Seeking Safety in Bad Times: Dividend Initiation Returns and Consumer Confidence [*]

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Abstract

In this paper, we study the effects of investor pessimism on the market reaction to dividend announcements and on the dividend policy choices of firms. We find that the market reactions to dividend initiations and dividend increases are higher, *ceteris paribus*, in times of pessimism. In addition, we find that non-dividend paying firms are more prone to undervaluation in periods of pessimism and that propensity to initiate and to increase dividends is higher during times of pessimistic sentiment. We conjecture that investor sentiment for dividends is driven by their *desire for safety*, and that the variations in the need for safety would cause pro-dividend sentiment to vary over time. Therefore, managers use dividend announcements in order to restore investor confidence and to offset potential undervaluation effects of investor pessimism. We find that signaling, risk, tax regimes and attraction of institutional clientele are unlikely explanations for our findings.

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"Investing in non-dividend paying stocks is just a leap of faith."
-Jim Cramer, Host of Mad Money, following the 733-point plunge in the Dow Jones Industrial Index

In their seminal work, Miller and Modigliani (1961) show that in a frictionless market, investors are indifferent to the choice of specific dividend policy by a firm. The presence of market imperfections and /or investor irrationality, however, can cause investors to express preference for one dividend policy over another.[1] In addition to the rational motives such as signaling or agency costs of free cash flow, recent studies have debated over the conjecture that *investor sentiment* may also affect dividend policy choices of firms (Baker and Wurgler (2004); Hoberg and Prabhala (2008)). Measures of sentiment chosen in these studies are invariably based on market valuations (market-to-book ratios; dividend announcement returns; closed-end fund discounts). Unfortunately, showing that propensity to pay dividends does or does not respond to variations in these measures leaves open the question of whether investor sentiment matters.[2] In this paper, we argue that in order to address the potential effects of investor sentiment one needs to look not at the market valuations – which are, at best, only partially reflective of investor sentiment – but at the factors that are likely to *cause* variations in sentiment for dividends. In short, we need to operationalize pro-dividend sentiment in accordance with a reasonable theoretical argument.

[1] Explanations for the observed investor preference for dividends include signaling, agency conflicts, potential existence of unsatisfied pro-dividend clienteles, desire for current income, and behavioral hypotheses. See Allen and Michaely (2007) and Kalay and Lemmon (2005) for comprehensive surveys on dividend policy.

[2] The dividend premium is subsumed by risk, as shown by Hoberg and Prabhala (2008); therefore, its validity as a sentiment measure is questionable. Closed-end fund discounts (CEFD) have been criticized as a measure of sentiment. For example, Qui and Welch (2006) show that CEFD are not correlated with survey-based measures of investor sentiment such as UBS/Gallup survey. Market reaction to dividend announcements may be affected by factors other than investor sentiment.

We propose that potential investor sentiment for dividends would be driven by their desire for safety, since dividends are perceived as a salient characteristic of safety. It is a stylized fact that investors favor stable dividend policies. The notion that managers are reluctant to pay dividends unless stable policies can be maintained is evident both at the firm level (Lintner (1956), Brav, Graham, Harvey, and Michaely (2007), Hoberg and Prabhala (2008)) and directly from the observed dividend payouts: Figures 1 and 2 show relative stability of dividends compared to capital gains. At the same time, the nature of the investor preferences for stable dividend policies is not fully understood. Deviating from full rationality helps to explain the preference for dividend stability: stocks with stable dividend policies are viewed by less-than-rational investors as *safer* stocks.[3] In this case, time variations in the investor desire for safety would affect pro-dividend sentiment.

[Place Figures 1 & 2 about here]

Investor desire for safety is arguably affected by the investor perception of own financial situation. For example, numerous articles in financial press suggest that investors should hold dividend paying stocks amidst tough financial times.[4] Hence, we test the hypothesis that *investor pessimism* regarding their financial situation affects investor preference for dividends and may therefore affect dividend policy choices of firms. This view leads to

[3] The idea that investors perceive dividends as *less risky* than capital gains has existed at least since Gordon (1961, 1962) as the "bird in the hand" argument. In the perfect world with rational investors, this argument fails, since the total cash flow from the firm is independent of dividend policy. Yet, to the extent that investors are less than fully rational, one can argue that variations in the need for safety are likely to affect variations in the pro-dividend sentiment, if one exists.

[4] Frankfurter, Wood and Wansley (2003) and Dong, Robinson and Veld (2004) cite financial press articles reinforcing the attractiveness of dividends shortly following the NASDAQ crash and the subsequent recession of 2001. After the October 14, 2008 733-point plunge in the Dow Jones Industrial Index, Jim Cramer told viewers of "Mad Money" to forget about earnings estimates, which he said can no longer be trusted, and stick with high dividend-paying stocks. See Cramer's 'Mad Money' recap: Forget Earnings, Dividends Matter, 10/15/2008, http://www.thestreet.com/story/10442583/1/cramers-mad-money-recap-forget-earnings-dividends-matter.html

three related hypotheses. First, in the presence of limits to arbitrage, pessimistic investors seeking the safety of dividend may tend to undervalue non-paying stocks. Second, the market reaction to dividend initiations and increases is likely to be higher in times of pessimism than in other times. Third, managers may strategically use dividend policies as a correction mechanism to counteract the potential undervaluation effects of investor pessimism, knowing that dividends are especially favored in hard times. In this paper, we test each of these three hypotheses and find confirming evidence.

The novel empirical approach that we develop in this paper is that we operationalize our measure of investor sentiment in the context of the psychological theory of temporal construal (Trope and Liberman (2003)), according to which judgments, predictions, and choices regarding the not-so-distant (whether temporally, spatially, or socially) events "are likely to be based on more concrete, contextual, and incidental details." Thus a judgment regarding personal investment (a decision on something very close to self rather than something distant) is more likely based on specific context and incidents influencing the *personal* situation of the investor as opposed, for example, to the more abstract construals such as economy-wide events.

In order to assess the perception of the marginal investor regarding personal financial situation, we obtain the Index of Consumer Sentiment (ICS) from the University of Michigan, which has been used as a sentiment proxy in the literature.[5] The advantage

[5] Souleles (1999) shows that households that are pessimistic about the future buy fewer securities. Qui and Welch (2006) find that consumer sentiment is correlated with UBS / Gallup survey. Lemmon and Portniaguina (2006) find that the non-fundamental variations in consumer confidence forecast time variations in size premium and in institutional ownership premium. Statman and Fisher (2002) find that consumer confidence is correlated with the investor sentiment measures of the American Association of Individual Investors and Investor's Intelligence: consumers are confident when investors are bullish. Bergman and Roychowdhury (2008) find that consumer confidence is associated positively with the optimistic bias in financial analyst estimates of future earnings.

of this measure is that it is not based on market valuations and is a direct survey-based assessment of sentiment. ICS consists of five components, of which three measure *personal* financial situation and two reflect the opinion regarding the *national* economy. The personal questions in the ICS survey are as follows: (1) current personal situation; (2) propensity to purchase major household items; and (3) expected personal situation within the next year. The first two of these questions readily form the University of Michigan's Index of Current Conditions (hereafter CI). Therefore, CI is an appropriate measure of investor personal situation – which, as we conjecture, is more relevant for investment-related sentiment – and we use CI to report the results in this paper.[6] In order to capture pessimism unrelated to economic fundamentals, we regress CI on a set of macroeconomic variables and refer to the residual as *sentiment*.

First, we confirm that our measure of pessimism adequately reflects undervaluation of non-payers relative to payers. We show that the dividend premium, calculated as the difference between quarterly returns on dividend payer and dividend non-payer portfolios, is forecast by sentiment: a one standard deviation drop in sentiment increases the next quarter's return of dividend non-payers relative to payers by about 60 basis points. Next, we test our hypotheses that managers may use dividend initiations and increases as a price correction mechanism, and that the market reaction to dividend announcements should be higher in times of low sentiment. Our main set of tests is performed on a sample of dividend initiations over 1975 – 2006 but we check the

[6] Nevertheless, we check the robustness of our result by considering each of the above-mentioned questions separately and, finally, by constructing an "index" of our own that includes all three questions jointly. Our results hold robustly for all those specifications. Remarkably, the two questions in the survey that ask for the opinion regarding the national economy do *not* show any relationship with the dividend initiation returns; only the "personal" questions do, fully conforming to our conjecture.

robustness of our results on a sample of dividend increases as well. We adopt the two-stage regression with selection following Heckman (1979). On the first stage we estimate the likelihood of initiating a dividend from a set of firm characteristics: growth opportunities, asset growth, profitability, risk, and size, following Hoberg and Prabhala (2008). We modify the estimation of propensity by including an economic variable (GDP growth), tax regime, and our sentiment measure as additional explanatory variables. We find that firms are more likely to initiate or to increase dividend in periods of pessimism. We also find significant effects of risk and stable profits on the propensity to initiate and/or increase dividend. Hence, we concede that investor sentiment is not the only reason that firms initiate or increase dividends: *both* firm characteristics and investor sentiment affect payout policies.

Conditional on initiation, we run the second-stage regression of the dividend initiation CAR on the sentiment measure and on a large number of control variables. As a subset of control variables, we include firm characteristics to moderate the concern that the time variation in dividend initiation CAR may be related to maturity, risk, free cash flow, and investment opportunities of the firm (Jensen (1986), Grullon, Michaely and Swaminathan (2002), Hoberg and Prabhala (2008)). We find that a one standard deviation decrease in sentiment increases CAR by 56 basis points. Furthermore, the effect is permanent. We detect no subsequent CAR reversals; nor do we find any long-run abnormal stock performance post-initiation. Our results are robust to the choice of specific control variables, clustering in time and across firms, event window, and partial anticipation effects, and it is not driven by other distribution events. All of these findings conform to our hypothesis that managers use dividend initiations and increases to offset

the undervaluation effect of pessimistic sentiment. We also find that accounting for selection bias is important in the studies of dividend initiations: the Inverse Mill's ratio from the first-stage model enters the second-stage CAR regression with a significant coefficient. To the best of our knowledge, this is the first paper to address the importance of the self selection bias in the context of dividend initiations.

Even after controlling for time-varying firm characteristics, we still need to rule out several other explanations for the time variation in the market reaction to dividend initiations. First, low values of the residual consumer confidence may indicate higher price of risk. *Rationally* perceiving a dividend initiation as an event indicating greater firm maturity and reduced risk (Grullon et. al, 2002), investors may greet the initiation with more (less) enthusiasm at the times when price of risk is higher (lower). Second, a commitment to stable dividends may be a credible signal regarding future earnings (Bhattacharya (1979), Miller and Rock (1985), Healy and Palepu (1988)). In times of pessimism, undervalued but healthy firms are particularly motivated to transmit credible information about their quality to the market (Johnson, Lin, and Song (2006)). Third, paying a dividend may be a way to attract institutional shareholders. Grinstein and Michaely (2005) find that institutions clearly prefer dividend payers to non-payers. To the extent that investor pessimism coincides with low investment opportunities, firms may benefit from attracting institutional shareholders to improve corporate governance (Shleifer and Vishny (1986), Allen, Bernardo, and Welch (2000)). In this case, market reaction to dividend initiations may reflect the anticipated benefits of the increased institutional shareholding. Fourth, variations in investor sentiment may coincide with the lower taxation of dividends relative to capital gains, generating positive announcement

effects during low sentiment periods. We address these alternative hypotheses in detail in the next section. Out tests do not lend support to the alternative explanations, while our main result survives the additional tests.

This paper contributes to the emerging literature that examines managerial use of corporate policies in response to irrational investor sentiment. Johnson, Lin and Song (2006) show that managers of closed-end funds initiate dividend policies in order to reduce fund discounts. Although they propose a signaling explanation for this finding, Wang and Nanda (2008) suggest that the reduction in fund discounts following the adoption of dividend payout policies is due to investor irrationality: funds with more aggressive payout policies do not perform better following the policy adoption. Similar literature is evolving in other areas of corporate finance. For example, Shleifer and Vishny (2003) develop a model in which rational managers base merger and acquisition decisions on the irrational misvaluation of their stock by investors. Bergman and Roychowdhury (2008) show that managers tend to "walk-up" their earnings estimates in times of pessimistic sentiment to reduce undervaluation.[7] Hong, Wang, and Yu (2008) argue that firms can act as "buyers of last resort" and provide liquidity to investors through repurchases in times when investors undervalue the stock, thus minimizing the undervaluation effect. There is also evidence that managers manipulate investor sentiment in the attempt to influence stock prices. Thus Louis and White (2007) find that managers manipulate pre-repurchase earnings reports, through reporting negative discretionary accruals, in order to deflate stock price prior to repurchases.

[7] As do we, they use the University of Michigan's Index of Consumer Sentiment to proxy for investor pessimism.

This paper also contributes to the studies of the time-varying market reaction to dividend announcements. Bernheim and Wantz (1995) and Bernhardt, Douglas, and Robertson (2002) examine the market reaction to dividend announcements under different tax regimes. Fuller and Goldstein (2004) examine the relative performance of payers and non-payers in advancing and declining markets. Docking and Koch (2005) report that the reaction to dividend announcements depends on the recent market volatility. Our paper contributes to this literature by suggesting that investor sentiment regarding their financial situation affects market reaction to dividends.

We point out a few sharp differences between our paper and Baker and Wurgler (2004). While BW argue that pro-dividend sentiment exists and varies over time, they do not address the potential *source* of the time-varying dividend sentiment. We examine the concept of dividend preference in the light of pessimism regarding financial situation and document that investors prefer dividends more in times when they are likely to seek safety. Second, BW focus on the propensity to pay dividends, whereas we also explore the determinants of the market reaction to dividend initiations and increases. Third, BW propose that managers reap the benefits of pro-dividend fads, which implies negative abnormal performance in the long-run. We hypothesize that managers attempt to minimize the effect of undervaluation through undertaking an action valued by the market participants. To the extent that firms are undervalued, long-run performance is not negative as confirmed in this and previous studies (see Boehme and Sorescu, 2002; Hoberg and Prabhala, 2008).

The remainder of the paper is organized as follows. The next section provides a detailed discussion of the alternative hypotheses. Section 2 discusses the sample and data.

Section 3 discusses the empirical methodology and evidence. Section 4 summarizes and concludes.

1. Alternative Hypotheses

In our main hypothesis, we deviate from the full rationality assumption and conjecture that investors perceive dividends as a source of safety. We then hypothesize that in this case, we ought to observe greater dividend announcement returns in times of pessimistic investor outlook. At the same time, we acknowledge that several alternative phenomena may explain why market reaction to dividend announcements may vary with our measure of investor sentiment. Here we consider the major alternative hypotheses in detail.

1.1 Firm maturation and risk reduction

Dividend initiations may indicate more stable cash flows in the future, in which case, in equilibrium, investors would *rationally* view dividend initiations as risk-reducing events. Grullon, Michaely, and Swaminathan (2002) report that firms that increase dividends subsequently have a lower systematic risk, lower profitability, and non-increasing investments; i.e., they pay more dividends when they are becoming more mature. Bulan, Subramainan, and Tanlu (2005) find that dividend initiators are large, profitable, and low-growth firms, consistently with the maturity hypothesis, although they do not find that dividend initiations lead to increased maturation.

We introduce a way to explicitly control for the possibility that investors rationally view dividend initiations as risk-reducing events. If investors rationally expect dividends to indicate lower risk, then we ought to see a higher market reaction to

dividends, *ceteris paribus*, in times when risk reductions are more valuable (price of risk is higher). In the asset pricing literature, it is standard to proxy for time variation in risk aversion by macroeconomic and business cycle variables (e.g., Fama and French (1989), Ferson and Harvey (1991)). We employ as a control a prime business cycle variable that has been shown recently to proxy for the market price of risk. This variable is the *output gap*, the residual of the log industrial production from a linear and quadratic trend, calculated according to Cooper and Priestley (2008). Cooper and Priestley demonstrate using robust methodology that the output gap forecasts stock and bond returns both in- and out-of-sample, and that the forecasting power of this variable exceeds that of the previously used macroeconomic variables such as interest rates, default spread, term spread, price-earnings ratio, dividend yield, and consumption-to-wealth ratio. To quote, "the output gap has several a priori advantages over other predictive variables. First, in contrast to financial market variables, the output gap does not contain the level of asset prices… That is, predictability of stock returns through the output gap is unlikely to stem from stock mispricing… Second … the output gap uses only production data and is a classical business cycle variable. Thus, the predictive power of the output gap constitutes independent evidence regarding the variation of the risk premia over the business cycle." Employing the output gap in our tests as a control variable, we hypothesize that the market reaction to dividend announcements will be higher, *per unit of reduction in systematic risk*, when the gap is lower. In this case, in the CAR regression we expect to find a significant interaction term between the gap and the reduction in systematic risk of the initiating firm.

1.2 Signaling

Dividends may be viewed as a signal that managers use to transmit information regarding their future earnings (Bhattacharya (1979), Miller and Rock (1985), Healy and Palepu (1988)). The signaling role of dividends may become more important in times of pessimism, since undervalued but healthy firms are particularly motivated to transmit credible information about their quality to the market (Johnson, Lin, and Song (2006)).

At the same time, to the extent that pessimistic times coincide with poor corporate investment opportunities, during such times the opportunity cost of paying dividends may be low because of fewer available investments; in which case the signal would be *less* credible in poor times. This is essentially the argument of Bernheim and Wantz (1995), who report evidence consistent with their conjecture. In a recent study, Chang, Kumar, and Sivaramakrishnan (2006) also find that the differentiating power of the dividend signal is higher in booms. They substantiate their finding by the argument that the improved investment opportunities in booms will increase the firm need for external financing and hence, will increase the information content of dividends.

We approach the hypothesis that higher CAR in times of pessimism may be due to signaling in the following ways. First, we check whether firms initiating in poor times exhibit stronger post-announcement performance than those initiating in good times. We follow the empirical methodology of Grullon, Michaely, and Swaminathan (2002) and analyze the post-initiation long-run operating performance of firms initiating dividends in times of high and low sentiment, relative to a control sample of non-initiators. Our additional test is along the lines of the argument by Chang, Kumar and Sivaramakrishnan (2006) that the *association between dividend changes and future profitability* should be

especially high for firms with high marginal benefits of signaling. We therefore test whether firms initiating in times of pessimism (which are arguably the ones with the higher benefits of signaling) have a stronger association between the size of dividend and the subsequent performance.

1.3 Institutional Ownership

Firms may initiate dividends to attract large institutional clientele, which is better equipped to improve firm management and governance (Shleifer and Vishny (1986), Allen, Bernardo, and Welch (2000)). Grinstein and Michaely (2005) find that institutions clearly prefer dividend payers to non-payers; however they do not find that institutions also prefer high dividends to low dividends. Market reaction to dividend initiations may reflect the anticipated benefits of increased institutional shareholding. We measure changes in institutional ownership following initiations announced during times of high and low sentiment. If firms are more persistent / successful in attracting institutional clientele through dividend initiations in poor times, we ought to find that the state of investor sentiment at the time of initiation has an effect on the institutional ownership change. At the same time, we notice that the institutional ownership hypothesis is weakened by the sentiment hypothesis. If investors most affected by irrational sentiment are individuals, then we may not capture an increase in institutional ownership around initiations.

The level of institutional holdings may also affect the market reaction to dividend initiations. Institutional investors are arguably more sophisticated and more informed relative to individual investors. To the extent that institutions trade on their information,

the information will be reflected in stock prices. Hence, dividend announcements entail less information on firms' values with high institutional investors relative to those that are largely owned by individual investors. Consistently with this view, Amihud and Li (2006) show that abnormal returns at the dividend increase announcements decrease with institutional holdings. Therefore, we control for the level of institutional holdings in our robustness tests.

2. Data and Sample Selection

2.1 Dividend initiation panel

Our sample consists of dividend initiations covered in the Center for Research in Security Prices (CRSP) tapes from 1975 to 2006. We identify a dividend initiation as the first cash ordinary dividend payment in the CRSP (Michaely et. al, 1995). We obtain the final sample using the following criteria:

1. Firms must have CRSP share codes of 10 or 11.
2. Firms must have been traded on the NYSE, AMEX or NASDAQ for two years prior to dividend initiation.
3. We exclude utilities (SIC codes 4900-4949) and financial firms (SIC codes (6000-6999).
4. We exclude small firms: book equity below $250,000 or total assets below $500,000 in 1990 dollars.
5. Firms have the following COMPUSTAT data items: total assets (6), interest expense (15), earnings before extraordinary items(18), shares outstanding (25), balance sheet deferred taxes and investment tax credit (35), income

statement deferred taxes (50), book value of equity (60), stock price (199), stockholder equity (216), and post retirement asset (330). Firms have either of the following preferred stock value: preferred stock liquidating value(10), preferred stock redemption value (56) or preferred stock par value (130).

6. Firms have returns of 410 trading days [-205, +205] around the dividend announcement date.

In addition to these criteria, we eliminate confounding events that may affect stock price reaction to dividend initiations. We exclude dividend initiations announcements confounded by other distributions in the five-day event window.[8] Finally, we obtain institutional holdings from the CDA/Spectrum 13 f Holdings Dataset. The final sample consists of 887 dividend initiation events between 1975 and 2006.

2.2 Measure of the announcement effect

We use the event study methodology (Brown & Warner, 1980, 1985) to measure the effects of dividend initiation announcements on firm value. The event study methodology assumes that stock prices reflect all publicly available information and react immediately to new information such as the announcement of dividend initiation. Hence, the event study methodology is appropriate for measuring the impact of a dividend initiation announcement on the firm value.

We compute abnormal returns (AR_i) of a firm *i* in a five-day "event window" [-2,+2], surrounding the announcement of an acquisition (day 0) by examining deviations

[8] See McWilliams and Siegel (1997), Bruner (2002) and Campbell et al (1997) for the effect of confounding events in event study.

of the firm's actual returns (R_i) from the expected normal returns (R_n) of the firm had it not initiated a dividend payment:

$$AR_i = R_i - R_n \quad (1)$$

We cumulate the abnormal returns over a five day event window [-2,+2]:

$$CAR_i(-2,+2) = \sum_{t=-2}^{2} (AR_{it}) \quad (2)$$

We use CRSP value-weighted return as R_n as consumer sentiment may affect beta estimates in the market model in the pre-event window, thereby yielding spurious correlation between the dependent variable and sentiment.[9] In unreported tables, we replicate the analysis with abnormal returns obtained from market model and continue to find qualitatively similar results.

Although our choice of the event window is consistent with event windows chosen in earlier studies (Baker and Wurgler, 2004), we also conducted robustness checks across alternative event window specifications such as [-1,+1], [-2,+1] and [-1,+2], and found qualitatively similar results.

2.3 Measure of Sentiment

To arrive at the measure of sentiment we use the Index of Consumer Sentiment (ICS) obtained from the University of Michigan survey. The survey polls 500 households and is available for months 2, 5, 8, and 11 prior to 1978 and monthly thereafter. In order to construct ICS, the respondents are asked five questions: (Q1) "Would you say that you

[9] Brown and Warner (1985) show that estimating market model does not improve the precision of abnormal returns.

(and your family living there) are better off financially than you were a year ago?"; (Q2) "Now looking ahead--do you think that a year from now you (and your family living there) will be better off financially, or worse off, or just about the same as now?"; (Q3) "Now turning to business conditions in the country as a whole--do you think that during the next twelve months we'll have good times financially, or bad times, or what?"; (Q4) "Looking ahead, which would you say is more likely--that in the country as a whole we'll have continuous good times during the next five years or so, or that we will have periods of widespread unemployment or depression, or what?"; and (Q5) "Do you think now is a good or bad time for people to buy major household items?". The relative score for each question is calculated as the percent of favorable replies minus the percent of unfavorable replies, plus 100, rounded to the nearest integer. The relative scores for questions (Q1) and (Q5) compose the Index of Current Conditions CI, and the relative scores for questions (Q2), (Q3), and (Q4) compose the Index of Consumer Expectations EI. The relative scores for all five questions compose ICS.[10]

We conjecture (and confirm) that *only* the sentiment regarding *personal* finances (Q1, Q2, Q5, and CI) is connected to the market reaction to dividends, while the perception of the national economy (Q2, Q3, and EI) is not. For parsimony, in all our subsequent analysis we focus on CI to extract our measure of sentiment. Very close results are obtained when we use Q1, Q2, and Q5 independently, and those additional results are reported for robustness. In addition, we form an "index" of our own that includes Q1, Q2, and Q5 jointly.

[10] For further information about the index construction see http://www.sca.isr.umich.edu/documents.php?c=i.

Similarly to several previous studies, we are interested in the non-fundamental component of consumer confidence, which independently measures optimism (pessimism) unexplained by observable economic variables. Throop (1992) argues that "a household's response to a change in income or wealth depends upon its *attitudes* at the time [italics are added]… Katona [the pioneer of the University of Michigan's survey in the 1950's] argued that the attitudes that enter into consumer sentiment are more than simply a reflection of the current state of the economy… Attitudes may be influenced by … events that are nonquantifiable… Similar economic and financial developments may be perceived differently under different circumstances." Consistently with this argument, Doms and Morin (2004) find that consumer sentiment responds not only to economic content of news but also to the tone, volume, and frequency of news reports. Throop (1992) found that major political and economic events such as the Gulf War and the Oil Embargo had a significant and independent effect on consumer sentiment, unexplained by the observable economic variables.

There is no consensus in the previous studies on the set of economic variables to use in order to extract the non-fundamental component of consumer confidence. For example, Mishkin (1976) argues for the following variables as predictors of consumer sentiment: financial assets of households, household debt, transitory income, and inflation. Throop (1992) finds that a better model includes percentage change in stock prices, change in unemployment rate, and oil price. Edelstein and Kilian (2007) find that effects of shocks to energy prices on consumer expectations are small. Lovell and Tien (1999) find that the sum of unemployment rate and inflation (the "misery index") explains the Index of Consumer Sentiment. Chauvet and Guo (2001) extract the non-

fundamental idiosyncratic variations in consumer confidence using 4-factor, 4-lag model of consumer confidence, GDP growth, Index of Net Business Formation, and interest rates. Qui and Welch (2006) use consumption and corporate profits as their measures of economic fundamentals to see whether the price role of consumer sentiment extends beyond these measures. Lemmon and Portniaguina (2006) use an extended set of macroeconomic variables that includes GDP growth, consumption growth, term spread, default spread, short-term interest rate, dividend yield on the market index, labor income growth, consumption-to-wealth ratio, inflation, and unemployment. Dunn and Mirzai (2007) find that factors influencing consumer confidence include percentage manufacturing employment, equity market indicators and disposable income.

Ours is a monthly dataset, therefore we obtain several macroeconomic variables available monthly and reflecting the financial situation of households. We regress CI on the following set of macroeconomic variables: *Total Dividend Yield, Unemployment Rate, Default Spread, Short-term Interest Rate, GDP Growth, Inflation, Term Spread* and their lags.[11]

The residual from this regression becomes our measure of sentiment which cannot be justified by economic indicators and reflects the pessimistic (optimistic) assessment of their situation. This approach is in line with the view that consumers are rational on average (as mean residual is zero) while allowing us to model that investors tend to behave irrationally when they have pessimistic sentiment. Consistent with this conjecture,

[11] See Data Appendix for the variable definitions. GDP growth is the only variable measured quarterly. We assume it to be equally distributed within each quarter. Excluding GDP growth from the regression does not substantively change any of our results. Excluding the lags of the macroeconomic variables does not considerably alter our inference, either.

the adjusted R^2 of the regression is 74 percent indicating that larger portion of the CI is explained by the economic fundamentals.

2.4 Control variables

We follow Fama and French (2001) and Hoberg and Prabhala (2008) to generate control variables to estimate the propensity to initiate dividend. In the probit estimation model, we include *Asset Growth*, *Profitability*, *Size*, *Market-to-Book*, *1990s Dummy*, *Systematic Risk* and *Unsystematic Risk*.[12] Since firms initiate dividends when they have stable cash flows, we expect that profitable and large firms are more likely to initiate dividends. Firms with fewer growth opportunities proxied by lower *Market-to-Book* and *Asset Growth* are more likely to initiate dividends. *Market-to-Book* ratio is also used to detect undervaluation of stock prices in previous studies (see Hong and Kacperczyk, 2008). To the extent that managers of undervalued firms are more likely to take actions to restore investor confidence and to offset potential undervaluation effects[13], firms with lower *Market-to-Book* ratios are more likely to initiate dividends. Furthermore, firms with lower systematic and unsystematic risks are more likely to initiate dividends. We add *Annual GDP Growth* in the probit analysis to control for investment opportunities. *Tax* is also added to assess relative advantage of capital gains over dividends in the sample period.

In the *CAR* regressions, we control for several factors that had been found to be important determinants of market reaction to dividend initiations. We generate our risk

[12] See details on the definition and construction of the variables in the Data Appendix.
[13] For example, Bergman and Roychowdhury (2008) show that managers use long-term earnings estimates in order to restore investor confidence and reverse firm undervaluation in times of pessimism.

measures in accordance with Hoberg and Prabhala (2008). We run a regression of adjusted returns (return minus risk free rate) over three Fama-French factors (*MKT*, *SMB* and *HML*) for each firm in our sample. We define *Systematic Risk* as the standard deviation of predicted value of this regression and *Unsystematic Risk* as the standard deviation of residuals in [-205,-5] days. We also estimate market *Beta* as a second measure for systematic risk. We measure change in risk as the difference in the risk measure calculated in post dividend initiation [+5, +205] and that in pre dividend initiation announcement [-205, -5].

Dividend Yield is included to control for the size of dividend payment in the *CAR* regressions. The natural logarithm of age *Log (Age)* measures the firm size. We add *Book Leverage* to account for free cash flow. We also control for growth opportunities and operating performance by including *Market-to-Book* and *Profitability*. We include the measure of catering from Baker and Wurgler (2004) (*BW*). To the extent that fewer number of dividend initiating firms will attract more attention of investors and, consequently, are more likely to receive favorable market reaction, *CAR* regressions have the number of firms initiating dividend in a given month (*Number of Dividend Initiators*).

Lastly, we include difference between taxes on dividend and capital gains from the NBER TAXSIM Website in our analysis.[14] Similar to Amihud and Li (2006), we define *Tax* as marginal dividend tax minus average marginal taxes on short and long-term gains. We use this data as a control variable in our regressions. The data is available annually.

[14] We replicate the analysis with the data used in Whitworth and Rao (2008), where tax regimes are measured by the difference in tax rate on dividends and capital gains for the individual investors in the highest tax bracket, and find qualitatively similar results. We thank Jeff Whitworth and Ramesh Rao for kindly providing us with the data.

2.5 Market price of risk

To address the price of risk hypothesis (see the discussion in Section 1), we employ as a control a prime business cycle variable that has been shown recently to proxy for the market price of risk. This variable is the *output gap*, the residual of the log industrial production from a linear and quadratic trend, calculated according to the methodology of Cooper and Priestley (2008) using the industrial production data in the following regression:

$$y_t = a + b \cdot t + c \cdot t^2 + v_t ,$$

where y_t is the log of industrial production from the Federal Reserve, t is a time trend, and v_t is the residual (*GAP*).

3. Empirical Evidence

3.1 Descriptive statistics

Table 1 reports the descriptive statistics of the sample. Firms in our sample are large. The average *Market Value* and *Total Assets* are $1.864 billion and $1.112 billion, respectively. These firms have average profitability of 0.102 indicating robust operating performance prior to dividend initiation. This is in line with the view that firms initiate dividends when they have large earnings (Brav et. al, 2005). The mean *CI* in the sample period is 0.97 and ranges between 0.617 and 1.2.[15] The average *CAR* in our sample is 0.020 signifying that dividend initiating firms receive favorable market reaction. This is also comparable to average abnormal return of 3% reported in previous studies (Hoberg

[15] The raw value of consumer confidence index is divided by 100.

and Prabhala, 2008). There is wide variance around the mean *CAR* indicating that a subgroup of dividend initiations receives favorable market reaction while another subgroup incurs major losses. *Consumer Sentiment* also shows large variation around the mean and ranges between -0.187 and 0.116. These collectively allow us to test the impact of consumer sentiment, which is independent of economic fundamentals by construction, on market reaction to dividend initiation.

[Place Table 1 about here]

Table 1 also documents that the consumer sentiment has a mean close to zero (-0.004) indicating that investors, on average, have economically justified rational view about the state of the economy in the sample period.[16] The wide variation in the consumer sentiment reported above suggests that investors tend to deviate from rational views and resort to having irrational perceptions in a subsample of the data.

Table 2 reports mean and median values of the variables of interest across *Consumer Sentiment* quartiles. Mean *CAR* is 0.027 in the lowest quartile of *Consumer Sentiment* (period of pessimism) and 0.007 in the highest quartile (period of optimism). The difference is 200 basis points and is statistically significant. We continue to find higher *CAR* values in lowest *Consumer Sentiment* quartile when we compare median values. These findings provide preliminary evidence for the hypothesis that capital markets react favorably to dividend initiation announcements when consumer sentiment is low. We do not find significant association between *Consumer Sentiment* and *BW*. This suggests that the consumer sentiment measure is different from the *BW* construct.

[16] The mean consumer sentiment is not exactly zero in sample of dividend initiations (887 observations) because it is the residual of regression of CI on a set of macroeconomic variables over 1975 and 2006 (360 observations).

[Place Table 2 about here]

Change in Systematic Risk increases with *Consumer Sentiment*. This suggests that risk decreases more in periods of low consumer sentiment. It is possible that positive *CAR* to dividend initiations in low consumer sentiment periods may be due to larger risk reduction in these periods. However, in a univariate analysis not reported in the paper, we find insignificant relationship between *CAR* and *Change in Systematic Risk*.[17] *Systematic Risk* is also positively associated with *Consumer Sentiment*, indicating that risk is higher in periods of low sentiment. Furthermore, *GAP* is lower in lower sentiment periods.

There is no difference of profitability across sentiment quartiles. Similarly, firms initiating dividends in low sentiment period do not attain higher profits following dividend initiations. Consistent with Grullon et al (2002), these findings do not lend support to the idea that capital markets react to future changes in cash flows.

We do not find significant increase in institutional holdings in low sentiment periods. Thus, favorable market reaction to dividend initiations in low sentiment periods does not stem from the idea that dividends attract better governance and monitoring through larger presence of institutional investors.

It is interesting to note that dividend initiators in the lowest sentiment quartile have smaller *Market-to-Book* ratios. It is possible that firms may have fewer growth opportunities during these periods. Since some researchers interpret lower market-to-book ratio as a proxy for under-valuation (Hong and Kacperczyk, 2008), one may also conclude that firms are relatively more prone to undervaluation in periods of pessimism.

[17] We continue to find insignificant relationship between *CAR* and adjusted change in systematic risk relative to a controlling firm which has the closest probability of initiating dividend to the sample firm.

3.2 Forecasting the dividend premium

To verify that our measure of sentiment adequately reflects the times when dividend non-payers may be undervalued, we run a forecasting regression of the dividend premium on sentiment. Monthly returns on dividend payer and dividend non-payer portfolios, as long as the average size and book-to-market ratio of the payer and non-payer portfolios are from Lemmon and Portniaguina (2006) and cover the period 1975 - 2002.[18] Dividend premium is the return on payers minus the return on non-payers. We calculate the average quarterly dividend premium over months *t*, *t-1*, and *t-2*. We then regress the average premium on sentiment measured at *t-3*.

Table 3 presents the results. We estimated the regressions both on non-overlapping (Models 1 and 2) and on overlapping (Models 3 and 4) observations. For non-overlapping observations, we present results estimated at quarter-end (months 3, 6, 9, and 12).[19] In addition, Models 2 and 4 correct the standard errors for the generated regressor problem. This problem arises due to the nature of our sentiment measure, which is a residual from regressing CI on a set of macroeconomic variables. Therefore, to moderate this problem, in Models 2 and 4 we run a simultaneous GMM estimation of the following two equations:

$$CI_t = X_t b + Consumer\,Sentiment_t \qquad (1)$$

$$PREMIUM_t = a_0 + a_1 ConsumerSentiment_{t-3} + a_2[X_{t-3}b] + a_3 SIZE_t + a_4 BM_t + \varepsilon_t \qquad (2)$$

[18] We thank Michael Lemmon and Evgenia Portniaguina for sharing the data.
[19] We checked robustness of our results (available upon request) to the choice of months and found similar results for months 2, 5, 8, and 11. For months 1, 4, 7, and 10 the coefficient for sentiment loses its statistical significance although the sign remains positive. This fact is evident from comparing the R^2 of the overlapping and non-overlapping regressions. The fit is stronger for months 3, 6, 9, and 12 and weaker for the overall sample.

In these equations, $PREMIUM_t$ is the average dividend premium over *t*, *t-1*, and *t-2*; X is the matrix of macroeconomic variables; SIZE is the difference in market values of payers and non-payers; and BM is the difference in book-to-market ratios of payers and non-payers.

[Place Table 3 about here]

As Table 3 shows, in all of the models the coefficient for sentiment is positive and statistically significant. That is, returns on non-payers are higher following pessimistic sentiment. The estimates are economically significant as well: one standard deviation in sentiment moves dividend premium by about as much as 60 basis points per quarter. This finding is also consistent with Baker and Wurgler (2006), which reported negative and significant association between changes in consumer sentiment and returns to non-dividend paying stocks. This evidence is in line with our hypothesis that non-payers may be undervalued by the market in times of pessimistic sentiment.

3.3 Probability of Initiating and Increasing Dividends

We start with examining factors affecting dividend initiating decision. Table 4 reports marginal effects of the probit model where the dependent variable takes a value of one if a firm initiates dividends in year t and zero otherwise in Models 1-4. Following Petersen (2008), t statistics are based on standard errors which cluster by both *firm* and *year*. Following Fama and French (2001), we control for market-to-book, asset growth, profitability, and firm size. Furthermore, Hoberg and Prabhala (2008) report that risk plays an important role in propensity to pay dividends. Thus, we include both systematic and unsystematic risk constructs in the probit model. We add *Average Consumer*

Sentiment in a year since *Consumer Sentiment* is available on a monthly basis. We find that propensity of initiating dividend is negatively associated with the average consumer sentiment. The effect is also economically significant: a one standard deviation decrease in the average consumer sentiment increases the likelihood of initiating dividend by 1.2 percent (Model 1). This finding indicates that sentiment, which cannot be justified by the economic fundamentals, plays an important role in managers' decisions on initiating dividends. We continue to find similar results even after adding *Annual GDP Growth* and *Tax* while those two variables lack statistical significance. Managers may try to influence investor sentiment through dividends in times when investor pessimism is likely to result in undervaluation. This view is also in line with the negative effect of *Market-to-Book* and the positive effect of *Profitability* on the likelihood of dividend initiation as these measures may indicate undervalued firms.[20]

[Place Table 4 about here]

Consistent with previous studies (e.g., Hoberg and Parbhala 2008), we find that risk is negatively associated with the probability of initiating dividend. Specifically, one standard deviation increase in *Unsystematic Risk* and *Systematic Risk* decreases the likelihood of initiating dividend by 4.6 and 4.1 percent, respectively (Model 1). This is in line with findings that unsystematic risk increased in 1990s (Campbell et. al, 2001) along with the decrease in propensity to pay dividends (Fama and French, 2001). We also find that larger firms are more likely to initiate dividends. Our finding of lower probability of

[20] The negative effect of *Market-to-Book* and the positive effect of *Profitability* on the likelihood of dividend initiation are also consistent with more mature and profitable firms being more likely to pay dividends (see Hoberg and Prabhala (2008) for firms in the U.S. and Megginson and von Eije (2008) for firms in the European Union).

initiating dividend in 1990s is consistent with the decrease in dividend paying firms in 1990s (Fama and French, 2001; Hoberg and Prabhala, 2008).

The dependent variable in Model 5 takes value of one if total dividend amount exceeds that paid in previous year. While Model 1-4 are conducted over a sample of non-dividend payers and estimate likelihood of initiating dividend, Model 5 estimates likelihood of increasing dividend for sub-sample of dividend-payer firms. Consistent with the dividend initiation analysis, we find that probability of increasing dividend decreases with *Consumer Sentiment*.

Taken together, these findings substantiate the view that manager attempt to react to consumer sentiment. Restoring investor confidence is more likely to be important when stocks are relatively undervalued. As shown in Table 3, this is likely to be the case for non-dividend paying firms (see also Baker and Wurgler, 2006). Bergman and Roychowdhury (2008) indicate that periods of low sentiment generate downward biases in expectations of analysts and are likely to result in stock undervaluations. They also show that managers are active to influence investor perception on stock value through frequent disclosure of long-term earnings estimates. Similarly, negative effects of sentiment on dividend initiation and increases indicate that manager employ dividend policies to partially offset the negative effect of pessimism.

3.4 Markets Reactions to Dividend Initiations

We find a negative association between *Consumer Sentiment* and *CAR* in the univariate analysis (Table 2), which does not account for many factors contributing to *CAR*. To

provide an additional illustration, Figure 3 shows the dividend initiation CAR versus investor sentiment. The higher CAR in times of pessimism is clearly observed.

[Place Figure 3 about here]

Table 5 presents the results of the multivariate regressions that incorporate control variables including systematic risk, BW, profitability, size, leverage, market-to-book, dividend yield, tax regimes, and number of dividend initiations. T statistics are based on standard errors that cluster in time (months).[21] The R^2 ranges between 0.047 and 0.049 which are comparable to those found in previous studies.

We use change in systematic risk following dividend initiations in Models 1 and 2 and change in beta in Models 3 and 4. In unreported analysis, we also use adjusted change in risk which accounts for a change of risk of a control firm. We use the probit model in the previous section to identify the control firm with the closest probability of initiating dividend to the sample firm. Since using various changes in risk measures does not change the main findings of the paper, we report unadjusted changes.

[Place Table 5 about here]

Consumer sentiment has negative and significant coefficient estimate in *CAR* regressions. A one standard deviation (0.054) decrease in consumer sentiment increases the *CAR* by 56 basis points (Model 1). To the extent that the *Consumer Sentiment* variable is subject to error-in-variables problem, we create a dummy variable, *Low Consumer Sentiment*, which is equal to one if *Consumer Sentiment* falls in the bottom quartile. Kisgen (2006) argues that dummy variables are likely to alleviate error-in-

[21] We do not calculate standard errors clustered in firm as there is one firm per dividend initiation. However, we calculate standard errors clustered both in time and firm when we examine dividend increases.

variable problems. We also find that *CAR* in *Low Sentiment* periods increases by 1.2 percent (Model 2). We continue to find negative and significant association between consumer sentiment and *CAR* when we use beta as a proxy for systematic risk. Collectively, the significant effect of consumer sentiment indicates that the high market reaction to dividend initiations is partly explained by consumer pessimism. *BW* does not have a significant effect on *CAR*. Hence, the significant effect of consumer sentiment and the insignificant effect of *BW* substantiate the view that consumer sentiment is distinct from the *BW* construct and is a better estimate to explain investor preference for dividend paying stocks. Therefore, it is subject to a lesser degree to the criticism regarding the *BW* variable (see Hoberg and Prabhala, 2008).

CAR regressions in Table 5 do not lend support to the hypothesis that capital markets react favorably to the extent of decrease in systematic risk. Neither of the systematic risk measures is significantly associated with *CAR*. Announcement effect decreases with the *Market-to-Book* ratio. This is consistent with the view that potentially undervalued firms are more likely to benefit from dividend initiations. In all of the models in Table 5, market reaction to dividend initiations is significantly higher for higher dividend yields and for lower tax regimes.

We next estimate the two-step procedure with selection following Heckman (1979). The results are reported in Table 6. We recognize that the same kinds of firm characteristics may simultaneously drive the firm selection to initiate dividends and the market reaction to the initiation. Therefore, to control for the propensity to initiate dividends in our sample, we first estimate a probit model on a pooled sample as in Model 4 of Table 4, where the dependent variable is equal to one if the firm initiated a

dividend.[22] The first-stage probit model produces the likelihood of initiating a dividend (*Inverse Mill's Ratio*) for each firm. The *Inverse Mills Ratio* from the first stage is then incorporated as a control variable into the second-stage linear regression of *CAR* on the variables of interest. The second-stage regression is estimated on a sample of initiators only: we are interested in obtaining a relationship between *CAR* and the variables of interest *conditional* upon the firm selection to initiate. *Inverse Mill's Ratio* in Table 6 is positive and significant at 1% level indicating that unconditional regressions are likely to lead to biased estimates. We see from results reported in Table 6 that controlling for the propensity to initiate leaves our main conclusion regarding the significance of consumer sentiment unaffected.

[Place Table 6 about here]

If there is systematic leak of information to investors in good economic conditions, then it is possible that dividend initiations are more of a surprise in low consumer confidence regimes and positive market reaction in these regimes may indicate surprise, rather than desire for stability. If this is the case, then market reaction to dividend initiations should be gradually incorporated in stock prices prior to the announcement date when the consumer confidence is high. Consequently, *CAR* covering the pre-event window in low consumer confidence regimes should be *lower* than that of high consumer confidence regimes. We compare *CAR* covering [-10,-3], [-15,-3] and [-20,-3] windows and fail to find statistical difference between high and low consumer sentiment regimes.[23]

[22] We also estimate the probit model without *Average Consumer Sentiment* and find qualitatively similar second-stage results.
[23] These results are not reported but are available upon request.

We also examine whether there is reversal in CAR in the short-run following dividend initiations. *CAR* covering [+3,+10], [+3,+15] and [+3,+20] are not statistically different for high and low consumer sentiment periods. This finding does not lend support to mean reversion in CAR following dividend initiations.[24]

3.4.1 Market price of risk

Higher market reaction to dividend initiations in times of low confidence may also result from the higher market price of risk during poor economic conditions. We control for the market price of risk by including *GAP*. We also include the interaction term of *GAP* and the change in systematic risk (alternatively, the change in beta). If the market reaction varies due to variations in risk aversion over time, we expect to find a significantly negative coefficient for *GAP* (higher market reaction when economic times are particularly poor), negative coefficient for the change in systematic risk (higher reaction when risk declines by more), and a positive coefficient for the interaction term (the negative coefficient for change in risk should be less negative when *GAP* is high). Table 7 presents the results of including these variables into the regressions. As we observe from the table, none of the factors related to the market price of risk are statistically significant. At the same time, we continue to observe that consumer sentiment comes in negative and significant.

[Place Table 7 about here]

3.5 Does initiation in pessimistic times signal better performance in the post-announcement?

[24] These results are not reported but are available upon request.

On average, *Change in Profitability* is positive following dividend initiations (Table 1). The change may be more pronounced in periods of pessimism when only the firms with the most reliable future performance may afford to initiate dividends. This, in turn, may generate negative association between CAR and consumer sentiment as dividends signal better post-announcement performance. In order to test the relationship between consumer sentiment and long-term performance, we examine the abnormal operating and stock price performance over 3 years horizon in the post-announcement.

3.5.1 Operating Performance

Following Barber and Lyon (1996) and Grullon et. al (2002), for each firm in our sample, we extract a matching firm categorized in the same industry (2-digit SIC) that has the closest past profitability (the ratio of operating income to total assets) prior to dividend announcement date. We calculate the average profitability in three years following the dividend initiation minus profitability prior to dividend initiation less that of a control firm.[25] Models 1 and 2 in Panel A of Table 8 report that future operating performance is not related to the consumer sentiment level at the time of dividend initiation. This finding is consistent with insignificant association between *Consumer Sentiment* and *Change in Profitability* in Table 2 and does not support the idea that dividend initiations in economic downturns signal superior future operating performance.

Chang, Kumar and Sivaramakrishnan (2006) argue that the association between dividend changes and future profitability should be especially high for firms with high marginal benefits of signaling. In times of pessimism, undervalued but healthy firms are

[25] We also examine the change in profitability in the post-announcement relative to change in profitability prior to dividend initiation which yields qualitatively similar results.

particularly motivated to transmit credible information about their quality to the market; therefore, marginal benefits of signaling may be higher in such times. Therefore, we investigate whether firms initiating in times of pessimism have a stronger association between the size of dividend and the subsequent performance, controlling for free cash flow and other firm characteristics in Models 3 and 4. We do not find significant interaction term in these regressions. This finding does not lend support to the idea that firms initiating dividend in periods of pessimism have higher marginal benefits of signaling.

[Place Table 8 about here]

3.5.2 Stock Price Performance

We employ the Fama-French three factor model methodology to test abnormal stock price performance in the post-announcement period. In order to test whether firms initiating dividend in *Low Consumer Sentiment* periods have better stock price performance than those initiating in *High Consumer Sentiment* periods, we construct dummies for firms that initiate dividends in periods when consumer sentiment falls in the top and bottom quartiles. For each calendar month, we form equally-weighted portfolios of *High Sentiment* and *Low Sentiment* firms that initiated dividends in the past three years. For each calendar month, we construct monthly raw abnormal returns as the average return of *Low Sentiment* portfolio less that of *High Sentiment* portfolio. We regress the raw monthly returns of *Low Sentiment* and *High Sentiment* portfolios on the Fama-French three risk factors: monthly return on value-weighted market portfolio of NYSE, NASDAQ and AMEX stocks less one-month Treasury bill rate (*MKT*), difference between the returns on portfolios of small and big stocks (*SMB*), and difference between

the returns on portfolios of high- and low Book Equity/Market Equity stocks (*HML*) (Fama and French, 1992). Panel B of Table 8 reports the coefficient estimates of these regressions. The intercept term indicates the abnormal returns for *High Sentiment* and *Low Sentiment* subsamples and the other coefficient estimates donate risk loadings. Consistent with Boehme and Sorescu (2002), the intercept is statistically insignificant for both subsamples indicating that firms initiating dividends do not yield positive abnormal stock price performance in the post-announcement. The difference between the intercepts is also insignificant suggesting that there is no difference in abnormal returns in Low and High Sentiment sub-samples. Hence, negative association between CAR and consumer sentiment does not stem from better future stock price performance of firms initiating dividends in low sentiment periods. Furthermore, the differences in the factor loadings of the Fama-French factors are not different in the subsamples. This finding suggests that there is no difference in the post-initiation risk between firms initiating in low and high sentiment periods. Collectively, these findings confirm that firms initiating dividends in low consumer sentiment period do not have better stock price performance relative to those initiating dividends in times of high consumer sentiment.

3.6 Do firms that initiate dividends in pessimistic times attract institutional ownership?

Firms may initiate dividends to attract large institutional clientele, which is better equipped to improve firm management and governance (Shleifer and Vishny (1986), Allen, Bernardo, and Welch (2000)). Grinstein and Michaely (2005) find that institutions clearly prefer dividend payers to non-payers.

On average, institutional holdings increase following dividend initiations (Table 1). Benefits associated with an increase in institutional holdings, which is arguably more attractive to the firm in times of pessimism, may be the reason for the negative association between *CAR* and consumer sentiment. In order to capture the relation between consumer sentiment and changes in institutional holdings in the post-announcement, Table 9 reports regressions where dependent variables are the *Change in Institutional Holdings* (Models 1 and 2) and *Growth in Institutional Holdings* (Models 3 and 4) following dividend initiation relative to those prior to dividend initiation. The effects of consumer sentiment on both *Change* and *Growth in Institutional Holdings* are negative and insignificant. Hence, dividend initiating firms do not attract higher institutional investor holdings in poor economic conditions relative to good economic conditions.

The level of institutional holdings may also affect the market reaction to dividend initiations, as discussed in Section 1. In Models 5 and 6, we examine the relationship between CAR and sentiment in presence of institutional holdings. We continue to find negative and significant effect of *Consumer Sentiment* on *CAR*. Collectively, these findings suggest that change in institutional ownership is less likely to drive the negative relationship between the sentiment and *CAR*.

[Place Table 9 about here]

3.7 Alternative definitions of Consumer Sentiment

In this section, we examine independent effects of questions posed in the University of Michigan Survey. First, we regress score from each question on the following set of macroeconomic variables: *Total Dividend Yield, Unemployment Rate, Default Spread,*

Short-term Interest Rate, GDP Growth, Inflation, Term Spread and their lags. We refer residual of each component *i* as Consumer Sentiment, CS(Q_i). We include these variables in *CAR* regressions independently. We find that sentiment measures related to *personal* wealth questions (Q1, Q2 and Q5) have negative significant effects on *CAR* in Table 10. At the same time, the questions regarding the national economy (Q3 and Q4) yield sentiment measures with no effect on CAR. This is consistent with our conjecture that demand for safety is more immediately driven by personal conditions. We further construct two measures based on personal questions:

$$Average\,\mathrm{CS} = \frac{CS(Q_1) + CS(Q_2) + CS(Q_5)}{3}$$

$$CS\ of\ Personal\ Questions = CS(Q_1 + Q_2 + Q_5)$$

The first measure captures average consumer sentiment based on three personal questions. In order to generate the second measure, we regress the total score of Q1, Q2 and Q5 on the set of macroeconomic variables used in this study and refer the residual as *CS of Personal Questions.* Both constructs yield negative and significant coefficient estimates in Models 6 and 7 confirming our hypothesis based on construal theory. We also replicate these regressions with Heckman two-step procedure and find qualitatively similar results. These results are not reported but are available upon request.

[Place Table 10 about here]

3.8 Does consumer sentiment affect market reaction to dividend increases?

The empirical analysis hitherto focuses on dividend initiations and finds significant association between consumer sentiment and *CAR*. A natural extension of this analysis is to examine whether similar relationship holds for the market reaction to dividend increases. Although dividend increases provide a larger sample, it precludes us from

using annual variables as dividend increases occur on a quarterly basis. Previous studies examining the effects of dividend increases on *CAR* use a limited number of control variables.[26] We replace annual variables with quarterly ones whenever feasible. For example, we estimate betas for [-30, -5] and [+5, +30] days surrounding the dividend increase announcement to avoid sequential overlapping of risk measures across dividend increases of the same company. We obtain quarterly profitability from Quarterly COMPUSTAT files and measure firm age in months. These adjustments allow us to estimate market reaction to quarterly changes in dividends with variables that vary on a quarterly basis. This data structure generates potential correlation in error terms of the OLS regressions in both *firm* and *time* components. Petersen (2008) show that failure to clustering in these two dimensions may yield biased estimates. Therefore, we calculate standard errors clustered in both components in CAR regressions. To the best of our knowledge, this is the first study of dividend changes that accounts for both dimensions in clustering.

We study the effects of various personal sentiment measures on CAR in Table 11. All of the sentiment measures have negative coefficient estimates although some coefficient estimates lack statistical significance. This is consistent with the view that a dividend increase by an established payer may represent a commitment from the management to maintaining a higher dividend level rather than a more stable level. Thus, sentiment may have a weaker impact on the market reaction to dividend increases. Nevertheless, the negative and significant effects of consumer sentiment substantiate our

[26] For example, Grullon et. al (2005) have three and Koch and Sun (2004) have two control variables in CAR regressions.

findings that investors react enthusiastically to dividend increases in periods when they are pessimistic about their financial situation.

[Place Table 11 about here]

4. Summary

Our main hypothesis in this paper is that investor preference for dividends increases in times of low investor sentiment. Using a large panel of dividend initiations between 1975 and 2006, we measure time variation in the propensity to initiate dividend and in the dividend initiation returns. To extract the sentiment measure, we use the questions regarding households' personal financial situation from the University of Michigan's Survey of Consumer Sentiment. Using these questions, we derive the "sentiment" component of consumer confidence, which cannot be justified by economic fundamentals.

We find that when sentiment is low, market reaction to dividend initiations is high, and vice versa, indicating that investor pessimism is an important determinant of the market reaction to dividend initiations. We find that this result is robust to numerous controls and regression specifications. Namely, we control for changes in the market price of risk; for the firm propensity to initiate dividends, and for the time-varying firm characteristics that proxy for maturation, low risk, and poor investment opportunities, which have been argued to affect market reaction to dividends. We do not find that this effect may be due to signaling, changes in institutional ownership, or changes in tax regimes over time. We hypothesize, therefore, that investors increase their demand for safe dividends in times when they are pessimistic about their financial situation.

We also find that the positive market reaction in low sentiment periods is permanent as we do not detect any abnormal post-initiation stock price performance. In addition, we find that sentiment affects the likelihood of initiating dividends: initiations are more likely in low sentiment periods. Taken together, these findings indicate that managers may use the positive content attributed to dividends in order to restore investor confidence and counteract the potential undervaluation of firms in times of pessimism. We confirm that dividend non-payers may be undervalued in times of pessimism as we find our sentiment measure to robustly forecast quarterly dividend premium.

We also concede that investor sentiment is not the only reason that firms initiate or increase dividends. We find significant effects of risk and stable profits on the propensity to initiate and/or increase dividend. Collectively, these results suggest that both firm characteristics and investor sentiment affect the payout policies and that managers do not solely rely on consumer sentiment to initiate and to increase dividends.

This paper contributes to the emerging literature that examines managerial use of corporate policies to influence the opinion of investors. It also provides new evidence on the determinants of the time-varying market reaction to dividend announcements.

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Figure 1. Net flows to mutual funds, dividend distributions, and capital gains distributions, 1998 – 2007. Source: Investment Company Institute 2008 FactBook.

Figure 2 Percentage capital gain and percentage dividend yield on the CRSP value-weighted index over 1975 - 2006. The data is from CRSP. The dividend yield is calculated using the value-weighted returns on CRSP excluding dividend and including dividend. The capital gain is the value-weighted return excluding dividend.

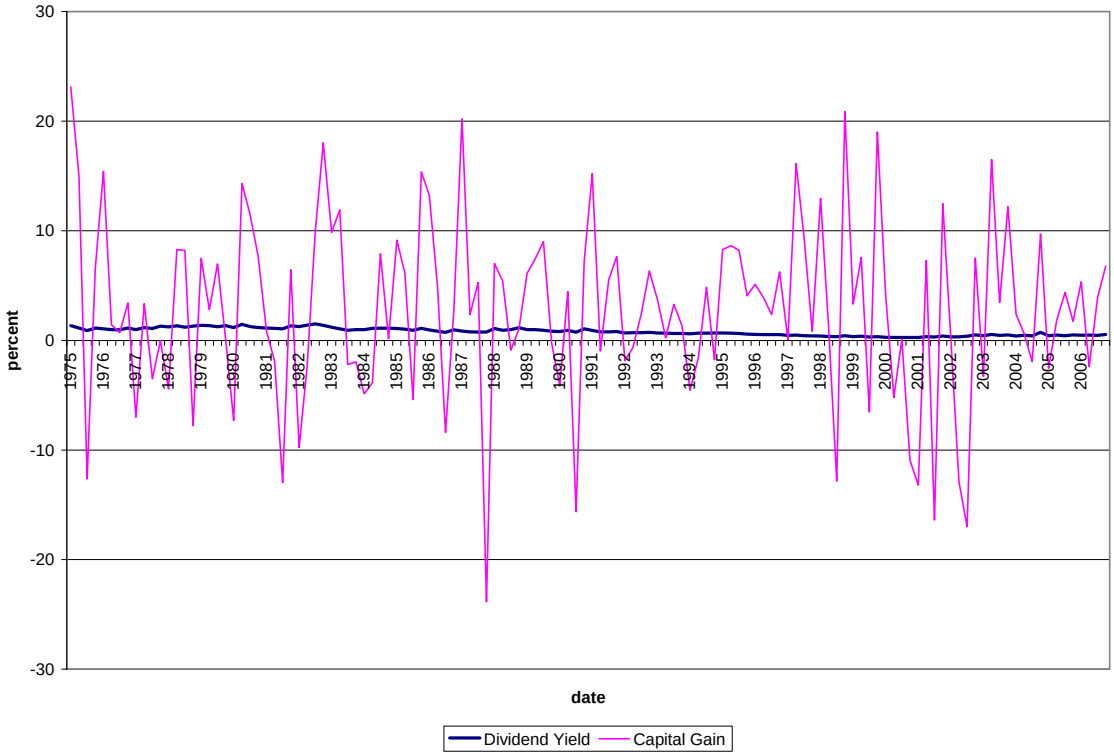

Figure 3. Index of Current Economic Conditions (source: University of Michigan Survey of Consumer Sentiment) is regressed on several macroeconomic variables: unemployment rate, interest rates, inflation, and industrial production. The monthly residual from the regression is averaged for each year and measured on the right scale. The average cumulative abnormal return to dividend initiations is measured on the left scale. Sample period: 1975 – 2006.

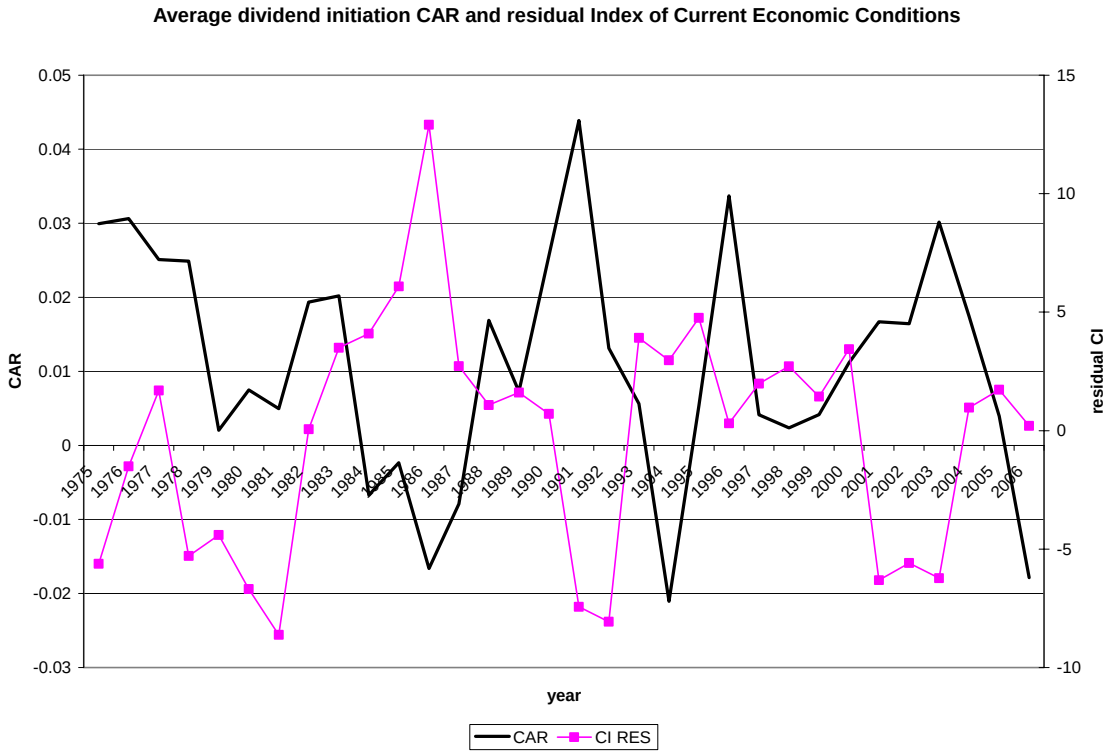

Table 1. Descriptive Statistics

The table reports descriptive statistics for the sample consisting of dividend initiations between 1975 and 2006. Details on the definition and construction of the variables reported in the table are available in the Data Appendix.

	Obs	Mean	Std. Dev.	Min	Max
Total Assets ($ million)	887	1112.678	6531.035	1.423	123339.000
Market Value ($ million)	887	1864.019	12716.950	2.652	292988.400
CAR(-2, +2)	887	0.020	0.069	-0.125	0.301
Change in Systematic Risk	887	-0.001	0.005	-0.023	0.013
Systematic Risk	887	0.009	0.005	0.001	0.028
GAP	887	0.002	0.056	-0.104	0.115
Index of Current Economic Conditions (CI)	887	0.970	0.112	0.617	1.200
Consumer Sentiment	887	-0.004	0.054	-0.187	0.116
BW	887	0.004	0.112	-0.295	0.158
Profitability	887	0.102	0.065	-0.913	0.250
Average Profitability (t+1, t+3)	558	0.087	0.061	-0.267	0.366
Change in Profitability	554	0.020	0.089	-0.197	0.335
Change in Institutitional Holdings	545	0.013	0.058	-0.202	0.252
Institutional Holdings (%)	558	0.408	0.283	0.004	1.000
Market-to-Book	887	1.527	1.042	0.496	9.495
Asset Growth	887	1.206	0.431	0.449	8.589
Log (Age)	887	2.178	0.718	0.693	3.807
Book Leverage	887	0.457	0.201	0.077	0.916
Dividend Yield	887	0.006	0.006	0.001	0.042
Tax	887	0.040	0.066	-0.073	0.155
Number of Dividend Initiators	887	10.404	6.547	1.000	28.000

Table 2. Univariate Analysis

The table reports the mean and median values for the sub-samples of consumer sentiment quartiles. Details on the definition and construction of the variables reported in the table are available in the Data Appendix.**, * and + indicate 1%, 5% and 10% statistical significance, respectively.

	Mean Values						Median Values					
	(Lowest) 1	2	3	(Highest) 4	(1-4)	t stat	(Lowest) 1	2	3	(Highest) 4	(1-4)	z stat
CAR(-2, +2)	0.027	0.027	0.018	0.007	0.020	3.030 **	0.015	0.015	0.012	0.004	0.011	2.783 **
Change in Systematic Risk	-0.002	-0.001	-0.001	0.000	-0.002	3.432 **	-0.002	-0.002	0.000	0.000	-0.002	3.736 **
Systematic Risk	0.010	0.010	0.009	0.008	0.002	3.699 **	0.009	0.009	0.007	0.007	0.002	3.513 **
GAP	-0.014	0.005	0.015	0.000	-0.014	2.525 *	-0.021	0.000	-0.009	-0.015	-0.006	2.736 **
BW	-0.006	0.015	0.011	-0.007	0.002	0.187	-0.026	0.021	-0.030	-0.039	0.013	0.359
Profitability	0.103	0.101	0.101	0.102	0.002	0.217	0.099	0.093	0.096	0.101	-0.002	0.581
Change in Profitability	0.026	0.028	0.007	0.017	0.009	0.765	0.014	0.014	-0.008	0.008	0.006	0.740
Change in Institutitional Holdings	0.011	0.017	0.019	0.008	0.002	0.338	0.003	0.005	0.011	0.002	0.001	0.056
Market-to-Book	1.544	1.454	1.394	1.719	-0.174	1.660 +	1.235	1.126	1.149	1.355	-0.119	2.736 **
Asset Growth	1.162	1.210	1.193	1.261	-0.099	1.965 +	1.096	1.137	1.125	1.152	-0.057	2.993 **
Log (Age)	2.185	2.166	2.204	2.155	0.030	0.437	2.197	2.197	2.197	2.079	0.118	0.373
Book Leverage	0.414	0.469	0.468	0.477	-0.063	3.298 **	0.407	0.467	0.465	0.494	-0.086	3.222 **
Dividend Yield	0.006	0.006	0.006	0.006	0.000	0.190	0.004	0.005	0.005	0.003	0.000	0.874
Tax	0.043	0.048	0.039	0.029	0.013	2.197 *	0.029	0.069	0.035	0.028	0.000	2.428 *
Number of Dividend Initiators	9.115	12.074	11.411	8.982	0.133	0.257	7.000	9.000	10.000	9.000	-2.000	1.847 +

Table 3 Regression of Dividend Payer Premium Return on Sentiment

The table shows the results of the regression of the dividend payer premium on sentiment. Dividend payer premium is equal to the difference between the return on dividend payer portfolio minus the return on dividend non-payer portfolio. The return is averaged over months (t), (t-1), and (t-2). *Consumer Sentiment* is the value of consumer sentiment in month (t-3). *Pred* is the predicted value of CI in month (t-3). *Size* is the average difference in size between the payer and nonpayer portfolios over months (t), (t-1), and (t-2). *BM* is the average difference in book-to-market ratios in the payer and nonpayer portfolios over months (t), (t-1), and (t-2). Models 1 and 2 show the results for non-overlapping observations for months 3, 6, 9, and 12; and Models 3 and 4 show the results for overlapping observations. Models 2 and 4 use simultaneous equation estimation to correct for the generated regressor problem. Newey-West t-statistics are reported in parentheses. +, *, and ** indicate significance at 10%, 5%, and 1%, respectively.

	Model 1	Model 2	Model 3	Model 4
Intercept	0.0437	-0.0298	0.0087	0.0292
	(0.80)	(-1.02)	(0.26)	(1.04)
Consumer Sentiment	0.1095 **	0.1111 **	0.0826 **	0.1125 **
	(2.71)	(3.49)	(3.32)	(5.27)
Pred	-0.0405	0.0262	-0.0087	-0.0300
	(-0.78)	(0.96)	(-0.27)	(-1.14)
Size	0.0000	0.0000 *	0.0000 +	0.0000 *
	(1.50)	(2.02)	(1.78)	(2.44)
BM	-0.0104	0.0016	-0.0038	-0.0049
	(-1.08)	(0.25)	(-0.78)	(-1.15)
Observations	99	99	309	310
R-sq	0.0558		0.0397	

Table 4. Probit Models

Table reports marginal effect of probit model. The dependent variable in Models 1-4 take the value of one if firm initiates a dividend in a given year. The dependent variable in Model 5 takes value of one if total dividend amount exceeds that paid in previous year. While Model 1-4 are conducted over a sample of non-dividend payers and estimate likelihood of initiating dividend, Model 5 estimates likelihood of increasing dividend for sub-sample of dividend-payer firms. Details on the definition and construction of the variables reported in the table are available in the Data Appendix. T statistics are in parenthesis and are based on standard errors which cluster by both firm and year. **, * and + indicate 1%, 5% and 10% statistical significance, respectively.

	1	*2*	*3*	*4*	*5*
Systematic Risk	-0.041 *	-0.037 +	-0.041 +	-0.037 +	-6.89 *
	(2.05)	(1.98)	(2.04)	(1.95)	(2.35)
Unsystematic Risk	-0.046 **	-0.044 **	-0.046 **	-0.045 **	-7.742 **
	(4.21)	(4.33)	(4.22)	(4.35)	(8.12)
Market-to-Book	-0.001 **	-0.001 **	-0.001 **	-0.001 **	-0.038 **
	(3.65)	(3.73)	(4.43)	(4.54)	(2.77)
Asset Growth	-0.001 *	-0.001 *	-0.001 *	-0.001 *	0.064 **
	(2.02)	(2.07)	(2.04)	(2.09)	(3.13)
Profitability	0.019 **	0.019 **	0.019 **	0.019 **	2.077 **
	(6.76)	(6.81)	(7.65)	(7.66)	(9.92)
Size Rank	0.004 **	0.004 **	0.004 **	0.004 **	0.162 **
	(8.32)	(8.37)	(8.29)	(8.34)	(4.15)
1990s Dummy	-0.002 **	-0.002 **	-0.002 **	-0.002 **	-0.086 **
	(3.66)	(3.85)	(4.32)	(4.52)	(3.10)
Annual GDP Growth		0.018		0.018	-0.247
		(1.57)		(1.55)	(0.21)
Tax			0.000	0.001	-0.247
			(0.10)	(0.23)	(0.84)
Average Investor Sentiment	-0.012 **	-0.014 **	-0.012 **	-0.014 **	-0.83 +
	(2.82)	(3.80)	(2.87)	(3.80)	(1.92)
N	73286	73286	73286	73286	31320
Pseudo R^2	0.156	0.156	0.154	0.156	0.074
P-Value	0.000	0.000	0.000	0.000	0.000

Table 5. CAR Regressions

The dependent variable is the [-2,2] days cumulative abnormal return around announcement. Details on the definition and construction of the variables reported in the table are available in the Data Appendix. T statistics of coefficients are in parenthesis and are based on standard errors which are clustered by months. +, * and ** refer to significance at the 10%, 5% and 1%.

	1	*2*	*3*	*4*
Consumer Sentiment	-0.104 *		-0.105 *	
	(2.21)		(2.16)	
Low Consumer Sentiment		0.012 *		0.012 *
		(2.19)		(2.25)
Systematic Risk	0.842	0.871		
	(1.42)	(1.44)		
Change in Systematic Risk	0.308	0.305		
	(0.48)	(0.47)		
Beta			-0.001	-0.001
			(0.26)	(0.22)
Change in Beta			0.008	0.009
			(1.38)	(1.48)
BW	0.025	0.022	0.027	0.024
	(0.87)	(0.79)	(0.91)	(0.83)
Profitability	0.013	0.015	0.013	0.015
	(0.22)	(0.26)	(0.23)	(0.28)
Log (Age)	-0.005 +	-0.005 +	-0.004	-0.004
	(1.79)	(1.75)	(1.42)	(1.37)
Book Leverage	0.018	0.019	0.020 +	0.020 +
	(1.58)	(1.64)	(1.74)	(1.81)
Market-to-Book	-0.006 *	-0.006 *	-0.004	-0.004 +
	(2.27)	(2.38)	(1.60)	(1.70)
Dividend Yield	1.651 **	1.657 **	1.533 *	1.537 *
	(2.73)	(2.77)	(2.43)	(2.46)
Tax	-0.074 +	-0.075 *	-0.053	-0.053
	(1.94)	(1.99)	(1.37)	(1.40)
Log (# of Dividend Initiators)	0.005	0.006	0.004	0.006
	(1.13)	(1.40)	(0.99)	(1.25)
N	887	887	887	887
R^2	0.047	0.047	0.049	0.048

Table 6. CAR Regressions with Two-Step Heckman

Table reports CAR regression with Heckman two-step procedure. In the first stage, probability of initiating a dividend is estimated through probit model. This model is used to construct Inverse Mill's Ratio which is used in the second stage in CAR regressions to correct for selection bias. Details on the definition and construction of the variables reported in the table are available in the Data Appendix. T statistics of coefficients are in parenthesis. +, * and ** refer to significance at the 10%, 5% and 1%.

	1	*2*	*3*	*4*
Consumer Sentiment	-0.098 *		-0.095 *	
	(2.29)		(2.25)	
Low Consumer Sentiment		0.010 +		0.011 +
		(1.93)		(1.98)
Systematic Risk	0.887	0.888		
	(1.49)	(1.49)		
Change in Systematic Risk	0.488	0.467		
	(0.84)	(0.81)		
Beta			0.002	0.002
			(0.50)	(0.51)
Change in Beta			0.012 *	0.012 *
			(2.29)	(2.36)
BW	0.036	0.032	0.034	0.030
	(1.31)	(1.17)	(1.24)	(1.10)
Profitability	0.130 *	0.129 *	0.131 *	0.129 *
	(2.47)	(2.44)	(2.47)	(2.44)
Log (Age)	-0.003	-0.003	-0.003	-0.003
	(1.02)	(0.99)	(0.79)	(0.75)
Book Leverage	0.020	0.020	0.021 +	0.021 +
	(1.65)	(1.64)	(1.71)	(1.71)
Market-to-Book	-0.010 **	-0.010 **	-0.009 **	-0.009 **
	(3.45)	(3.5)	(2.91)	(2.94)
Dividend Yield	1.449 **	1.459 **	1.410 **	1.420 **
	(3.26)	(3.27)	(3.18)	(3.2)
Tax	-0.062	-0.064	-0.043	-0.045
	(1.54)	(1.59)	(1.08)	(1.12)
Log (# of Dividend Initiators)	0.006	0.007	0.005	0.006
	(1.27)	(1.46)	(1.13)	(1.32)
Inverse Mill's Ratio	0.028 **	0.027 **	0.028 **	0.027 **
	(3.07)	(2.97)	(3.03)	(2.93)
Number ofObservations	73270	73270	73270	73270
Number of Uncensored Observations	836	836	836	836
Wald	347.31	345.75	350.90	349.74
P-Value	0.00	0.00	0.00	0.00

Table 7. The Effect of Price of Risk on CAR

The dependent variable is the [-2,2] days cumulative abnormal return around announcement. Models 1 and 2 are OLS regressions and Models 3 and 4 report Heckman two-step procedure estimates. Details on the definition and construction of the variables reported in the table are available in the Data Appendix. T statistics of coefficients are in parenthesis and are based on heteroscedastic-corrected errors. +, * and ** refer to significance at the 10%, 5% and 1%.

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*
Consumer Sentiment	-0.101 *		-0.108 *		-0.096 *		-0.102 *	
	(2.00)		(2.14)		(2.22)		(2.36)	
Low Consumer Sentiment		0.012 *		0.013 *		0.011 *		0.012 *
		(2.1)		(2.23)		(2.01)		(2.13)
Change in Systematic Risk x Gap	9.855	11.380			11.729	13.120		
	(0.86)	(1.01)			(1.39)	(1.56)		
Change in Beta x Gap			0.050	0.047			0.067	0.064
			(0.57)	(0.54)			(0.96)	(0.91)
Systematic Risk	0.782	0.796			0.779	0.757		
	(1.32)	(1.32)			(1.29)	(1.25)		
Change in Systematic Risk	0.245	0.231			0.362	0.324		
	(0.38)	(0.35)			(0.61)	(0.55)		
Beta			-0.001	-0.001			0.003	0.003
			(0.23)	(0.20)			(0.54)	(0.53)
Change in Beta			0.008	0.009			0.012 *	0.012 *
			(1.4)	(1.5)			(2.28)	(2.34)
Gap	0.010	0.013	0.015	0.019	0.034	0.041	0.038	0.045
	(0.18)	(0.25)	(0.29)	(0.35)	(0.60)	(0.71)	(0.69)	(0.79)
BW	0.024	0.020	0.024	0.021	0.031	0.026	0.027	0.022
	(0.77)	(0.68)	(0.79)	(0.69)	(1.05)	(0.87)	(0.95)	(0.76)
Profitability	0.014	0.016	0.013	0.016	0.140 *	0.140 *	0.139 *	0.138 *
	(0.24)	(0.28)	(0.24)	(0.29)	(2.63)	(2.62)	(2.60)	(2.58)
Log (Age)	-0.005 +	-0.005 +	-0.004	-0.004	-0.004	-0.004	-0.003	-0.003
	(1.85)	(1.83)	(1.48)	(1.44)	(1.08)	(1.06)	(0.87)	(0.84)
Book Leverage	0.018	0.019	0.020 +	0.020 +	0.019	0.019	0.020	0.019
	(1.60)	(1.66)	(1.73)	(1.78)	(1.60)	(1.60)	(1.62)	(1.61)
Market-to-Book	-0.006 *	-0.006 *	-0.004	-0.005 +	-0.010 **	-0.010 **	-0.009 **	-0.009 **
	(2.29)	(2.4)	(1.66)	(1.75)	(3.53)	(3.59)	(3.00)	(3.03)
Dividend Yield	1.625 **	1.626 **	1.531 *	1.535 *	1.368 **	1.366 **	1.368 **	1.373 **
	(2.68)	(2.72)	(2.43)	(2.47)	(3.05)	(3.04)	(3.07)	(3.08)
Tax	-0.076 +	-0.078 +	-0.060	-0.062	-0.073	-0.078	-0.061	-0.066
	(1.71)	(1.78)	(1.41)	(1.46)	(1.55)	(1.64)	(1.31)	(1.40)
Log (# of Dividend Initiators)	0.005	0.006	0.005	0.006	0.006	0.007	0.006	0.007
	(1.19)	(1.48)	(1.02)	(1.29)	(1.37)	(1.59)	(1.22)	(1.44)
Inverse Mill's Ratio					0.030 **	0.030 **	0.030 **	0.029 **
					(3.25)	(3.18)	(3.18)	(3.09)
Number of Observations	887	887	887	887	73270	73270	73270	73270
R^2	0.049	0.049	0.049	0.049				
Number of Uncensored Observations					836	836	836	836
Wald					349.72	348.84	352.35	351.27
P-Value					0.00	0.00	0.00	0.00

Table 8. Operating and Stock Price Performance Following Dividend Initiations

In Panel A, the dependent variable is the average profitability in 3 years following the dividend initiation less that of control firm sharing the same two-digit SIC and having similar profitability prior to dividend initiation. Panel B reports average monthly returns of firms initiated dividends in Low and High Sentiment periods in the past three years. Details on the definition and construction of the variables reported in the table are available in the Data Appendix. T statistics of coefficients are in parenthesis and are based on heteroscedastic-corrected errors. +, * and ** refer to significance at the 10%, 5% and 1%.

Panel A. Post-announcement Abnormal Operating Performance

	1	*2*	3	4
Consumer Sentiment	-0.061		-0.013	
	(0.71)		(0.13)	
Low Consumer Sentiment		0.007		-0.002
		(0.79)		(0.12)
Consumer Sentiment x Dividend Yield			-8.481	
			(0.77)	
Consumer Sentiment x Dividend Yield				1.516
				(1.19)
Log (Age)	-0.001	-0.001	-0.001	-0.001
	(0.16)	(0.20)	(0.13)	(0.14)
Book Leverage	-0.013	-0.013	-0.012	-0.010
	(0.60)	(0.58)	(0.56)	(0.48)
Market-to-Book	0.015 **	0.015 **	0.015 **	0.015 **
	(2.40)	(2.37)	(2.44)	(2.45)
Dividend Yield	0.227	0.236	0.223	-0.191
	(0.36)	(0.38)	(0.35)	(0.27)
N	554	554	554	554
R^2	0.037	0.037	0.038	0.039

Panel B. Post-announcement Abnormal Returns Using Fama-French Calendar Time Portfolio Regressions

	Low Sentiment	High Sentiment	Low-High Sentiment
Intercept	0.001	0.001	0.001
	(0.53)	(0.49)	(0.26)
Excess Return	0.906 **	1.016 **	-0.110
	(13.10)	(25.78)	(1.65)
SMB	0.711 **	0.647 **	0.064
	(8.50)	(13.58)	(0.78)
HML	0.421 **	0.379 **	0.042
	(4.38)	(6.92)	(0.45)
N	357	357	357
R^2	0.452	0.745	0.012

Table 9. Change in Institutional Holdings Following Dividend Initiations

The dependent variable is the change in institutional holdings following dividend initiation in Model 1 and 2. Growth in institutional holdings is the dependent variable in Models 3 and 4. CAR(-2, +2) is the dependent variable in Models 5 and 6. Details on the definition and construction of the variables reported in the table are available in the Data Appendix. T statistics of coefficients are in parenthesis and are based on standard errors which are clustered by months. +, * and ** refer to significance at the 10%, 5% and 1%.

	1	*2*	*3*	*4*	*5*	*6*
Consumer Sentiment	-0.040		-0.211		-0.104 *	
	(0.80)		(0.94)		(2.30)	
Low Consumer Sentiment		-0.002		-0.015		0.014 *
		(0.30)		(0.57)		(2.32)
Systematic Risk	-1.272 +	-1.225	-4.433	-4.115	0.987	0.940
	(1.66)	(1.60)	(1.49)	(1.38)	(1.32)	(1.24)
Change in Systematic Risk	-0.867	-0.885	-2.890	-2.963	-0.207	-0.303
	(1.21)	(1.24)	(0.93)	(0.97)	(0.27)	(0.40)
BW	0.032	0.038	0.002	0.040	-0.033	-0.039
	(1.06)	(1.23)	(0.02)	(0.27)	(0.80)	(0.95)
Profitability	-0.029	-0.030	-0.103	-0.110	-0.036	-0.038
	(0.54)	(0.57)	(0.46)	(0.49)	(0.64)	(0.67)
Log (Age)	-0.003	-0.003	-0.013	-0.013	-0.006 +	-0.006 +
	(1.05)	(1.06)	(1.08)	(1.09)	(1.97)	(1.98)
Book Leverage	0.017	0.015	0.071	0.058	-0.003	-0.002
	(1.47)	(1.31)	(1.26)	(1.03)	(0.21)	(0.15)
Market-to-Book	0.003	0.003	0.005	0.004	-0.003	-0.003
	(1.34)	(1.27)	(0.70)	(0.57)	(0.97)	(0.97)
Dividend Yield	-0.897 *	-0.891 *	-1.617	-1.569	1.518 *	1.484 *
	(2.11)	(2.1)	(0.59)	(0.57)	(2.34)	(2.32)
Tax	-0.110 *	-0.104 *	0.006	0.044	-0.136 *	-0.148 *
	(2.16)	(2.03)	(0.02)	(0.17)	(2.34)	(2.59)
Log (# of Dividend Initiators)	-0.010 *	-0.010 *	-0.024	-0.027	0.002	0.003
	(2.08)	(2.20)	(1.06)	(1.23)	(0.45)	(0.63)
Institutional Holdings					-0.010	-0.011
					(0.77)	(0.84)
N	545	545	545	545	558	558
R^2	0.04	0.039	0.013	0.012	0.054	0.055

Table 10. Alternative Definitions of Consumer Sentiment

The table reports alternative definitions of sentiment. The dependent variable CAR(-2,+2) surrounding dividend initiation announcement. Details on the definition and construction of the variables reported in the table are available in the Data Appendix. T statistics of coefficients are in parenthesis and are based on standard errors which are clustered by time (months). +, * and ** refer to significance at the 10%, 5% and 1%.

	1	*2*	*3*	*4*	*5*	*6*	*7*
CS(Q1)	-0.065 +						
	(1.95)						
CS (Q2)		-0.085 +					
		(1.82)					
CS (Q3)			-0.010				
			(0.68)				
CS (Q4)				-0.001			
				(0.05)			
CS (Q5)					-0.070 *		
					(2.30)		
[CS(Q1) + CS(Q2) + CS(Q5)]/3						-0.104 *	
						(2.24)	
CS(Q1+Q2+Q5)							-0.045 *
							(2.23)
BW	0.029	0.028	0.029	0.025	0.019	0.025	0.028
	(1.03)	(0.97)	(1.01)	(0.91)	(0.65)	(0.87)	(0.97)
Systematic Risk	0.858	0.866	0.887	0.920	0.855	0.831	0.829
	(1.43)	(1.45)	(1.48)	(1.53)	(1.44)	(1.40)	(1.40)
Change in Systematic Risk	0.283	0.221	0.266	0.260	0.322	0.287	0.268
	(0.44)	(0.34)	(0.41)	(0.4)	(0.5)	(0.45)	(0.42)
Profitability	0.013	0.017	0.015	0.015	0.013	0.014	0.014
	(0.23)	(0.29)	(0.25)	(0.25)	(0.24)	(0.24)	(0.25)
Log (Age)	-0.005 +	-0.006 +	-0.005 +	-0.005 +	-0.005 +	-0.005 +	-0.006 +
	(1.80)	(1.93)	(1.77)	(1.76)	(1.77)	(1.86)	(1.89)
Book Leverage	0.017	0.016	0.016	0.015	0.018	0.018	0.018
	(1.49)	(1.37)	(1.37)	(1.32)	(1.58)	(1.56)	(1.53)
Market-to-Book	-0.006 *	-0.006 *	-0.006 *	-0.006 *	-0.006 *	-0.006 *	-0.006 *
	(2.29)	(2.45)	(2.37)	(2.37)	(2.31)	(2.32)	(2.33)
Dividend Yield	1.683 **	1.691 **	1.654 **	1.662 **	1.615 **	1.661 **	1.682 **
	(2.76)	(2.77)	(2.74)	(2.73)	(2.68)	(2.74)	(2.77)
Tax	-0.062	-0.074 +	-0.063	-0.069 +	-0.087 *	-0.077 *	-0.071 +
	(1.60)	(1.93)	(1.58)	(1.79)	(2.31)	(1.99)	(1.82)
Log (# of Dividend Initiators)	0.004	0.005	0.005	0.004	0.006	0.005	0.005
	(0.99)	(1.27)	(1.12)	(1.07)	(1.27)	(1.21)	(1.17)
N	887	887	887	887	887	887	887
R^2	0.045	0.045	0.042	0.041	0.048	0.048	0.048

Table 11. Dividend Increases

The Table reports CAR(-1,+1), CAR(-2,+2) and CAR(-5,+5) surrounding dividend increases. Details on the definition the variables reported in the table are available in the Data Appendix. T statistics of coefficients are in parenthesis and are based on standard errors which cluster by firm and time (month).

	CAR(-1, +1)			CAR(-2,+2)			CAR(-5,+5)		
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
Consumer Sentiment	-0.010			-0.010			-0.025 +		
	(1.41)			(1.17)			(1.85)		
[CS(Q1) + CS(Q2) + CS(Q5)]/3		-0.013 *			-0.014 +			-0.029 *	
		(2.11)			(1.90)			(2.35)	
CS(Q1+Q2+Q5)			-0.005 +			-0.005			-0.011 +
			(1.79)			(1.54)			(1.92)
Beta	-0.002 *	-0.002 *	-0.002 *	-0.002 +	-0.002 *	-0.002 *	-0.001	-0.001	-0.001
	(2.36)	(2.40)	(2.40)	(1.97)	(2.00)	(2.00)	(0.89)	(0.93)	(0.92)
Change in Beta	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001
	(0.58)	(0.56)	(0.56)	(0.23)	(0.21)	(0.20)	(1.07)	(1.05)	(1.04)
Profitability	0.060 +	0.060 +	0.060 +	0.070 *	0.070 *	0.070 *	0.124 *	0.124 *	0.124 *
	(1.84)	(1.85)	(1.84)	(2.00)	(2.01)	(2.01)	(2.51)	(2.52)	(2.51)
Log (Age)	-0.001	-0.001	-0.001	-0.002 *	-0.002 *	-0.002 *	-0.003 *	-0.003 *	-0.003 *
	(0.70)	(0.68)	(0.68)	(2.30)	(2.28)	(2.28)	(2.04)	(2.02)	(2.02)
Dividend Change	0.014 **	0.014 **	0.014 **	0.013 **	0.013 **	0.013 **	0.025 **	0.025 **	0.025 **
	(4.50)	(4.51)	(4.51)	(3.83)	(3.85)	(3.84)	(5.05)	(5.06)	(5.05)
Log (# of Dividend Initiators)	0.003 **	0.003 **	0.003 **	0.003 **	0.003 **	0.003 **	0.004 **	0.004 **	0.004 **
	(4.36)	(4.42)	(4.41)	(4.12)	(4.19)	(4.17)	(3.31)	(3.37)	(3.34)
N	12111	12111	12111	12111	12111	12111	12111	12111	12111
R^2	0.009	0.009	0.009	0.009	0.009	0.009	0.011	0.011	0.011

Data Appendix

(in alphabetical order)

Asset Growth is the ratio of increase in *Total Assets* relative to *Total Assets* in previous year.

Beta is the coefficient estimate of market return in a regression of stock return over market return in [-205,-5] days.

Book Equity is stockholder equity (216) minus preferred stock plus balance sheet deferred taxes and investment tax credit (35) minus post retirement asset (330). If stockholder equity is missing, we use common equity (item 60) plus *Preferred Stock* par value (130), or *Total Assets* minus liabilities (181).

Book Leverage is *Total Assets minus Book Equity* divided by the *Total Assets* of the firm.

BW is the Baker and Wurgler measure of logarithm of average *market to book* ratio of dividend paying firms minus that of non-paying firms in a given year.

CAR (-2, +2) is the cumulative abnormal return surrounding the dividend announcement date [-2,+2].

Change in Beta is the difference in beta in post dividend initiation [+5, +205] and that in pre dividend initiation announcement [-205, -5].

Change in Institutional Holdings is the change in the percentage of institutional holdings following the dividend initiation relative to most recent quarter prior to dividend initiation.

Change in Profitability is the average profitability in three years following the dividend initiation less that of control firm which shares the same two-digit SIC and has the closest profitability to the dividend initiating firm prior to the dividend initiation.

Change in Systematic Risk is the difference in the systematic risk in post dividend initiation [+5, +205] and that in pre dividend initiation announcement [-205, -5].

Consumer Sentiment is the residual in a regression of the CI on a set of macroeconomic variables: the unemployment rate, the inflation rate, default spread, term spread, short-term interest rate, and GDP growth.

Default Spread is the difference between the yields on BAA and AAA-rated bonds (Source: Federal Reserve, http://www.federalreserve.gov/releases/h15/data.htm).

Dividend Change is the ratio of dividend amount in quarter (t) minus that in quarter (t-1) divided by dividend amount in quarter (t-1).

Dividend Yield is the ratio of dividend amount to stock price.

GAP is the residual of the log industrial production from a linear and quadratic trend, calculated according to the methodology of Cooper and Priestley (source: Federal Reserve, http://www.federalreserve.gov/datadownload/Choose.aspx?rel=G17).

GDP Growth is calculated as 100 times the change in the natural log of GDP obtained from the Bureau of Economic Analysis (http://www.bea.gov/national/nipaweb/TableView.asp?SelectedTable=6&FirstYear=2007&LastYear=2008&Freq=Qtr).

Growth in Institutional Holdings is the ratio of the *Change in Institutional Holdings* to institutional holdings in the most recent quarter prior to dividend initiation.

Inflation Rate is 100 times the difference in the natural logs of Consumer Price Index (source: Bureau of Labor Statistics, ftp://ftp.bls.gov/pub/special.requests/cpi/cpiai.txt).

Low Consumer Sentiment takes value one if *Consumer Sentiment* falls in the bottom quartile.

Market Equity is stock price (199) times shares outstanding (25).

Market to Book is the ratio of *Total Assets* minus *Book Equity* plus *Market Equity* to *Total Assets*.

Market Value is the ratio of *Total Assets* minus *Book Equity* plus *Market Equity*.

Number of Dividend Initiators is the number of firms initiating dividend in a given month.

Preferred Stock is defined as one of the following: Preferred stock liquidating value(10), preferred stock redemption value (56) or preferred stock par value (130).

Profitability is the ratio of earnings before extraordinary items(18) plus interest expense (15) plus income statement deferred taxes (50) to *Total Assets*.

Short-term Interest Rate is the 3-month Treasury bill yield (source: Federal Reserve, http://www.federalreserve.gov/releases/h15/data.htm).

Size Rank is the percentile of *Market Equity* in COMPUSTAT.

Systematic Risk is the standard deviation of predicted value of the three-factor Fama French regression.

Tax is measured as marginal dividends tax minus average marginal taxes on short and long-term gains.

Term Spread is the difference between the yields on the U.S. Treasury security with 10-year maturity and the 3-month Treasury bill (source: Federal Reserve, http://www.federalreserve.gov/releases/h15/data.htm).

Total Assets is the book value of assets (6).

Total Debt is Long-term debt (9) plus short-term debt (34).

Total Dividend Yield is the dividend yield on the market index over a year.

Unemployment is the unemployment rate obtained from the Bureau of Labor Statistics (series #LNS14000000, http://data.bls.gov/cgi-bin/srgate).

Unsystematic Risk is the standard deviation of residuals in [-205,-5] days.