated results based on that sample.

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[6] We have computed the permanence and stability statistics for the 97 dividend initiating firms that meet our data requirements (which include 4 prior years of cash flows). Firms that choose to initiate a dividend instead of a repurchase have future cash flows that are extremely permanent, on average, remaining at 106% of pre-shock cash flows.

Overall, the evidence in this section is consistent with the hypothesis that, relative to substantial dividend changes, repurchases are used to distribute more transient shocks. It is possible, however, that these findings are influenced by firm-specific or industry-specific characteristics of the sample firms. To explore this issue further, in table 4 we report permanence and stability measures for a sample of control firms that did not increase dividends or initiate repurchases. The initial pool of firms for the control sample consists of all firms with sufficient data available on CRSP and Compustat to compute our measures of cash flow shock, permanence, and stability. From this group, we remove all firm-year observations that overlap with our initial sample of repurchasers and dividend increasers. We create 20 equal-sized control portfolios based on the size of the cash flow shock and match each of our repurchase/dividend change sample firms to a portfolio based on the ranking of their cash flow shocks. To control for industry-specific differences in permanence and stability, we also restrict each control portfolio to contain only firms with the same 2-digit SIC code as the sample firm.[7] Table 4 shows the mean and median permanence and stability measures for both the sample firms and the matching firms. It also presents the mean and median difference between the sample and matching firms for these measures and tests for the significance of those differences.

For the pooled sample of dividend increasers and repurchasers, the matching firms have significantly negative median permanence and stability measures. The mean and median differences between the pooled sample and the matching firms are positive and statistically significant. Thus, relative to firms that do not increase their payouts,

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[7] We have repeated the matching using size of cash flow shock and size of firm as the matching criteria. The results are qualitatively unchanged.

firms that choose to increase their total payouts experience shocks with larger permanent components that revert less to the pre-shock cash flow level. For the firms making substantial dividend increases, the results are even stronger. The matching firms exhibit substantially less permanence and less stability than the substantial dividend-increasing firms. In contrast, however, the repurchasers and small/routine dividend increasers have permanence and stability measures that are insignificantly different from those of the matching firms. Given the nature of the dividend increases in the small/routine increase sample, the similarity of their cash flows to matching firms is not surprising. One possible explanation for the similarity between repurchasers and matching firms, not tested here, is that the repurchasers and matching firms differ only in their investment opportunities. The repurchasers have temporarily low investment opportunities and choose to make a one-time distribution, while the matching firms experience the same cash flow shock, but choose to invest the money instead.

These results for open-market repurchases are in contrast to those in Lie and McConnell (1998) for firms conducting repurchase *tender offers*. They find that their sample firms exhibit lower mean reversion in return on assets than matched firms. The fact that performance shocks prior to repurchase tender offers are more permanent than those prior to open market repurchases is consistent with the view that the former are stronger signals. Repurchase tender offers are immediate commitments and their completion is observable, whereas open-market programs do not have to be completed.

To summarize, we establish that cash flow shocks experienced by firms that subsequently make substantial dividend increases are more permanent and stable than those experienced by firms making repurchases, small/routine dividend increases, and an

industry-and-cash-flow-shock-matched control sample. In the next section, we investigate whether the market's categorization of these shocks as permanent or transitory is consistent with the observed payout choice and the results in table 3.

The Information Content of the Method of Payout

In this section, we examine the stock price reaction to both the cash flows during the shock period and the subsequent announcement of the payout method. The evidence is consistent with the market recognizing the differing degrees of permanence, on average, and using the announcement of a payout method to update its beliefs about that permanence. Finally, we discuss the robustness of our results to additional controls.

Market Reaction to Cash flows

Earnings response coefficients measure the association between stock returns and earnings. Since stock prices anticipate future cash flows, earnings response coefficients are expected to increase with the permanence of earnings (e.g., Beaver, Lambert, and Morse, 1980, Kormendi and Lipe, 1987, Collins and Kothari, 1989). Further, Kothari and Sloan (1992) show that returns anticipate earnings up to 3 years ahead. Since earnings and cash flows differ only by differences in timing, the intuition for the market's response to earnings also holds for cash flows (Dechow, 1994). If dividend increases are associated with more permanent cash flows in years +1 through +3 than are repurchases, then forward-looking returns in the pre-announcement period should partially anticipate this difference. To test this hypothesis, we measure cash flow response coefficients over the 8 quarters leading up to the payout announcement (the cash flow shock period). We compare the response coefficients for firms that subsequently increase their dividends to those for firms that subsequently announce a share repurchase. If the permanence of the

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shock drives the payout method decision and, on average, the market correctly anticipates the permanence of the shock, then the stock price response to the cash flows should also be related to the subsequent payout method choice.

To measure the market's expectation about the permanence of cash flows, we examine the response coefficient from a contemporaneous regression of stock returns on cash flows measured over the 8 quarters immediately *preceding* the payout announcement. The first regression in table 5 shows that for all observations the average coefficient on cash flows is 0.58. The sign and magnitude of this coefficient is consistent with previous studies. Dechow (1994) finds that for a broad sample of firms, the coefficient on cash flows in one-year and four-year regressions are 0.33 and 0.68, respectively.

To investigate whether the cash flows preceding dividend increases are thought to be more permanent than those preceding repurchases, we create two additional variables that allow the coefficient on cash flows to vary with the subsequently-announced payout method. The first interacts cash flows with a dummy variable equal to one if the dividend increase is substantial, and zero otherwise. The second interacts cash flows with a dummy variable equal to one if the dividend increase is small/routine, and zero otherwise. Thus, in the second specification, the coefficient on 2-year cash flows is interpreted as the markets' reaction to cash flows for repurchasers preceding the payout announcement. The coefficients on the dividend interaction variables are therefore the market's marginal reaction to cash flows relative to repurchasers.

On average, the market appears to price cash flows during the shock period in a manner consistent with the earlier findings on permanence and stability. The coefficient

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on the interaction term for substantial dividend increasers is 0.35 and significantly positive. The coefficient on the interaction term for small/routine dividend increasers is positive, 0.10, but not significant. The final column of table 5 re-estimates the same specification on the restricted sample that excludes repurchasing firms that did not already have a dividend established. The results are qualitatively unchanged except that the market now attributes somewhat greater permanence to the cash flows of small/routine dividend increasers relative to this sample of repurchasers. We also repeat the analysis with earnings instead of cash flows and the results are qualitatively unchanged.

In summary, the results in table 5 are consistent with the joint hypothesis that the decision to use a repurchase or dividend increase is related to the permanence of the cash flow shock, and that the market on average correctly categorizes the permanence of cash flows. That is, consistent with the results in tables 3 and 4, the price reactions to the cash flows of repurchasers and small/routine dividend increasers are positive and roughly the same magnitude, whereas the reaction to the cash flows of substantial dividend increasers is significantly greater.

Stock Price Reaction to the Payout Announcement

In this section, we examine the stock price reaction to announcements of dividend increases and repurchases. The regressions are designed to test whether the market uses the payout announcement to update its estimate of the permanence of the cash flow shock. Figure 2 illustrates an information timeline useful in understanding our regression components.

We first estimate, for each firm, the market's expectation about cash flow permanence going forward into the years following the payout announcement. We estimate this expectation using the residuals from the table 5 regressions, where we measure the average association between stock returns and cash flows during the shock period preceding the payout announcement. The residuals from table 5 represent adjusted returns, where each firm's return is adjusted by the average return for its level of cash flows. We will be measuring the announcement reactions separately for the different payout methods. Therefore, we use specification 2 from table 5 which produces return predictions for the average substantial dividend increasing firm, average small/routine increasing firm and average repurchasing firm. However, our findings are not sensitive to this choice, and are robust to using either of the other two specifications. We interpret the adjusted return from table 5 as follows. If the return is higher than average for a given level of cash flows, (i.e., the residual is positive), we view the market as expecting the cash flows to be relatively permanent. Similarly, if the return is lower than average for a given level of cash flows, (i.e., the residual is negative), we view the market as expecting the cash flow shock to be relatively transient.

We now develop predictions about the relation between the payout announcement, market expectations about cash flow permanence, and announcement returns. Although stock returns are expected to, on average, reflect the permanence of future cash flows, the market is likely to forecast cash flow permanence with error. Since the choice of payout method is shown above to be associated with cash flow permanence, we predict that the market will use information in the payout announcement to update its expectations about permanence. If the adjusted return from the table 5 regressions is

high, and the firm chooses a repurchase to distribute cash flows, we predict that the market will react negatively as it adjusts downward its expectation of cash flow permanence. In terms of the model from section 2, this is a case where market participants assigned too high a probability to the greater permanence, that is, $\Pr(p = 1 \mid \gamma)$ is too high. Similarly, if the return residual is low, and the firm chooses a dividend increase to distribute cash flows, we predict that the market will react positively as it adjusts upward its expectation of cash flow permanence. This is a case where market participants assigned too low a probability to the greater permanence, that is, $\Pr(p = 1 \mid \gamma)$ is too low. Figure 3 illustrates these predictions.

Thus, the *permanence hypothesis* predicts the following: (i) Conditional on a firm choosing a dividend increase, thereby sending a strong signal about cash flow permanence, the announcement return to the payout decision is predicted to be a decreasing function of the cash flow permanence expected by the market, and (ii) Conditional on a firm choosing a repurchase, thereby sending a weak signal about cash flow permanence, the announcement return to the payout decision is predicted to be a decreasing function of the cash flow permanence expected by the market.

Panels A and B of table 6 present announcement return regressions for dividend increases and repurchases, respectively. In addition to our estimate of the market's cash flow permanence forecast (the adjusted return from table 5), the regressions include the size of the distributions: percent of shares sought for repurchases and percent increase in the dividend for dividend increases. For the dividend specifications, we allow the coefficient on the adjusted returns to vary across the two subgroups, substantial increases and small/routine increases. Since a small, routine dividend increase is a weaker signal

about cash flow permanence than a substantial increase, the coefficient on the adjusted returns for this subgroup is predicted to be less negative than the coefficient for the substantial increasers.

The results are consistent with the hypothesis that part of the information in the payout announcement is the payout method, repurchase or dividend increase, and that investors use this information to update their beliefs about the permanence of past and current cash flow shocks. Specifically, in Panel A, the coefficient on the adjusted returns for substantial dividend increasers is significantly negative, as predicted. This shows that the announcement of a substantial dividend conveys positive information to the market that is inversely proportional to how much permanence was attributed to the contemporaneous cash flow shock. The magnitude of the coefficient for small/routine dividend increasers is about 80% smaller, and not significantly different from zero, supporting the notion that these dividend increases are not strong signals about cash flow stability or permanence. The results in Panel B for repurchasing firms also support our predictions. Consistent with repurchases being a signal about relatively transient cash flow shocks, the association between announcement returns and adjusted returns is negative and significant. The results in Panel B also indicate that this result is robust to restricting the repurchaser sample to include only firms that also had a dividend program in place.

To provide additional support for the *permanence hypothesis*, we also examine the relations between announcement returns and positive and negative adjusted returns separately. As described above, if the market expects a cash flow shock to be transitory, (a negative return residual, and the firm announces a dividend increase, prices are

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predicted to react positively. However, if the market expects a cash flow shock to be permanent (a positive return residual), and the firm announces a dividend increase, prices are not predicted to react substantially since the market correctly assessed the permanence of the cash flow shock prior to the distribution announcement. Thus, we predict that, for substantial dividend increasers, the coefficient on negative adjusted returns is negative and the coefficient on positive adjusted returns is less negative or zero. Since small/routine dividend increases do not convey much information, splitting the adjusted returns prior to these announcements into their positive and negative components is not expected to increase the explanatory power of this variable. In the repurchasing sample, if the market expects a cash flow shock to be transitory (a negative return residual), and the firm announces a repurchase, prices are not predicted to react substantially since prices already reflect the transitory nature of the cash flow shock. However, if the market expects the cash flow shock to be permanent (a positive return residual) and the firm announces a repurchase, prices should react negatively. For repurchasing firms, we predict that the coefficient on positive adjusted returns is negative and the coefficient on negative adjusted returns is less negative or zero.

The results for the split positive and negative residual variables are broadly consistent with the predictions. In the subsample of substantial dividend increasers, the coefficient on negative adjusted returns is significantly negative, -0.29, whereas the coefficient on positive adjusted returns is insignificantly *positive*. An F-test rejects the hypothesis that these two coefficients are equal (not reported). In the full sample of repurchasers, the split positive and negative residual coefficients are both negative and nearly the same magnitude. However, when the repurchasing sample is restricted to

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include only those firms that have an established dividend, only the positive adjusted returns have a significant negative association with announcement returns. The coefficient on negative adjusted returns is insignificantly *positive*. An F-test rejects the hypothesis that the positive and negative adjusted return coefficients are equal (not reported).

Our results are robust to the inclusion of variables determined by previous studies to be related to the stock price reaction to dividend and repurchase announcements. Specifically, we add total assets, market value-to-book value of assets, the leverage ratio, and the ratio of cash to total assets to our original specification. Since larger firms are expected to have less information asymmetry (e.g., Collins, Kothari and Rayburn, 1987, and Brennan and Hughes, 1991), the surprise component of their distribution announcement should be lower, leading to a smaller stock price reaction. Comment and Jarrell (1991) also include a size variable in their repurchase announcement return specifications. We use the market-to-book ratio to control for the finding that the stock market reacts favorably to distributions of cash by firms with low growth opportunities (see Lang and Litzenberger, 1989, and Nohel and Tarhan, 1998). Cash distributions to shareholders increase leverage. Jensen (1986) argues that agency theory predicts a positive reaction to decisions that increase previously low leverage. Finally, we include firms' cash reserves to control for the agency theoretic prediction that the stock price reaction to distributions by firms with large cash holdings will be positive (Barth and Kaznik, 1997, and Lie, 1998). In most specifications, the coefficients on market-to-book ratio and cash reserves are significant and in the predicted direction. Total assets and leverage are insignificant in all of the regressions.

Robustness Checks

We have noted throughout that the results are robust to the choices we have made in each test. We discuss a further robustness check here.

To this point, our inferences implicitly assume that the partitioning of firms based on payout choice is the primary driver of the observed differences in the permanence and stability of the sample firms' cash flows. However, the summary statistics in table 2 indicate that the repurchasing and dividend increasing samples differ somewhat with respect to size, leverage, and the market-to-book ratio. Several studies document variation in the return-earnings relation as a function of firm size, growth, and risk (e.g., Collins and Kothari, 1987; Freeman, 1987). If the permanence and stability of cash flows or their relation with stock prices vary systematically with these characteristics, our inferences may be spurious.

To address this possibility, we allow the coefficient on cash flows in the Table 5 regressions to vary with size, leverage, and the market-to-book ratio. We construct interaction variables for each of these variables in the same fashion as the dividend increase interaction variables that are already included in the Table 5 regressions. Although the coefficients on each of these additional interactive variables are significant, neither the sign nor the significance of dividend interaction terms are affected. Further, when the residuals from this augmented model are used in the announcement return regressions, the results are unchanged.

5. CONCLUDING DISCUSSION

We hypothesize that the method used to distribute cash flows reflects the nature of the underlying cash flow process. The hypothesis has two parts. First, firms use repurchases to distribute cash flow shocks that are primarily transient, and use dividends for cash flow shocks containing a larger permanent component. Second, the market recognizes this association and uses the announcement of a particular distribution method to update its belief about the permanence of past and contemporary cash flow shocks.

Our tests show that cash flow shocks followed by substantial dividend increases have a larger permanent component than those followed by either repurchases or small/routine dividend increases. This means that the cash flows of substantial dividend-increasing firms are less likely to revert back to levels prior to the cash flow shock, and, hence, are more stable. Thus, the permanence of contemporaneous cash flow shocks is strongly related to the type of payout method chosen. Our announcement return analysis demonstrates that an important component to the information released by a distribution announcement is the *method* used to distribute the cash flows. We find strong evidence that when the payout method does not match the market's expectations, the market updates its previous assessment of the permanence of the cash flow shock. These findings indicate that the distribution method used by managers signals information about the permanence of the cash flow shock.

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TABLE 1: TEMPORAL DISTRIBUTION OF THE SAMPLES

This table presents the temporal distribution (1981-1993) of the firms increasing dividends or initiating an open-market repurchase that enter our sample. The repurchases come from all open-market repurchase announcements recorded in the SDC database. We eliminate all repurchases that are preceded by another one in the prior 4 quarters. These repurchases could be reauthorizations of the previously announced program. We use the CRSP database to identify all firms increasing their dividends over the sample period. In our study, a dividend increase is defined to occur when the current year's total dividend payout is greater than the previous year's dividend payout. Annual dividend increases are included only when each quarterly dividend change within a fiscal year is either positive or zero; that is, when both negative and positive quarterly changes occur within the same fiscal period, the observation is excluded.

	Repurchases	Dividend Increases
1981	15	446
1982	12	296
1983	37	291
1984	143	406
1985	49	388
1986	64	367
1987	161	401
1988	59	478
1989	160	469
1990	165	416
1991	69	357
1992	110	378
1993	109	317
Total	1153	5010

TABLE 2: SUMMARY STATISTICS

Summary statistics on general characteristics of the sample firms are presented along with tests for differences between the subsamples. Repurchasers are compared to the two groups of dividend increasers: small/routine increases and substantial increases. A firm that has not had a dividend increase in the prior year or whose increase is larger than that from the previous year is included in the substantial increases group. All financial characteristics are computed at the end of the fiscal year prior to the payout change. The market value of equity is computed as the ending share price multiplied by the number of shares outstanding. Market-to-book (assets) is computed as (book assets – book equity + market value of equity) / book assets. The leverage ratio, book liabilities / market value of equity, is computed by subtracting book equity from book assets and dividing that figure by the market value of equity. The percentage increase in the dividend is calculated by scaling the dollar change in the dividend by the most recently issued quarterly dividend prior to the change. Percentage of shares sought is based on statements made by the company as recorded by SDC. Cumulative abnormal returns for the announcement period are computed based on market model regressions for days –252 to –20 relative to the announcement. Tests for difference for the means are t-tests and the t-statistics are presented. Tests for difference for the medians are signed-rank tests and the Z-statistics are presented.

		Repurchasers	Substantial Dividend Increasers	Test for Diff. with Repurchasers	Small/ Routine Divd Incr.	Test for Diff. with Repurchasers
Market Value of Equity	Mean	1996.28	1923.10	0.45	2167.60	-0.85
	Median	439.04	439.90	-0.47	655.50	-5.58***
Book Assets	Mean	2127.44	2275.54	-0.69	2233.96	-0.50
	Median	419.87	495.52	-2.57***	622.42	-5.72***
Market-to-Book (Assets)	Mean	1.62	1.54	2.73***	1.66	-1.26
	Median	1.33	1.28	2.61***	1.39	-3.56***
Book Liabilities/ MV Equity	Mean	0.76	0.94	-5.61***	0.80	-1.34
	Median	0.52	0.64	-6.09***	0.56	-2.26**
% Increase in Dividend	Mean		30.88		13.25	
	Median		13.16		8.62	
% Shares Sought[a]	Mean	8.59				
	Median	6.30				
Announcement CAR (%)	Mean	2.30	1.19	3.87***	0.26	7.06***
	Median	1.92	0.88	4.34***	0.17	8.24***
Number of Observations		1153	2962		2048	

[a] The number of observations with data available for shares sought is 676.

*** and ** indicate significance at the 1 and 5% levels, respectively.

TABLE 3: CASH FLOW SHOCKS AND PERMANENCE

Means and medians of the cash flow shock, permanence of the shock, and stability of the shock are presented.[1] The table also contains test statistics for the hypothesis that the means and medians are not different between the repurchasing sample and the dividend increasing samples. Dividend increases are subdivided into two groups: small/routine increases and substantial increases. A firm that has not had a dividend increase in the prior year or whose increase is larger than that from the previous year is included in the substantial increases group.

Firms		Cash Flow Shock	Permanence	Stability
Repurchasing	Mean	0.320^{***}	-0.006	0.070^{***}
N=1153	Median	0.040^{***}	-0.069^{***}	-0.073^{**}
Substantial Dividend Increases	Mean	0.247^{***}	0.014	0.109^{***}
N=2962	Median	0.064^{***}	-0.049^{***}	0.017^{***}
t-test for equality of means with Reps		-1.854^{*}	0.819	1.292
Z-test for equality of medians with Reps		1.835^{*}	2.221^{**}	4.559^{***}
Small/Routine Dividend Increases	Mean	0.098^{***}	0.020	-0.006
N=2048	Median	-0.005	-0.048^{***}	-0.071^{***}
t-test for equality of means with Reps		-5.821^{***}	1.008	-2.593^{***}
Z-test for equality of medians with Reps		-3.305^{***}	2.442^{**}	0.165
t-test for Small vs. Substantial Divd. Incr.		-6.913^{***}	0.331	-6.531^{***}
Z-test for Small vs. Substantial Divd. Incr.		-7.397^{***}	0.306	-6.678^{***}

***, **, * indicate that the number is significantly different from zero at the 1%, 5% and 10% level, respectively.

[1]Cash flow shock is defined as:
$$\frac{\text{Avg Cash Flow in years } -1 \text{ and } 0 \; - \; \text{Avg Cash flow in years } -4 \text{ to } -2}{\text{Avg Cash flow in years } -4 \text{ to } -2}$$

Permanence is defined as:
$$\frac{\text{Avg Cash flow in years } +1 \text{ to } +3 - \text{Avg Cash flow in years } -1 \text{ and } 0}{\text{Avg Cash flow in years } -1 \text{ and } 0}$$

Stability is defined as:
$$\frac{\text{Avg Cash flow in years } +1 \text{ to } +3 \; - \; \text{Avg Cash flow in years } -4 \text{ to } -2}{\text{Avg Cash flow in years } -4 \text{ to } -2}$$

TABLE 4: COMPARISON OF PERMANENCE AND STABILITY TO NON-SAMPLE FIRMS

Sample repurchasing and dividend increasing firms are matched with firms that have not changed their payout policy. The control sample is generated by creating 20 portfolios of cash flow shocks and matching each sample firm to a portfolio with a similar-sized cash flow shock. Each control portfolio is then restricted to contain only firms with the same 2-digit SIC code as the sample firm. The permanence and stability (as defined above in the footnotes to table 3) are computed for the entire sample, the repurchasing subsample, the dividend increasing subsamples, and the matching firms for each sample. The mean and median difference between the sample firms and the matching firms are also reported for each case.

		Permanence			Stability		
		Sample Firms	Matching Firms	Difference	Sample Firms	Matching Firms	Difference
All firms	Mean	0.013	-0.017***	0.030***	0.062***	0.039***	0.023***
	Median	-0.051***	-0.083***	0.012***	-0.033**	-0.063***	0.012***
Repurchasers	Mean	-0.006	0.015	-0.021	0.062**	0.088***	-0.025
	Median	-0.068***	-0.108***	-0.019	-0.074**	-0.064*	-0.016
Substantial Divd Increases	Mean	0.015	-0.038***	0.053***	0.108***	0.061***	0.047***
	Median	-0.046***	-0.086***	0.032***	0.017***	-0.054	0.030***
Small/Routine Divd Increases	Mean	0.019	-0.006	0.025*	-0.005	-0.020**	0.015
	Median	-0.048***	-0.050***	0.003	-0.070***	-0.086***	-0.001

***, **, * indicate that the number is significantly different from zero at the 1%, 5% and 10% level, respectively.

The sample sizes are slightly smaller than in table 3 because adequate matching firms could not be identified. Repurchasers – 1,116 firms, Substantial dividend increasers – 2,878 firms, and Small/routine dividend increasers – 2,011 firms.

TABLE 5: STOCK PRICE RESPONSE TO CASH FLOWS

The dependent variable in all of the regressions is the stock-price return for the 2 years prior to the quarter in which the payout was announced. 2-year cash flows are cash flows measured contemporaneously with the stock-price return. "Substantial Dividend dummy interacted with CF" is equal to the 2-year cash flows for substantial dividend increasers, and 0 for small/routine dividend increasers and repurchasers. "Small/routine Dividend dummy interacted with CF" is equal to 2-year cash flows for the 2048 dividend increases identified in the Data section as small and routine, and 0 for substantial dividend increasers and repurchasers. The restricted sample includes all dividend firms, but excludes repurchasing firms that did not have a dividend program in place. The sample includes 1153 repurchasers, 2962 substantial dividend increasers and 2048 small/routine dividend increasers.

	Dependent Variable is 2-year Stock Returns		
	Full Sample		*Restricted*
	(1)	(2)	(3)
Intercept	0.042**	0.039**	0.059***
	(2.248)	(2.106)	(3.158)
2-year Cash flows	0.580***	0.397***	0.212**
	(8.535)	(4.616)	(2.197)
Substantial Dividend dummy Interacted with CF		0.351***	0.479***
		(4.634)	(5.622)
Small/Routine Dividend dummy interacted with CF		0.103	0.231***
		(1.293)	(2.623)
Adj R^2	0.018	0.024	0.025

*** and ** indicate significance at the 1 and 5% levels, respectively.
t-statistics are in parentheses

TABLE 6: ANNOUNCEMENT RETURNS

This table presents announcement return regressions for dividend changes in Panel A and repurchases in Panel B. The announcement period is day –5 to day +5 relative to the dividend declaration date or the repurchase program announcement date. Cumulative abnormal returns are computed based on market model regressions for days –252 to –20. The residual from specification (2) in table 5 is the "Table 5 Adjusted Return," which is the adjusted return from the period contemporaneous with the cash flows. The adjusted return from Table 5 is positively related to the likelihood the market places on the announcement of a dividend increase as the method of payout. This return is also interacted with indicator variables for each of the dividend subsamples. Finally, because the predictions of the *permanence hypothesis* are strongest for dividend increasers with negative adjusted returns from table 5 and for repurchasers with positive adjusted returns from table 5, the adjusted return variables are split into their positive and negative components.

The repurchase regressions are estimated for two samples: (1) the full sample of all firms having repurchases between 1981 and 1993, and (2) the restricted sample of only repurchasing firms that also had a dividend program in place. Cash / Total Assets is the ratio of cash and short term investments (Compustat item 1) to total assets at the beginning of the fiscal year containing the distribution announcement. Percent Dividend Change, Percent of Shares Sought, Total Assets, M/B of Assets and Leverage Ratio are defined in the notes to Table 2.

Panel A: Dividend Increasers

Regressor	Pred. Sign	Coefficient		
Intercept		0.007*** (7.213)	0.012*** (4.203)	0.010*** (3.260)
Percent Dividend Change	+	0.000 (0.467)	0.000 (0.368)	-0.000 (-0.005)
Table 5 Adj. Return interacted with Substantial Dividend Dummy	-	-0.010*** (-4.186)	-0.008*** (-3.379)	
Only positive adj. Returns[2]	-/0			0.001 (0.291)
Only negative adj. Returns[2]	-			-0.029*** (-5.320)
Table 5 Adj. Return interacted with Small/Routine Dividend Dummy	-/0 [1]	-0.002 (-0.726)	-0.000 (-0.046)	
Only positive adj. returns	-/0 [1]			-0.000 (-0.083)
Only negative adj. returns	-/0 [1]			0.000 (0.049)
Total Assets	-		-0.000 (-0.513)	-0.000 (-0.356)
Market-to-Book of Assets	-		-0.005*** (-4.207)	-0.005*** (-4.239)
Leverage Ratio	-		0.002 (1.364)	0.001 (1.143)
Cash / Total Assets	+		0.020** (2.356)	0.017** (1.986)
Adj. R^2		0.005	0.013	0.019
Number of Observations		3158	3158	3158

t-statistics are in parentheses

[1] While the predictions for the Small/routine Dividend Increasers are in the same direction as for the Substantial Dividend Increasers, a small/routine increase is expected to send a significantly weaker signal about cash flow permanence than a substantial increase. Thus, while we test the significance of these coefficients against a null hypothesis of zero above, we also perform F-tests to confirm that the coefficients for the two subgroups are statistically different from each other.

[2] An F-test rejects the hypothesis that the coefficients on only positive adj. returns and only negative adj. returns are equal for substantial dividend increasers.
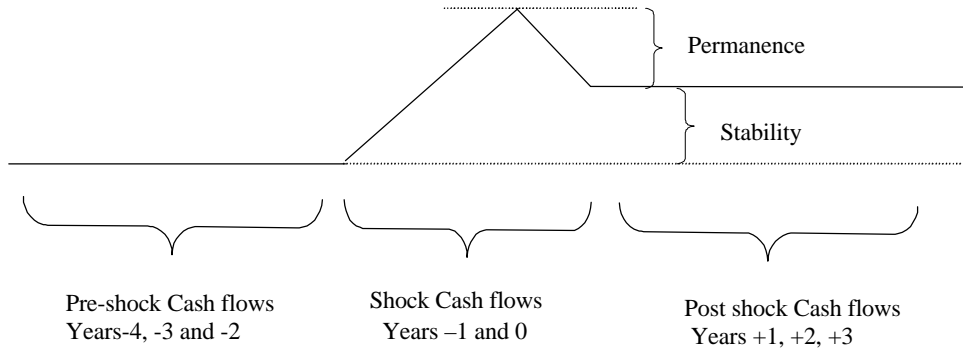
Panel B: Repurchasers

	Pred. Sign	Full Sample			Restricted Sample	
Intercept		0.007^{***}	0.029^{**}	0.029^{**}	0.027^{**}	0.033^{**}
		(1.280)	(2.540)	(2.340)	(2.170)	(2.516)
Percent of Shares Sought	+	0.001	0.000	0.000	0.000	0.000
		(1.542)	(0.837)	(0.835)	(0.535)	(0.561)
Adj. Return from Table 5	-	-0.018^{***}	-0.014^{**}		-0.018^{**}	
		(-2.677)	(-2.144)		(-2.250)	
Only positive adj. returns[1]	-			-0.014		-0.033^{**}
				(-1.444)		(-2.495)
Only negative adj. returns[1]	-/0			-0.013		0.006
				(-0.787)		(0.320)
Total Assets	-		0.000	0.000	0.000	0.000
			(0.792)	(0.773)	(0.839)	(0.603)
Market-to-Book of Assets	-		-0.019^{***}	-0.019^{***}	-0.013^{**}	-0.012^{**}
			(-4.107)	(-4.101)	(-2.407)	(-2.377)
Leverage Ratio	-		-0.000	-0.000	0.001	0.001
			(-0.071)	(-0.069)	(0.112)	(0.114)
Cash / Total Assets	+		0.106^{***}	0.107^{***}	-0.003	-0.001
			(3.763)	(3.741)	(-0.099)	(-0.023)
Adj. R^2		0.017	0.059	0.057	0.038	0.041
Number of Observations		468	468	468	310	310

*** and ** indicate significance at the 1 and 5% levels, respectively.
t-statistics are in parentheses

[1] An F-test rejects the hypothesis that the only positive adj. returns and only negative adj. returns coefficients are equal in the regression estimated on the restricted sample.
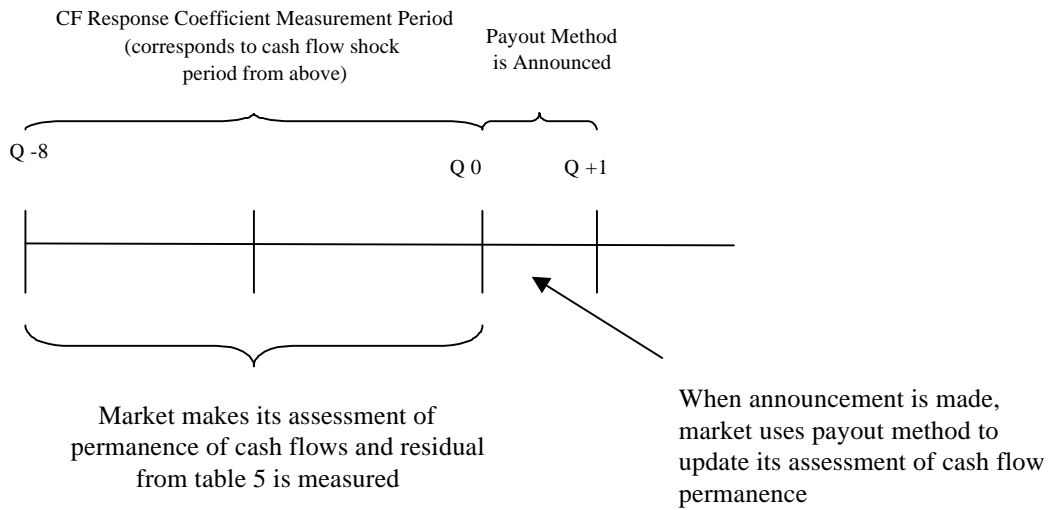
Figure 1: Cash flow Time Series

Permanence

Stability

Pre-shock Cash flows
Years-4, -3 and -2

Shock Cash flows
Years –1 and 0

Post shock Cash flows
Years +1, +2, +3

The Cash flow Shock is (Shock Cash flows – Pre-shock Cash flows) / Pre-Shock Cash flows

Permanence is (Post-shock cash flows – Shock Cash flows) / Shock Cash flows

Stability is (Post-shock cash flows – Pre-shock cash flows) / Pre-shock cash flows

Figure 2: Regression Tests Timeline

CF Response Coefficient Measurement Period
(corresponds to cash flow shock
period from above)

Payout Method
is Announced

Q -8

Q 0   Q +1

Market makes its assessment of
permanence of cash flows and residual
from table 5 is measured

When announcement is made,
market uses payout method to
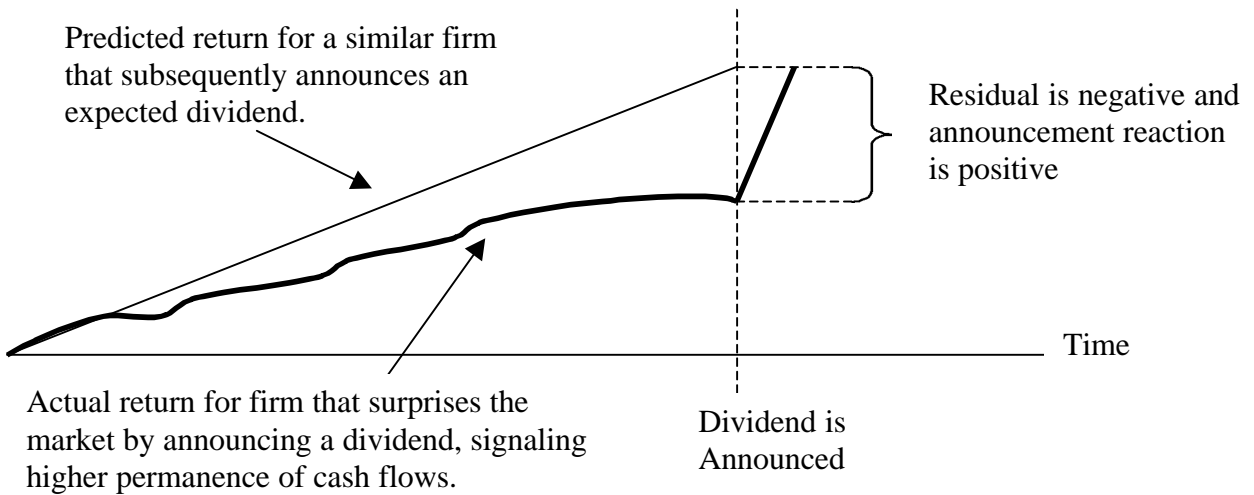update its assessment of cash flow
permanence

FIGURE 3

This figure illustrates the predictions of the permanence hypothesis for the updating done by the market at the time of the payout method announcement. In both cases, (i) a dividend increase is announced when a repurchase was expected, or (ii) a repurchase is announced when a dividend increase was expected, the residual from table 5 and the announcement return are negatively associated.

(i) Dividend Increase is announced when a repurchase was expected.

Predicted return for a similar firm that subsequently announces an expected dividend.

Residual is negative and announcement reaction is positive

Time

Actual return for firm that surprises the market by announcing a dividend, signaling higher permanence of cash flows.

Dividend is Announced

(ii) Repurchase is announced when a dividend increase was expected.

Actual return for firm that surprises the market by announcing a repurchase, signaling lower permanence of cash flows.

Residual is positive and announcement reaction is negative

Time

Predicted return for a similar firm that subsequently announces an expected repurchase.