Why Firms Begin Paying Dividends: Value, Growth and Life Cycle Effects

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Abstract

We investigate the signaling, agency and risk explanations for dividends within the context of the life cycle hypothesis, which proposes dividend initiation conveys information about firms' transition to a slower growth, "mature" phase. Companies initiating dividends have different characteristics, depending upon their life cycle stage. Low M/B stocks display the most positive price reaction to dividend initiation announcements. High M/B firms have larger profits, cash levels and capital expenditure, but more closely resemble the low M/B firms in terms of these characteristics within three years following dividend initiation. Excess returns earned by low M/B firms are related to decreases in systematic risk, while the returns of high M/B firms are related to their greater profitability.

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Abstract

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1. Introduction

We investigate dividend initiation and the reasons firms begin paying regular cash dividends to shareholders. Since Miller and Modigliani (1961) published their seminal proof that a firm's dividend payout can not directly affect its value, at least in perfect financial markets, researchers have proposed and tested numerous explanations for the convention of dividends. There are, in fact, so many competing theories of dividends that Ang (1987, p. 55) observed: "... we have moved from a position of not enough good reasons to explain why dividends are paid to one of too many."

Some have proposed that researchers' difficulty in sorting through the arguments for dividends arises because they assume there is one unique explanation that applies to all firms. This point is made by Baker, Powell and Veit (2002, p. 256): "... each theory typically takes a 'one-size-fits-all' approach by trying to generalize the findings," and more recently by Chiang, Frankfurter, Kosedag and Wood (2006, p. 62): "... there might not be a single theoretical model blanket covering firm dividend behavior." These studies also assert that academic theories are more likely to be supported empirically when they correspond with managers' perceptions, as catalogued by various surveys conducted over the years. Moreover, although the reasons firms engage in positive dividend events such as initiations, increases and resumptions arise from significantly different circumstances, there have been few attempts, either theoretical or empirical, to distinguish among these events. Researchers usually assume the same theory is as applicable to a firm increasing its dividend as it is to a firm resuming dividends or initiating a payout for the first time.

We take a first step toward addressing a challenge put forth by Baker, Powell and Veit (2002, p. 257): "... researchers have identified all the key pieces of the dividend puzzle but need to focus their attention on developing firm-specific dividend models." We show that the "best" explanation for why a firm begins paying dividends depends upon individual firm characteristics at the time of the event, and must allow for interaction among the various dividend theories. We focus on three established explanations for dividends — signaling, agency costs and risk — and show how these explanations apply to different types of firms, classified as value and growth stocks based on their pre-event market to book (M/B) ratios.

Moreover, we propose that the signaling, agency and risk explanations are best understood within a larger context proposed by Grullon, Michaely and Swaminathan (2002), who hypothesize that dividend increases convey information about changes in a firm's life cycle — specifically, the transition from a faster growth phase to a slower growth, "mature" phase. We assert that the life cycle hypothesis is even more applicable to the case of first-time dividend initiators, and show that low M/B firms, with slower growth expectations embedded in their stock prices, are at measurably different stages of their life cycles than higher M/B firms, and therefore have different motivations for initiating regular cash payouts to shareholders. Although all firms initiating dividends are undergoing a change in their life cycles, the changes are subtly different depending upon whether or not a firm has fully transitioned into its mature phase (low M/B), or is just beginning to show signs of slowing down (high M/B). We further assert that failure to account for this richer framework explains some of the difficulty researchers have had in identifying a single "best" explanation for dividends, as averaging empirical variables such as stock returns, profits and risk across entire samples obscures important differences for the reasons firms choose to engage in positive dividend events.

We study all first-time dividend initiators from 1964-2000. We sort the sample of firms by their M/B ratios one year before the dividend announcement, and observe changes in excess stock returns, return on assets, cash levels, capital expenditure, debt and risk for three years leading up to and following dividend initiation. We find that low M/B value stocks display the strongest price reaction to a dividend initiation announcement, with excess announcement returns declining monotonically for the higher M/B quartiles. This indicates shareholders of value stocks, which the market expects to have slower-than-average future growth, gain the most when these firms announce the intention to begin paying dividends.

Our findings regarding profitability are similar to the results of recent studies of dividend increases (Benartzi, Michaely and Thaler, 1997; Grullon, Michaely and Swaminathan, 2002). Return on assets rises over the three years preceding the initiation of dividends, but declines back to its pre-event level by year +3. This result holds for all the M/B quartiles, which does not support the idea that positive dividend events signal higher future profitability (e.g., Bhattacharya, 1979; Miller and Rock, 1985; John and Williams, 1985).

Our findings indicate Jensen's (1986) agency explanation, that firms use dividends to disgorge excess cash to shareholders, applies to all firms, with the high M/B growth firms exhibiting the largest drop in their cash levels. This drawdown of cash does not affect firms' capital spending, however, at least by the third year following the event: we find no change in the ratio of capital expenditure to total assets for the full sample of firms or for any of the M/B quartiles. Easterbrook (1984) proposes firms paying dividends benefit from the increased monitoring that results from accessing capital markets more frequently. We find that only the high M/B quartile of dividend initiators, priced for faster growth and thus more likely to be in need of new capital, increase their use of debt by the third year following a first-time dividend.

Venkatesh (1989), Dyl and Weigand (1998) and Grullon, Michaely and Swaminathan (2002) hypothesize that changes in dividend policy convey information about changes in risk. Our results indicate that low M/B value stocks exhibit a decline in systematic risk based on Fama and French's (1993) three-factor model. These stocks experience significant decreases in their market, size and value factor loadings. High M/B stocks display no change in any systematic risk factors, however. We also find that total stock return volatility is lower after dividend initiation, although the decrease in risk occurs only among the value quartiles. As was the case for systematic risk, high M/B stocks display no decline in total risk.

The remainder of this paper is organized as follows. Section two reviews the literature and develops our hypotheses regarding dividend initiation, and section three describes the data and empirical methodology. Empirical findings are reported in section four, and conclusions are contained in section five.

2. What Do We Know About Dividends?

DeAngelo and DeAngelo (2006) present a critique of Miller and Modigliani's (1961) proof that dividends do not affect the value of the firm in perfect markets. They claim the finding of dividend irrelevance obtains because Miller and Modigliani's framework mandates 100% payouts, and when this assumption is relaxed, payout policy affects value in the same manner as investment policy. DeAngelo and DeAngelo argue that the irrelevance result is essentially hardwired into Miller and Modigliani's assumptions, which makes their proof nothing more than an elegant tautology. DeAngelo and DeAngelo have a few unkind words for Black (1976) as well, declaring his dividend puzzle to be a "non-puzzle," as it is based on Miller and Modigliani's conclusions. They assert that Miller and Modigliani and Black have

... limited our vision about the importance of payout policy and sent researchers off searching for frictions that would make payout policy matter, while it has mattered all along ... (p. 295).

DeAngelo and DeAngelo's critique suggests two distinct perspectives regarding dividends and valuation. The first perspective, widely-held before Miller and Modigliani (1961), is propounded by Graham and Dodd (1934), Williams (1938), Linter (1956) and Gordon (1959). The idea is simple: investors like dividends, and the bigger the better. More formally, dividends are the stream of expected future cash flows that give stocks their "intrinsic value."

The second perspective, which prevails following Miller and Modigliani (1961), is defined by researchers' quest for the reasons — all due to market imperfections — firms would engage in the undesirable practice of regular cash payouts. This search spawned three explanations categorized by Lease, John, Kalay, Lowenstein and Sarig (2000) as major: tax-induced clienteles, signaling (asymmetric information) and agency costs, and three these authors categorize as minor: transaction costs, flotation costs and irrational investor behavior. In this study we focus on two of the three major explanations, signaling and agency costs, and include a third, less-studied explanation, the relation between dividend initiation and risk.

Recent research has proposed that dividends convey information about firm maturity. DeAngelo, DeAngelo and Stulz (2006) show the probability a firm will pay dividends increases when there is more retained equity in its capital structure, which is typical of older, more established firms. Grullon, Michaely and Swaminathan (2002) hypothesize that increases in dividends convey information about firms' transition from a faster growth phase to a slower growth, mature phase. We contend this life cycle hypothesis is even more applicable to the case of first-time dividend initiators than to firms increasing dividends. Successful dividend-paying firms increase dividends regularly, in some cases every year for periods lasting several decades.

Any change in life cycle signaled by a dividend increase is likely to be incremental compared with the signal of changing firm maturity conveyed by a first-time dividend.

Our paper's main mission is to develop and test the idea that the signaling, agency and risk explanations for dividends have different implications for growth and value stocks in the context of the life cycle hypothesis. For example, stocks with lower M/B ratios are priced by the market for slower growth, implying investors have already observed substantial evidence of a slowdown, such as decreases in earnings growth or capital spending as these firms' investment opportunity set diminishes. These companies are also less likely to be signaling future growth in profits, and more likely to be completing the transition to a period of lower risk.

Conversely, stocks heading into dividend initiation with higher M/B ratios have faster growth expectations in their prices. If the signaling explanation for dividends has any validity, we would expect future growth in profits to be evident among these firms. We also expect that prior to dividend initiation the higher M/B firms will invest more in capital expenditure than their lower M/B counterparts, and if capital spending slows following dividend initiation, as suggested by the life cycle hypothesis, these firms will have a more urgent need to begin disgorging excess cash.

2.1 Dividends and Signaling

One explanation of why firms pay dividends proposes corporate dividend policy reflects managers' expectations of future firm earnings, a specific application of an economic concept known as signaling, pioneered by Ackerloff (1970) and Spence (1973). This idea is incorporated into the finance literature on dividends and information by studies such as Bhattacharya (1979), Miller and Rock (1985), and John and Williams (1985). In these theoretical models managers are portrayed as intentionally communicating their positive expectations regarding future firm earnings via dividend initiations and increases. Dividends serve as credible signals because rival firms with less positive prospects would find it difficult to imitate a sustained dividend payout.

We argue that dividend signaling theories are incompatible with Linter's (1956) view of dividends, which Benartzi, Michaely and Thaler (1997) call "… the best description of the dividend setting process available" (p. 1032). Lintner describes how managers conservatively smooth past and current earnings changes into the level of the firm's dividend. His findings indicate managers believe dividends should be uninterrupted, related to permanent (rather than temporary) increases in profits, and increased only when the level and stability of earnings make it likely dividends will not have to be reduced in the future.

Decades of survey evidence corroborates Linter's views, including Fama and Babiak (1968), Baker, Farrelly and Edelman (1985), Baker, Veit and Powell (2001), and Brav, Graham, Harvey and Michaely (2005). For example, the Brav, Graham, Harvey and Michaely survey reveals that, among firms that pay dividends, 94% of respondents try to avoid reducing dividends, while 90% strive for a smooth dividend. Managers are also reluctant to make dividend decisions that might have to be reversed in the future (78%); they strive for consistency with historic dividend policy (84%); and they consider the expected stability of future earnings before increasing dividends (72%).

Empirical support for the signaling explanation of dividends has been limited, however. Several studies find a positive correlation between dividends and future earnings (Watts, 1973; Gonedes, 1978; Healy and Palepu, 1988; Nissim and Ziv, 2001), although a significant body of research fails to find such a relation (Benartzi, Michaely and Thaler, 1997; Dyl and Weigand, 1998; Grullon, Michaely and Swaminathan, 2002; Koch and Sun, 2004; Grullon, Michaely, Benartzi and Thaler, 2005). The general consensus among more recent studies of dividends and earnings is that the decision to initiate or raise the firm's dividend is based on past and current earnings growth, not expected growth in future earnings. This does not mean that dividend payouts do not communicate information to markets, it rather means the information may be more corroborative, confirming that recent earnings changes are permanent, rather than predictive of future earnings changes, as suggested by earnings signaling models.

Survey evidence (Brav, Graham, Harvey and Michaely, 2005) also indicates a potential misalignment between signaling theory and managers' attitudes. Although 80% of managers believe dividends convey information to investors, only 25% of respondents indicated they use dividends to look better than their competitors, and less than 5% said they deliberately incur the costs associated with raising external funds and foregoing new investments to distinguish their firm from its rivals.

Lintner's (1956) dividend model and subsequent survey evidence suggest managers are conservative in their dividend decisions. We propose that dividend initiation is likely to be one of the most conservative dividend decisions of all, given managers' aversion to reversing dividend decisions, particularly ones that involve reducing or omitting the firm's payout. We further assert that the signaling models, which propose managers base dividend decisions on expectations of *future* earnings, are incompatible with Lintner's more conservative description of the dividend decision process. We therefore expect to see a rising pattern of profits preceding the dividend initiation year, similar to the pattern observed leading up to dividend increases (Benartzi, Michaely and Thaler, 1997; Grullon, Michaely and Swaminathan, 2002). Consistent with the Lintner model, we expect profitability will then stabilize around this new, higher level. If there is any evidence dividend initiation signals higher future earnings, we expect to observe continued earnings growth among high M/B stocks, priced by the market with the expectation of faster future growth.

2.2 Agency Explanations for Dividends

Easterbrook (1984) argues that dividends provide investors with a way to monitor managerial behavior. Companies paying out cash that could be used to fund new investment must access capital markets more frequently than firms that do not. This increased scrutiny by markets adds value as investors monitor managers' investment and operating decisions, which are the real drivers of value in a Miller and Modigliani (1961) world. Jensen (1986) builds on Easterbrook's arguments by asserting dividends increase the value of mature firms that generate large cash flows because they limit managers' tendency to waste excess capital on low-return investments. Jensen believes in this "free cash flow theory" so strongly he recommends mature firms maximize their value by paying out all the free cash flow they cannot profitably reinvest. Siegel (2002) expands this line of thought further by suggesting historically high dividend payouts helped limit the type of accounting fraud that has recently plagued the U.S. He observes that with no Securities and Exchange Commission or Financial Accounting Standards Board providing oversight in the 19th century, investors demanded firms provide "concrete evidence of real earnings" (p. A20) via regular dividend payments.

There is mixed empirical evidence as to whether dividends are successful in reducing agency costs. This is not surprising, given that agency costs are not directly observable, and therefore harder to correlate with a firm's dividend policy. Although the idea that managers and executives should not have access to too much of the firm's free cash flow for too long is persuasively argued in the literature — in addition to possessing a considerable amount of common-sense appeal — studies that find empirical support for the idea (e.g., Lang and

Litzenberger, 1989; DeAngelo, DeAngelo and Stulz, 2006; Borokovich, Brunarski, Harman and Kehr, 2005) are approximately balanced by studies that fail to support it (e.g., Denis, Denis and Sarin, 1994; Yoon and Starks, 1995). Evidence from the Brav, Graham, Harvey and Michaely (2005) survey is largely unsupportive of agency and free cash flow motivations for paying dividends. Less than one-third of managers agree they pay dividends to attract the monitoring benefits associated with higher institutional ownership, and only 13% believe paying out excess cash disciplines the firm to make more efficient decisions.

We test for free cash flow, agency and monitoring effects by observing changes in balance sheet cash, capital expenditure and debt levels across high and low M/B firms. We expect high M/B firms to have higher levels of cash and capital expenditure prior to dividend initiation. As predicted by the maturity hypothesis, these stocks are also likely to exhibit the greatest buildup and subsequent disgorgement of cash as they transition into a slower-growth phase, particularly if their capital spending slows around the announcement of their initial dividend. Conversely, we expect the lower growth premium assigned to the value stocks implies lower levels of cash and capital expenditure, and less of a cash buildup/disgorgement cycle compared to the high M/B stocks. We also track the use of debt from years −3 to +3 to test Easterbrook's (1984) claim that firms will access capital markets more frequently if they pay dividends. We expect to observe the greatest increase in debt among the high M/B firms, as they are most likely to be in need of new capital after they begin paying dividends.

2.3 Dividends and Risk

Researchers have proposed that dividend payments are associated with lower risk. Venkatesh (1989) argues that stock return volatility should decrease after firms begin paying dividends because investors will focus more on the information content of dividend announcements and less on other news events, such as earnings announcements. Dyl and Weigand (1998) maintain that dividends convey information about lower risk more directly to markets, as managers decide to initiate or increase dividends when they believe the firm's earnings stream is not only permanently higher, but more stable and predictable as well. Grullon, Michaely and Swaminathan (2002) argue that fundamental news about a firm is either about its cash flows or discount rate, and the lack of support for cash flow signaling implies the market response to positive dividend events must be a reaction to an expected change in risk.

There is widespread empirical support for the idea that risk decreases after both dividend initiations and increases. The only question unresolved in the literature is whether the risk decrease involves total risk — both systematic and unsystematic risk — or is confined to only one of these components. Studies that find a decrease in unsystematic risk following dividend initiation include Venkatesh (1989) and Dyl and Weigand (1998), while studies that find a decrease in systematic risk following dividend increases include Bajaj and Vijh (1990), Boehme and Sorescu (2002), and Grullon, Michaely and Swaminathan (2002).

We expect low M/B firms will have the greatest decrease in risk following dividend initiation. Their valuations imply they have already entered the slower growth, mature phase described by Grullon, Michaely and Swaminathan (2002). As these stocks are unlikely to have as much cash to disgorge as their high M/B counterparts, dividend initiation probably signals a safer, more stable stream of earnings out of which these firms can maintain regular dividend payments. It is less likely higher M/B firms will experience a decrease in risk, at least to the same extent as low M/B firms. These firms present a different profile to the market, announcing an initial dividend while still priced for faster future growth. We predict that any decrease in risk for high M/B firms is probably still several years in the future, as they evolve into more stable and predictable firms, and resolve any uncertainty that remains regarding their spending plans and intentions to disgorge significant amounts of cash to their shareholders.

3. Sample Selection and Empirical Methodology

We select a sample of companies that initiate dividends between 1964 and 2000.[1] Following Michaely, Thaler and Womack (1995), firms resuming dividend payments are not included in the sample. We include all New York Stock Exchange (NYSE) and American Stock Exchange (Amex) firms listed on the Center for Research in Security Prices (CRSP) database that pay four quarterly dividends (CRSP code 1232) for at least two consecutive years. To ensure adequate availability of pre-event data, the company must have been traded on the NYSE or Amex for three years prior to the initiation of dividends.

All closed-end funds, REITS and ADRs are excluded from the sample (only CRSP security types 10 and 11 are included), as are companies that pay monthly dividends. These initial criteria resulted in a sample of 766 dividend initiations over the period 1964 to 2000. Our analysis also requires three years of Compustat data before and after the initiation year. We eliminated 172 firms due to insufficient Compustat data, resulting in a final sample of 594 firms.

3.1 Descriptive Statistics

Panel A of Table 1 shows the distribution of the sample through time. Dividend initiations are classified into fiscal year based upon the dividend initiation date. There is some clustering of dividend initiations in the period 1972 through 1978, similar to results reported by Baker and Wurgler (2004). The rate of dividend initiations is relatively low during the 1990s, consistent with Fama and French's (2001) finding that the propensity to pay dividends has been declining over time.

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[1] The sample ends with year 2000 to facilitate collection of post-event data.

Panel B of Table 1 presents the distribution of the sample by the first digit of each firm's SIC code. Not surprisingly, there is clustering in SIC digits 2 and 3, which cover the full spectrum of manufacturing firms. The stable cash flow streams and steady growth characteristic of these types of firms make it more likely they will mature into regular dividend-payers.

Table 2 reports descriptive statistics for the sample of firms during the year preceding, the year of, and the year following dividend initiation (years −1 to +1). Return on equity, return on assets and profit margins indicate these firms are consistently profitable, which is not surprising given their decision to begin regular dividend payouts. These firms use a moderate amount of debt, as indicated by their mean debt/assets ratio, and are relatively small, as evidenced by a mean market capitalization of less than half a billion dollars. The average market to book ratio is greater than one, suggesting the market ranks these firms' prospects as positive and above average.

3.2 Data Items and Definitions

We report three-day (−1 to +1) cumulative excess stock returns around the dividend announcement, based on a single-index market model:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \ . \qquad (1)$$

The market model parameters are estimated using daily data from months −12 to −1 relative to the announcement month using the CRSP value-weighted index of all NYSE and Amex stocks. We also report cumulative monthly excess returns for the three years before and after the month in which the announcement takes place. The monthly excess returns are based on a 3-factor model (Fama and French, 1993), which incorporates factors for size (*SMB*) and value (*HML*) in addition to the traditional market risk premium (*MKTRF*):

$$R_{it} - RF_t = \alpha_i + \beta_i \left(MKTRF\right)_t + \lambda_i \left(SMB\right)_t + \gamma_i \left(HML\right)_t + \varepsilon_{it} \ . \qquad (2)$$

Pre- and post-event risk metrics are also estimated using Equation (2). Daily and monthly stock returns are obtained from the CRSP database, and the time series of risk factors and the monthly risk-free rate are obtained from Ken French's online data library (French, 2006).

We obtain the following accounting data items from Compustat for the seven-year period (years −3 to +3) surrounding the dividend initiation announcement year (year 0). These items are shown below, followed by their annual data item numbers (in parentheses):

a.) total assets (6),
b.) operating income before depreciation and amortization (13),
c.) book value of common equity (60),
d.) long-term debt (9),
e.) capital expenditures (128), and
f.) cash and short-term investments (1).

Following Barber and Lyon (1996), we measure profitability as return on assets (ROA), using operating income before depreciation and amortization in the numerator:

$$ROA_t = \frac{\text{operating income}_t}{\text{total assets}_t} \; . \tag{3}$$

Firms' cash and short-term investments are measured relative to total assets:

$$Cash_t = \frac{\text{cash and short-term investments}_t}{\text{total assets}_t} \; , \tag{4}$$

as is capital expenditure:

$$CapEx_t = \frac{\text{capital expenditures}_t}{\text{total assets}_t} \; . \tag{5}$$

Firms' use of debt is measured as long-term debt relative to total assets:

$$Debt_t = \frac{\text{long-term debt}_t}{\text{total assets}_t} \; . \tag{6}$$

4. Empirical Results

Table 3 reports cumulative daily excess returns for the 3-day window surrounding the dividend announcement and cumulative monthly excess returns over months −36 to −1 and +1 to +36 relative to the announcement month. We test whether the mean and median returns are different from zero using a *t*-statistic and a Wilcoxon rank sum statistic, respectively. In this table and the tables that follow, mean results are reported in Panel A and median results are reported in Panel B.

For the full sample of firms, the mean 3-day excess announcement return equals 3.5%, which is significantly different from zero at the 1% level. The mean announcement return is comparable to the returns reported by previous research into the effects of dividend initiation. For example, Asquith and Mullins (1983) find 2-day abnormal announcement returns of 3.7%, Healy and Palepu (1988) report 2-day excess returns of 3.9%, and Michaely, Thaler and Womack (1995) find 3-day excess returns of 3.4%. The market obviously views the announcement of an initial dividend as good news regarding firms' future prospects.

We also report excess returns after sorting firms into equally-sized quartiles by their M/B ratios from year −1 relative to the year in which dividends were initiated (with the lowest M/B firms in quartile 1 and the highest in quartile 4). Following Lang and Litzenberger (1989), we use M/B ratios as a proxy for firms' expected growth opportunities. The mean announcement returns are significant at the 1% level for all the quartiles. We also find that returns decline monotonically as firms' M/B ratios rise. Stocks with lower M/B ratios, priced by the market for slower future growth, gain the most when they announce the intention to initiate regular dividend payments to shareholders. This result is also evident in medians, as reported in Panel B. The median announcement return for the high M/B stocks is only 0.70%, which is insignificantly different from zero. These findings provide support for the idea that the information content of a dividend initiation announcement is different for stocks priced for value and growth prior to the dividend event. These results are also consistent with Grullon, Michaely and Swaminathan's (2002) life cycle hypothesis, as the market places greater value on initial dividends paid by low M/B, slower-growth firms.

Table 3 also reports patterns of longer-term excess returns pre- and post-dividend. Firms initiating dividends earn excess returns of 10.5% over the three years preceding their first dividend, and show no evidence of excess returns over the three years that follow. The pre-event results are similar to those reported by Michaely, Thaler and Womack (1995), who find that firms initiating dividends outperform by 15% in the year preceding the event. The post-dividend results are substantially different, however. Michaely, Thaler and Womack report significant 3-year post-dividend excess returns of 25%, whereas our mean post-dividend returns over the same period are insignificantly different from zero. We find the difference in our results is due to the use of different methodologies. Michaely, Thaler and Womack use market-adjusted returns, essentially subtracting the CRSP market index return from the average daily portfolio return, whereas we compute long-term excess returns using the 3-factor Fama and French (1993) model shown as Equation (2). Long-term excess returns before and after dividend initiation do not appear nearly as large after adjusting for risk in this manner.

Table 3 shows the positive excess returns preceding dividend initiation are earned mainly by the higher M/B firms, with mean and median cumulative excess returns of 30% and 26%, respectively. Following dividend initiation, however, the low M/B stocks are the only quartile of firms that earn positive excess returns on a risk-adjusted basis, equal to 13% over the 3-year period following their initial dividend (significant at the 5% level). Most of the other M/B quartiles have insignificant post-dividend returns, with the exception of the third quartile, which underperforms after dividend initiation with risk-adjusted excess returns of −21% over the following three years. Overall, these findings suggest that after initiating dividends firms settle into periods of unexciting but steady performance, earning returns that are consistent with their level of risk, consistent with the life cycle hypothesis.

4.1 Changes in Return on Assets

Table 4 reports mean and median return on assets (Equation 3) before and after dividend initiation for the full sample of firms and the M/B quartiles. In these and the tables that follow we test if the mean and median metrics from year −3 are significantly different from year 0, and if the metrics from year 0 are significantly different from year +3, using a difference-between-the-means *t*-statistic and a nonparametric Mann-Whitney statistic, respectively.

In both means and medians, ROA for the full sample of firms increases significantly from years −3 to 0, and then exhibits a significant decline back to its pre-event level by year +3. The pattern is virtually identical to that reported by Grullon, Michaely and Swaminathan (2002) before and after dividend increases. These results indicate that the announcement of dividend initiation does not signal higher future profitability for firms, and confirm Lintner's (1956) description of the conservative approach to dividend policy employed by managers, who wait to observe a permanently higher level of profitability before deciding to begin paying dividends.

Mean and median ROA increases monotonically with firms' M/B ratios in years −3, 0, and +3. All quartiles exhibit the same pattern of increasing and decreasing ROA, although for the highest M/B quartile these changes are only significant in medians. We also find the "spread" in profitability between the high and low M/B quartiles compresses from years −3 to +3. In other words, value stocks' mean and median ROA drifts higher while growth stocks' ROA drifts lower. Following dividend initiation the extreme quartiles of stocks begin to resemble one another, once again consistent with the life cycle hypothesis. This pattern is also evident in other variables, as shown in the tables that follow.

4.2 Changes in Cash and Short-Term Investments

Table 5 reports changes in cash and short-term investments (Equation 4) before and after dividend initiation. We find that firms' holding of cash and short-term investments increases from years −3 to 0 and decreases from years 0 to +3. These findings are significant for the full sample of firms in both means and medians, and for most of the M/B quartiles, although the value stocks have less cash to disgorge than the growth stocks, and their drawdown of cash is only significant in medians.

Conversely, the buildup of cash is not significant for the highest M/B firms, but as these firms already hold higher levels of cash pre-dividend, their disgorgement of cash over years 0 to +3 is statistically significant. This provides further evidence that high and low M/B firms are in different life cycle stages as early as three years before these firms begin paying dividends. In addition to the profitability of the value stocks being lower than that of the growth stocks (Table 4), the value stocks hold half as much cash and short-term investments relative to total assets three years before dividend initiation. Moreover, as was the case for ROA, we find these differences are substantially reduced by the third year following an initial dividend. In both means and medians, the spread in the cash holdings of the growth stocks compresses closer to that of the value stocks. This further supports the idea that the low M/B firms have fully transitioned into their mature phase prior to dividend initiation, and the growth stocks are just beginning this transition at the time of their initial dividend.

4.3 Changes in Capital Expenditure

Table 6 reports changes in capital expenditure (Equation 5) before and after dividend initiation. We find little change in capital expenditure for the full sample of firms. Stocks with higher M/B ratios have generally higher capital expenditures in years −3 and 0 relative to the event. Although none of the changes in the quartiles over time are statistically significant, we observe the same compression in the spread across the high and low M/B quartiles as we did for ROA and balance sheet cash. Starting in year −3 the high M/B firms spend 3-4% more relative to total assets than the low M/B firms, but by year +3 the spread is approximately 1%. This further supports the idea that these firms are at different life cycle stages prior to initiating dividends, but over the subsequent three years firms that were formerly priced for faster growth begin to exhibit the same slowdown already experienced by lower M/B firms.

4.4 Changes in Debt

We test Easterbrook's (1984) idea that firms paying dividends benefit from the increased monitoring that results from accessing capital markets more frequently. We conjecture that firms with higher M/B ratios are more likely to need additional capital as they attempt to keep up with the higher growth expectations reflected in their stock prices. Table 7 reports the ratio of long-term debt to total assets (Equation 6) for all firms initiating dividends, and for the M/B quartiles.

We find no change in the overall use of debt for the full sample of firms, although the high M/B firms' debt/assets ratio drifts downward from years −3 to 0, and then increases significantly from years 0 to +3. This is the only quartile of firms exhibiting a significant increase in their use of debt following initial dividend payments, which further supports the idea that these firms' growth prospects have not diminished to the same extent as lower M/B firms already priced for slower growth.

4.4 Changes in Risk

Table 8 reports changes in risk before and after firms begin paying dividends. We compare the total volatility of monthly returns over months −36 to −1 to months +1 to +36, as well as the size (*SMB*), value (*HML*), and market risk premium (*MKTRF*) factor loadings from Equation (2). We find mean and median total risk for the full sample declines significantly in the post-dividend period. The largest decrease in total risk accrues to the value quartiles. Total risk remains unchanged for the high M/B quartile, however.

Regarding the Fama-French (1993) risk factors, for the full sample of firms the *SMB* risk factor loading is lower post-dividend initiation in both means and medians. We also observe a significant decrease in the mean *MKTRF* risk factor. Systematic risk declines following the initiation of regular cash dividends. Firms in the low M/B quartile experience the greatest risk decrease, with significant declines in their *MKTRF, SMB* and *HML* factor loadings. There is no change in any of the systematic risk factors for the highest M/B quartile. This provides additional support for the idea that leading up to dividend initiation the low M/B firms are further along in the transition into their mature phase than the high M/B firms.

4.5 Excess Returns and Changes in Risk and Return on Assets

In this section we use multivariate regression to test whether there is a relation between the market reaction to dividend initiation and the changes in risk and profitability reported in previous sections. We first replicate the most common methodological approach from previous studies, which involves regressing excess announcement returns on post-event changes on various measures of risk and profits. The results of these regressions are not reported for space considerations, but we briefly describe the results (which are available upon request). The adjusted R-squared of the best regression model is 3%. We find that excess announcement returns are related to changes in the three systematic risk factors (*SMB*, *HML* and *MKTRF*) at the 10% level of significance, but have no relation with the post-event change in ROA.

These results are not unexpected. Grullon, Michaely and Swaminathan (2002) regress excess returns from dividend increase announcements on a variety of post-event variables and report similarly low adjusted R-squareds (2-4%).[2] Researchers have shown that when investors face uncertain situations the possibility of less than perfectly-efficient prices increases, and that risk change is one specific type of news that is unlikely to be immediately impounded into prices (Schleifer and Vishny, 1997; Brav and Heaton, 2002). We assert that the nexus of factors affecting firms' decision to initiate dividends — changes in profits and risk, along with changes in firms' life cycles and future growth prospects — presents investors with a high degree of uncertainty around the time of the dividend initiation announcement. The time it takes markets to fully interpret and accurately impound this information into prices is likely to take longer than suggested by traditional theories of market efficiency.

Therefore, following Grullon, Michaely and Swanimathan (2002), we investigate the relation between long-term returns following the dividend initiation announcement and changes in the variables presented above. We use the functional form depicted as Equation (7):

$$\begin{aligned}\text{ExRetPost}_i &= a + b_0 \Delta SMB_i + \sum_{j=1}^{4} b_j \left(Q_j \times \Delta SMB_i\right) + c_0 \Delta HML_i + \sum_{j=1}^{4} c_j \left(Q_j \times \Delta HML_i\right) \\ &+ d_0 \Delta MKTRF_i + \sum_{j=1}^{4} d_j \left(Q_j \times \Delta MKTRF_i\right) + e_0 \Delta ROA_i + \sum_{j=1}^{4} e_j \left(Q_j \times \Delta ROA_i\right) + \varepsilon_i\end{aligned} \tag{7}$$

which models monthly cumulative excess returns from months +1 to +36 following the dividend announcement as a function of changes in systematic risk factors and the change in ROA shown previously. For each dependent variable we also include 0,1 interactive indicator variables for

[2] Previous dividend initiation studies run similar regressions. Asquith and Mullins (1983) show that initial dividend yield explains 12% of the excess announcement return, and Healy and Palepu (1988) show that future earnings deflated by stock price explain 27% of the excess announcement return. These regressions suffer from econometric problems, however, as they have transforms of stock prices on both sides of the regression equation.

the individual M/B quartile each firm occupies in our sample (the Q's in Equation 7, designating quartiles one, two and four, with quartile three omitted to avoid the problem of perfect collinearity). This allows us to test if the regression coefficients for each dependent variable are different for the high and low M/B quartiles (Q_1 vs. Q_4). Equation (7) variable definitions are:

ExRetPost_i	= the monthly cumulative excess return for firm i over months +1 to +36 (based on the 3-factor model shown as Equation 2) following the month in which the firm announces dividend initiation;
ΔSMB_i	= the change in the *SMB* risk factor loading for firm i, measured as the *SMB* coefficient from months +1 to +36 minus the *SMB* coefficient from months −36 to −1;
ΔHML_i	= the change in the *HML* risk factor loading for firm i, measured as the *HML* coefficient from months +1 to +36 minus the *HML* coefficient from months −36 to −1;
$\Delta MKTRF_i$	= the change in the *MKTRF* risk factor loading for firm i, measured as the *MKTRF* coefficient from months +1 to +36 minus the *MKTRF* coefficient from months −36 to −1;
ΔROA_i	= the change in *ROA* for firm i, measured as ROA in year +3 minus *ROA* in year 0;
Q_j	= a 0,1 indicator variable that equals one if a firm in the sample is classified in M/B quartile one, two or four, and zero otherwise.

Results of the regression, which has an adjusted R-squared of 13.6%, are reported in Table 9. The regression coefficient on the post-dividend ΔSMB variable is positive and significant at the 5% level. This, of course, is the average coefficient for the full sample — the coefficient for quartiles one, two and four are found by summing the ΔSMB coefficient with the coefficient on the interactive indicator variable for each quartile. The coefficients for each quartile suggest the relation between post-event excess returns and the change in the ΔSMB risk factor is different, depending on firms' M/B ratios. The coefficients for quartiles one, two and four equal −0.059, 0.068, and 0.111, respectively. Moreover, the F-statistic (8.14) shows that quartile one's coefficient is significantly lower than quartile four's at the 1% level. Recall that the *SMB* risk factor declines following dividend initiation for all the quartiles. The negative coefficient for the low M/B quartile therefore suggests that, controlling for changes in other risk factors and *ROA*, the reduction in these stocks' size premium positively influences post-event returns. The positive coefficient for the higher M/B stocks suggests the lack of a significant decrease in the *SMB* risk factor contributes to their negative post-event returns, however. This is consistent with the life cycle idea that high and low M/B firms initiate dividends for different reasons, with the low M/B firms exhibiting a decline in their *SMB* size premium risk factor.

Table 9 also shows the average coefficient on the ΔHML variable is negative and significant at the 5% level. Adding the indicator variables' coefficients to this value shows the coefficient becomes more negative for quartiles one, two and four, with values of −0.093, −0.150, and −0.194, respectively. There is a small difference in how the change in the *HML* value factor loading affects post-event returns between quartiles one and four; the *p*-value for the *F*-statistic (3.20) is 0.07, just outside the conventional level for statistical significance, but the *t*-statistic on quartile four's indicator variable is significant at the 5% level, confirming that the returns of the extreme value and growth quartiles exhibit different responses to this variable. Panels A and B of Table 8 show that only stocks in the high M/B quartile exhibit an increase in the *HML* risk factor. The significantly negative coefficient in the regression therefore indicates the rise in this risk factor contributes to the negative post-event excess returns earned by the high M/B firms.

The regression coefficient on the $\Delta MKTRF$ variable is positive and statistically significant at the 1% level, indicating decreases in this variable are associated with lower post-event returns. There is a different relation between returns and $\Delta MKTRF$ across the quartiles, however ($F = 5.74$, significant at the 1% level). The coefficients for quartiles one, two and four are −0.016, 0.223, and 0.207, respectively, indicating that the low M/B quartile's post-event returns are positively influenced by the decline in the *MKTRF* risk factor, while higher M/B firms' post-event returns are negatively influenced by changes in this factor. Controlling for changes in ROA, we find that value stocks' higher excess returns following dividend initiation are positively influenced by declines in systematic risk, while the minimal decrease in risk displayed by the high M/B stocks contributes to their negative excess returns.

The coefficient on ΔROA is positive and significant at the 1% level, with the extreme M/B quartiles displaying a different relation between post-event returns and changes in profitability ($F = 8.09$, significant at the 1% level). The coefficients on quartiles one, two and four are 0.227, 1.315, and 2.381, respectively. As ROA generally declines following dividend initiation, the positive slope coefficient indicates that post-event returns are positively influenced by higher ROA. The difference in the slope coefficients further suggests the post-dividend returns of high M/B firms are more sensitive to the influence of higher profitability, which is not surprising given their larger ROA following the initiation of dividends. These findings are once again consistent with the life cycle hypothesis, as the post-dividend returns of the high M/B stocks are positively influenced by their higher profitability, while the returns of the low M/B stocks display less sensitivity to changes in profits.

5. Conclusions

We investigate dividend initiation and firms' motivations for paying regular cash dividends to shareholders, allowing for interaction among the various dividend theories and taking individual firm characteristics into account. We focus on three established explanations for dividends — signaling, agency costs and risk — and show how these explanations are best understood in the context of Grullon, Michaely and Swaminathan's (2002) life cycle hypothesis, which proposes dividend initiation conveys information about firms' transition from a faster growth phase to a slower growth, "mature" phase. We find that all firms initiating dividends are experiencing a change in their life cycles, but the changes are subtly different depending upon whether or not a firm has fully transitioned into its mature phase at the time of the event (low M/B), or begins showing signs of slowing down following the event (high M/B).

We find that low M/B stocks display the strongest price reaction to a dividend initiation announcement, with excess announcement returns declining monotonically for higher M/B firms, consistent with the life cycle hypothesis. We find that all firms' profitability (ROA) rises over the three years preceding the initiation of dividends, but declines back to its pre-event level by year +3. This is unsupportive of signaling theory, but is consistent with the slowdown in growth predicted by the life cycle hypothesis. High M/B stocks hold higher levels of cash and engage in greater capital spending than low M/B stocks, and also disgorge substantially more of this cash following dividend initiation. We also find the spread between the profitability, cash levels and capital expenditures of the high and low M/B firms compresses following dividend initiation, driven mainly by a slowdown in the high M/B firms, which more closely resemble the low M/B firms by the third year following the event.

Low M/B stocks exhibit significant decreases in their market, size and value risk factor loadings following dividend initiation, while high M/B stocks display no change in systematic risk, which provides further support for the life cycle hypothesis. Moreover, the post-dividend excess returns earned by low M/B firms are related to the decrease in risk, while the returns of the high M/B firms are related to their greater profitability following dividend initiation. Overall we find strong support for the idea that firms initiating dividends are entering a more mature life cycle phase, with low M/B firms having completed most of this transition pre-dividend, and high M/B firms just beginning to show signs of slowing down.

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Table 1: Sample Distribution

Panel A: Distribution of Sample By Event Year

Year	Sample Size	# of Firms with Compustat Data	Year	Sample Size	# of Firms with Compustat Data
1964	15	4	**1983**	7	6
1965	32	7	**1984**	10	6
1966	14	2	**1985**	8	6
1967	10	9	**1986**	17	9
1968	9	6	**1987**	7	6
1969	6	2	**1988**	21	17
1970	9	7	**1989**	25	20
1971	13	11	**1990**	16	15
1972	26	24	**1991**	11	10
1973	42	34	**1992**	19	15
1974	35	29	**1993**	13	9
1975	82	71	**1994**	9	8
1976	96	78	**1995**	16	14
1977	73	63	**1996**	8	8
1978	31	26	**1997**	16	15
1979	21	16	**1998**	5	5
1980	13	11	**1999**	8	6
1981	10	9	**2000**	5	4
1982	8	6	**Total**	766	594

Panel B: Distribution of Sample By First Digit of SIC Code

First SIC Digit	% of Sample	Number of Firms	First SIC Digit	% of Sample	Number of Firms
1	9.9%	59	5	14.0%	83
2	15.8%	94	6	8.4%	50
3	32.5%	193	7	8.7%	52
4	4.9%	29	8	5.7%	34

Table 2: Descriptive Statistics

This table reports end-of-year mean descriptive statistics for the sample of 594 dividend initiators in years −1, 0, and +1 relative to the year in which dividend initiation was announced. Standard deviations appear in parenthesis below the mean value of each metric.

	year −1	**year 0**	**year +1**
Return on Equity (before depreciation)	37.1%	40.6%	39.2%
	(24.8%)	(31.7%)	(31.3%)
Return on Assets	15.3%	16.7%	16.4%
	(8.6%)	(8.6%)	(9.1%)
Profit Margin	15.5%	16.3%	15.6%
	(14.8%)	(18.5%)	(23.2%)
Debt to Assets	20.2%	18.9%	19.6%
	(17.1%)	(16.8%)	(16.9%)
Market Capitalization (thousands)	$200,563	$298,049	$357,097
	(948,843)	(1,990,007)	(2,841,137)
Market to Book	1.6	1.7	1.8
	(1.5%)	(1.8%)	(1.9%)

Return on equity equals operating income before depreciation minus preferred dividends divided by shareholders equity.

Return on assets equals operating income before depreciation divided by total assets.

Profit margin equals operating income before depreciation divided by sales.

Debt to assets equals long term debt divided by long term assets.

Market capitalization equals the end of year stock price multiplied by the number of shares of common stock outstanding.

Market to book equals the year-end stock price per share divided by the book value of equity per share.

Table 3: Excess Stock Returns Before and After Dividend Initiation

This table reports mean and median cumulative excess returns from days −1 to +1 relative to the announcement (Equation 1), and cumulative excess monthly returns from months −36 to +1 and +1 to +36 relative to the announcement (Equation 2). The *t*-statistics and Wilcoxons test if mean or median returns are significantly different from zero. Results are reported for the full sample of 594 dividend initiators and for quartiles sorted by each firm's M/B ratio in year −1 relative to the dividend initiation year (Q_1 = lowest M/B and Q_4 = highest M/B).

Panel A: Mean Excess Returns

	n	Days −1 to +1	Months −36 to −1	Months +1 to +36
full sample	594	3.50%	10.51%	−3.09%
t-statistic		12.53**	4.09**	−1.08
M/B Q_1	148	4.92%	0.04%	13.00%
t-statistic		7.89**	0.01	2.55*
M/B Q_2	149	4.02%	0.42%	−5.96%
t-statistic		6.71*	0.10	−1.12
M/B Q_3	148	3.09%	11.73%	−14.38%
t-statistic		6.57**	2.08*	−2.38*
M/B Q_4	149	1.94%	29.97%	−5.03%
t-statistic		3.88**	5.61**	−0.79

Panel B: Median Excess Returns

	n	Days −1 to +1	Months −36 to −1	Months +1 to +36
full sample	594	2.13%	4.25%	−5.17%
Wilcoxon		5.87**	1.48	−0.63
M/B Q_1	148	3.18%	−2.28%	12.60%
Wilcoxon		3.55**	−0.28	1.34
M/B Q_2	149	2.58%	−3.87%	−7.93%
Wilcoxon		3.15**	−0.21	−0.60
M/B Q_3	148	2.23%	0.35%	−21.31%
Wilcoxon		2.99**	0.65	−3.42**
M/B Q_4	149	0.70%	25.92%	−2.84%
Wilcoxon		1.92	2.52*	−0.45

*, ** Indicates statistical significance at the 0.05 and 0.01 levels, respectively.

Table 4: Return on Assets Before and After Dividend Initiation

This table reports mean and median return on assets (ROA) from years −3 to +3 relative to the year in which firms announce an initial dividend. The first reported *t*-statistic and Mann-Whitney statistic test if mean or median ROA in year −3 is significantly different from year 0; the second reported statistics test if mean or median ROA in year 0 is significantly different from year +3. Results are reported for the full sample of 594 dividend initiators and for quartiles sorted by each firm's M/B ratio in year −1 relative to the dividend initiation year (Q_1 = lowest M/B and Q_4 = highest M/B).

Panel A: Mean Return on Assets

	n	−3	−2	−1	0	+1	+2	+3
full sample	594	14.23%	14.11%	15.33%	16.72%	16.37%	15.22%	14.33%
t-statistic					5.34**			−5.15**
M/B Q_1	148	11.62%	11.32%	12.06%	14.04%	14.20%	13.43%	12.47%
t-statistic					3.99**			−3.51**
M/B Q_2	149	13.86%	12.80%	14.30%	16.27%	15.22%	14.12%	13.76%
t-statistic					3.59**			−4.07**
M/B Q_3	148	14.94%	14.61%	16.15%	17.51%	17.17%	15.59%	14.45%
t-statistic					3.33**			−3.75**
M/B Q_4	149	17.56%	19.63%	20.93%	20.16%	19.78%	18.30%	16.85%
t-statistic					1.91			−1.76

Panel B: Median Return on Assets

	n	−3	−2	−1	0	+1	+2	+3
full sample	594	13.50%	13.66%	14.70%	16.19%	15.71%	14.77%	14.17%
Mann-Whitney					6.94**			5.64**
M/B Q_1	148	11.08%	11.51%	12.02%	13.36%	14.26%	13.10%	13.04%
Mann-Whitney					4.09**			1.61
M/B Q_2	149	13.32%	13.20%	14.20%	16.09%	14.68%	13.78%	14.17%
Mann-Whitney					3.76**			3.78**
M/B Q_3	148	14.49%	15.02%	15.70%	16.79%	17.07%	15.96%	14.26%
Mann-Whitney					3.72**			3.69**
M/B Q_4	149	15.65%	17.86%	19.80%	20.42%	18.10%	17.50%	15.93%
Mann-Whitney					2.24*			3.65**

*, ** Indicates statistical significance at the 0.05 and 0.01 levels, respectively.

Table 5: Cash and Short-Term Investments Before and After Dividend Initiation

This table reports the mean and median ratio of cash plus short-term investments to total assets from years −3 to +3 relative to the year in which firms announce an initial dividend. The first reported *t*-statistic and Mann-Whitney statistic test if mean or median cash + ST investments to total assets in year −3 is significantly different from year 0; the second reported statistics test if mean or median cash + ST investments to total assets in year 0 is significantly different from year +3. Results are reported for the full sample of 594 dividend initiators and for quartiles sorted by each firm's M/B ratio in year −1 relative to the dividend initiation year (Q_1 = lowest M/B and Q_4 = highest M/B).

Panel A: Mean Cash + Short-Term Investments to Total Assets

	n	−3	−2	−1	0	+1	+2	+3
full sample	594	10.38%	10.29%	10.96%	12.07%	10.69%	10.42%	10.01%
t-statistic					3.56**			−3.60**
M/B Q_1	148	6.86%	6.79%	7.39%	8.24%	7.92%	8.57%	8.11%
t-statistic					2.43**			−1.36
M/B Q_2	149	10.08%	10.26%	10.21%	12.00%	10.24%	10.19%	10.22%
t-statistic					1.97*			−2.02*
M/B Q_3	148	11.34%	10.44%	11.76%	12.53%	11.62%	10.14%	9.79%
t-statistic					1.57			−2.62**
M/B Q_4	149	14.67%	15.51%	16.62%	17.11%	13.75%	13.25%	12.07%
t-statistic					1.65			−3.25**

Panel B: Median Cash + Short-Term Investments to Total Assets

	n	−3	−2	−1	0	+1	+2	+3
full sample	594	6.26%	6.80%	6.92%	7.75%	6.63%	6.20%	5.78%
Mann-Whitney					4.46**			4.86**
M/B Q_1	148	4.60%	5.11%	5.47%	5.92%	5.12%	5.28%	4.99%
Mann-Whitney					3.03**			3.59**
M/B Q_2	149	5.92%	5.98%	6.56%	8.63%	6.30%	5.35%	4.88%
Mann-Whitney					2.78**			3.98**
M/B Q_3	148	6.56%	6.88%	7.75%	7.87%	7.44%	6.23%	5.94%
Mann-Whitney					2.00*			3.28**
M/B Q_4	149	10.37%	10.01%	12.13%	11.17%	8.00%	8.33%	7.63%
Mann-Whitney					1.52			3.71**

*, ** Indicates statistical significance at the 0.05 and 0.01 levels, respectively.

Table 6: Capital Expenditure Before and After Dividend Initiation

This table reports the mean and median ratio of capital expenditure to total assets from years −3 to +3 relative to the year in which firms announce an initial dividend. The first reported *t*-statistic and Mann-Whitney statistic test if mean or median capital expenditure to total assets in year −3 is significantly different from year 0; the second reported statistics test if mean or median capital expenditure to total assets in year 0 is significantly different from year +3. Results are reported for the full sample of 594 dividend initiators and for quartiles sorted by each firm's M/B ratio in year −1 relative to the dividend initiation year (Q_1 = lowest M/B and Q_4 = highest M/B).

Panel A: Mean Capital Expenditure to Total Assets

	n	−3	−2	−1	0	+1	+2	+3
full sample	594	9.35%	8.30%	7.94%	8.03%	8.71%	8.84%	8.31%
t-statistic					−0.91			0.16
M/B Q_1	148	7.47%	6.28%	5.76%	5.75%	6.76%	7.85%	7.05%
t-statistic					−1.41			0.38
M/B Q_2	149	8.68%	7.33%	7.17%	7.41%	8.47%	8.67%	8.54%
t-statistic					−0.94			0.37
M/B Q_3	148	10.48%	10.02%	9.36%	9.85%	9.75%	9.83%	9.32%
t-statistic					−0.13			−1.04
M/B Q_4	149	11.60%	10.19%	10.22%	9.52%	10.18%	8.97%	8.19%
t-statistic					−0.33			−0.22

Panel B: Median Capital Expenditure to Total Assets

	n	−3	−2	−1	0	+1	+2	+3
full sample	594	6.05%	5.11%	5.07%	5.62%	6.04%	6.41%	5.65%
Mann-Whitney					1.02			1.06
M/B Q_1	148	4.78%	3.93%	4.30%	4.63%	4.95%	5.62%	4.87%
Mann-Whitney					0.12			1.30
M/B Q_2	149	5.30%	5.11%	4.82%	5.51%	5.96%	6.34%	6.05%
Mann-Whitney					0.14			0.35
M/B Q_3	148	7.74%	6.57%	6.32%	6.61%	6.51%	7.32%	6.23%
Mann-Whitney					0.74			1.48
M/B Q_4	149	7.82%	5.14%	6.31%	6.64%	7.32%	6.69%	5.44%
Mann-Whitney					1.17			1.29

*, ** Indicates statistical significance at the 0.05 and 0.01 levels, respectively.

Table 7: Long-Term Debt to Total Assets Before and After Dividend Initiation

This table reports the mean and median ratio of long-term debt to total assets from years −3 to +3 relative to the year in which firms announce an initial dividend. The first reported *t*-statistic and Mann-Whitney statistic test if mean or median debt to total assets in year −3 is significantly different from year 0; the second reported statistics test if mean or median debt to total assets in year 0 is significantly different from year +3. Results are reported for the full sample of 594 dividend initiators and for quartiles sorted by each firm's M/B ratio in year −1 relative to the dividend initiation year (Q_1 = lowest M/B and Q_4 = highest M/B).

Panel A: Mean Long-Term Debt to Total Assets

	n	−3	−2	−1	0	+1	+2	+3
full sample	594	21.59%	21.41%	20.22%	18.87%	19.56%	20.43%	21.28%
t-statistic					−0.90			1.31
M/B Q_1	148	22.60%	22.05%	21.49%	21.11%	22.12%	21.78%	22.50%
t-statistic					−0.21			0.98
M/B Q_2	149	20.40%	19.69%	18.73%	17.46%	18.76%	19.99%	20.81%
t-statistic					−0.82			0.71
M/B Q_3	148	23.06%	22.85%	21.82%	19.97%	20.03%	21.26%	21.33%
t-statistic					−0.59			0.07
M/B Q_4	149	19.73%	20.87%	17.96%	16.05%	16.54%	18.34%	20.45%
t-statistic					−0.62			2.87**

Panel B: Median Long-Term Debt to Total Assets

	n	−3	−2	−1	0	+1	+2	+3
full sample	594	19.00%	19.48%	17.47%	16.06%	16.40%	18.57%	18.76%
Mann-Whitney					0.10			1.01
M/B Q_1	148	20.53%	20.31%	19.46%	18.96%	19.11%	19.67%	21.30%
Mann-Whitney					0.42			1.41
M/B Q_2	149	17.21%	16.27%	16.50%	14.89%	16.64%	17.85%	18.64%
Mann-Whitney					0.25			0.47
M/B Q_3	148	21.10%	20.70%	19.48%	17.55%	17.52%	19.27%	17.77%
Mann-Whitney					0.12			0.25
M/B Q_4	149	13.41%	16.91%	11.99%	10.54%	10.18%	17.14%	15.80%
Mann-Whitney					0.32			3.40**

*, ** Indicates statistical significance at the 0.05 and 0.01 levels, respectively.

Table 8: Risk Before and After Dividend Initiation

This table reports mean and median risk measures for the 36 months preceding and following the month in which firms announce an initial dividend. The *t*-statistics and Mann-Whitney statistics test if pre-dividend mean or median risk measures (months −36 to +1) are different than in the post-dividend period (months +1 to +36). Results are reported for the full sample of 594 dividend initiators and for quartiles sorted by each firm's M/B ratio in year −1 relative to the dividend initiation year (Q_1 = lowest M/B and Q_4 = highest M/B).

Panel A: Changes in Mean Risk Measures

	σ pre	σ post	SMB pre	SMB post	HML pre	HML post	MKTRF pre	MKTRF post
full sample	12.84%	11.69%	1.25	1.09	0.23	0.16	1.15	1.06
t-statistic		−4.99**		−2.47*		−1.13		−2.07*
M/B Q_1	13.91%	11.46%	1.55	1.25	0.70	0.47	1.22	1.04
t-statistic		−6.06**		−2.57*		−2.42*		−2.36*
M/B Q_2	12.47%	11.42%	1.27	1.11	0.28	0.29	1.04	1.06
t-statistic		−2.28*		−1.17		0.14		0.09
M/B Q_3	12.79%	11.64%	1.10	0.96	0.14	−0.10	1.21	1.11
t-statistic		−2.02*		−2.28*		−0.71		−0.20
M/B Q_4	12.18%	12.25%	1.07	1.05	−0.19	−0.02	1.13	1.06
t-statistic		0.87		−0.30		1.23		−0.73

Panel B: Changes in Median Risk Measures

	σ pre	σ post	SMB pre	SMB post	HML pre	HML post	MKTRF pre	MKTRF post
full sample	12.16%	11.02%	1.19	1.03	0.23	0.12	1.12	1.04
Mann-Whitney		5.20**		2.42*		0.95		1.70
M/B Q_1	13.37%	11.02%	1.50	1.28	0.72	0.48	1.13	1.07
Mann-Whitney		5.66**		2.61*		2.95**		1.53
M/B Q_2	12.10%	11.00%	1.17	1.05	0.28	0.20	1.03	1.03
Mann-Whitney		1.79		0.84		0.27		0.14
M/B Q_3	11.92%	11.05%	1.09	0.88	0.04	−0.09	1.18	1.03
Mann-Whitney		1.77		1.79		−0.21		0.15
M/B Q_4	11.67%	11.10%	1.00	0.96	−0.41	−0.05	1.09	1.04
Mann-Whitney		1.61		1.34		1.95		0.35

*, ** Indicates statistical significance at the 0.05 and 0.01 levels, respectively.

Table 9: Regressions of Excess Returns on Changes in Risk and Return on Assets

This table reports the regression of cumulative excess returns for the 3 years following dividend initiation on the change in systematic risk factors and ROA over the same 3-year period. The regressions include interactive 0,1 indicator variables that equal 1 if the firm is in M/B quartile 1, 2, or 4, and 0 otherwise (Q_1 = lowest M/B and Q_4 = highest M/B; quartile 3 is omitted to avoid perfect collinearity). The *t*-statistics test if the regression coefficients are significantly different from zero, and the *F*-statistics test if the regression coefficient on the first quartile interactive indicator variable is different than the coefficient on the fourth quartile interactive indicator variable.

$$\text{ExRetPost}_i = a + b_0\Delta SMB_i + \sum_{j=1}^{4} b_j\left(Q_j \times \Delta SMB_i\right) + c_0\Delta HML_i + \sum_{j=1}^{4} c_j\left(Q_j \times \Delta HML_i\right) + d_0\Delta MKTRF_i + \sum_{j=1}^{4} d_j\left(Q_j \times \Delta MKTRF_i\right) + e_0\Delta ROA_i + \sum_{j=1}^{4} e_j\left(Q_j \times \Delta ROA_i\right) + \varepsilon_i$$

Variable	Regression Coefficient	*t*-statistic	*F*-statistic ($Q_1 = Q_4$)
Intercept	0.01881	0.60	
ΔSMB	0.08104	2.03*	
$Q_1 \times \Delta SMB$	−0.14017	−2.48*	
$Q_2 \times \Delta SMB$	−0.01352	−0.24	
$Q_4 \times \Delta SMB$	0.03034	0.51	8.14**
ΔHML	−0.08718	−2.32*	
$Q_1 \times \Delta HML$	−0.00618	−0.11	
$Q_2 \times \Delta HML$	−0.06238	−1.15	
$Q_4 \times \Delta HML$	−0.10717	−1.98*	3.20
$\Delta MKTRF$	0.22117	3.47**	
$Q_1 \times \Delta MKTRF$	−0.23698	−2.55*	
$Q_2 \times \Delta MKTRF$	0.00181	0.02	
$Q_4 \times \Delta MKTRF$	−0.01406	−0.16	5.74*
ΔROA	2.26686	4.01**	
$Q_1 \times \Delta ROA$	−2.04421	−2.54*	
$Q_2 \times \Delta ROA$	−0.95201	−1.23	
$Q_4 \times \Delta ROA$	0.11461	0.15	8.09**

*, ** Indicates statistical significance at the 0.05 and 0.01 levels, respectively.