Breaking the ice:

Whether cold, hard cash leads to hot returns

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Abstract

In this paper, using 57 US initial paying dividend firms in the year 2011, it is tested whether the capital market deems a cash dividend signal reliable. Reliability is solely determined by the size of the dividend: payout ratio, cash dividend and/or cash dividend / cash. No evidence is found any of these dividend size measures has a direct effect on abnormal return at the time of the initial dividend announcement. If an effect does exist, it is a very modest one and of minor economic importance. Generalizing to quarterly dividends: there is no reason to believe evidence against the dividend signalling hypothesis is not due to the reliability of a cash signal. Which dividend sizes investors prefer remains unclear. Possible explanations include: investors having different preferences for dividends and the magnitude effect.

Key words: dividends, initial dividends, dividend signalling hypothesis, reliability, cash, CAPM, Fama and French, abnormal return, payout ratio.

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1. Introduction

‘’What should the individual investor do about dividends in his portfolio? We don’t know. What should the corporation do about dividend policy? We don’t know. ‘’

-Fischer Black, 1976

According to Martin Feldstein and Jerry Green (1983), the dividend puzzle is the primary puzzle in the economics of corporate finance. Modigliani and Miller first posed the puzzle in a classic paper back in 1961 and the puzzle still remains unsolved. Their work showed that with a given investment and financing policy, a firm’s dividend policy should not affect the value of its shares (ignoring all imperfections). In 1976 Fischer Black summarized the fruits of further research since Modigliani and Miller in 1961. His conclusion, at the time, proves there are both uncertainties about dividends from a supply point of view and from a demand point of view. We do not know why firms pay dividends and we do not know why investors care about dividends.

Often it is argued financial managers shower investors with cash because dividends are perceived by investors as signals of management’s assessment of a company’s performance and prospects. This is called the dividend-signalling hypothesis. The hypothesis explains both why firms pay out dividends and why investors like dividends. The dividend-signalling hypothesis has received much attention since its first appearance. It enjoys countless advocates, and countless opponents. Reliability, or a lack thereof, can explain why recent research has found no significant response to dividend signals. It is time investors put their cards on the table regarding dividends. The corresponding main question this paper focuses on is: ‘‘how reliable are dividend signals to investors?’’

Regarding the answer to this question, the finger-pointing is at the investors but the implications are for firms. Namely, the answer to the question contains policy implications for firms. More

generally, it says what size dividends investors most positively receive and it studies the feasibility of false-signalling strategies.

To shed light on the intricacies of the dividend puzzle and specifically on the dividend signalling hypothesis, in this paper, one of the core elements of dividends is put under glass: cash. It is what sets dividends apart from other messages conveyed by managers, such as financial statements for instance. Dividend signals are backed with cold, hard cash. Therefore, the reliability of a dividend signal in this paper is reduced to the amount of cash it is backed with[1]. Moreover, as to ensure an effect, initial dividends are used as investors are expected to react on them more strongly (Healy and Palepu, 1988). The main expectation of this paper is that larger initial dividends are responded to significantly stronger by investors. In such case, dividends are perceived as reliable signals about the company's future prospects by the capital market because of the amount of cash it is backed with. Dividends are, however, not the only signals saying it with cash. The role of cash in determining reliability is also relevant to repurchases and equity issuances.

The main question is answered party theoretically and partly empirically. In the empirical part 57 listed US firms paying initial dividends in 2011 are tested using categorical analysis and regression analysis. Chapter 2 reviews the theory behind dividends and reliability. Chapter 3 discusses the data collection and methodology. More specifically, chapter 3.1 explains the design of the study, chapter 3.2 outlays the sample selection, and chapter 3.3 describes the data. Chapter 4, subsequently, discusses the results. Chapter 4.1 focuses on categorical analysis and Chapter 4.2 focuses on regression analysis. Finally, chapter 5 discusses limitations and Chapter 6 concludes.

[1] Other reliability measures could include firm's future earnings prospects to name one. For the purpose of this paper, only the cash amount is focused on, as it is an objective measure, which is easily observable by both investors and researchers.

2. Theoretical Review

In this chapter the factors involved to answer the research question are identified. In section 2.1 an attempt is made to (partly) solve the research question by reviewing previous literature. Section 2.2 attempts to answer the research question by reviewing literature from behavioral finance.

2.1 Theoretical Framework

Should dividends affect the value of a firm's shares? Posed differently: are the results of corporations' business decisions related to dividend payouts? Not according to Modigliani-and-Miller-theorem. Take the situation of having to choose between a stock that pays a dividend and a stock that pays no dividend with the same expected dollar outcome. According to Modigliani-and-Miller-theorem the choice is similar given that we ignore imperfections such as taxes and transaction costs. On the ex-dividend date, the price of the dividend-paying stock drops by the exact amount of the dividend. Hence, the value of shares is directly reduced by the amount of the dividend. The outcome for the investor is therefore the same, whether the firm does or does not pay a dividend. Modigliani-and-Miller theorem therefore reads: the dividends a corporation pays do not affect the value of its shares or the returns to investors, because the higher the dividends, the less the investor receives in capital appreciation, no matter how the corporation's business decisions turn out (Black, 1996). This theorem raises questions. If dividends do not create value for firm or investor then why would firms pay dividends at all?

Modigliani-and-Miller-theorem is based on a world where uncertainties do not exist. Investors and corporations however do face uncertainties. One of which are taxes. For most investors, dividends are more highly taxed than capital gains. For corporations, dividends are not deductible, which makes dividends relatively expensive as an instrument to paying out cash. Therefore, in a world

with taxes, both corporations and investors prefer smaller dividends or even no dividends at all.

Another uncertainty investors face is transaction costs. However, the cost of overcoming transaction costs for investors in any case is low. Therefore, transaction costs are further left out of discussion since they are not regarded to say much about why firms pay dividends.

Apart from the imperfections faced by corporations and investors, there are also several theories concerning why firms pay dividends. These theories will be discussed next. The first up for discussion is the relation of stockholders and creditors. The idea originates from Black and Scholes (1973) who say that the easiest way to get rid of the burden of debt is paying out all of its assets in the form of dividends by which creditors are left holding an empty shell. Paying out dividends strengthens the position of stockholders and relatively weakens the position of creditors. However this explanation is proven not to be substantive for explaining why firms continue to pay dividends. In many cases, the effects are very small and hardly detectable. Even if it would have a large effect, the changed terms between stockholders and creditors change their bargaining positions vis-à-vis firms. This eliminates any effect created.

The second possibility is that cutting dividends is a very low-cost way to raise money for firms. Instead of paying dividends, the firm could have used this cash to invest in its operations. However, firms rarely cut dividends even though such a strategy makes sense from a cheap resources perspective. This notion increases the peculiarities concerning the question why do firms continue to pay dividends?

Further, it is possible many investors are irrational and believe that non-dividend-paying-stock should not be held, for instance. If these investors constitute a large part of the market, it has policy implications for firms. If the firm's investors demand dividends, corporations should pay dividends and the other way around. Summing all theories and imperfections, we have several classes of

investors with different preferences regarding dividends. Investors in high tax brackets tend to avoid dividends, while irrational investors might prefer dividends. The demands of investors concerning dividends are of great importance for firms whether or not to pay dividends. Ultimately then, it is investors who determine firms' optimal dividend policies. This is why, in this paper, the view of investors on dividends is taken under glass. Irrationality of investors is further reviewed under section 2.2.

One controversial theory on why firms pay dividends remains. Firms are highly reluctant to cut dividends and therefore only increase dividends when they feel company's prospects are good enough to support the higher dividend for some time. This is in line with Lintner's view (1956) that managers target a long-term payout ratio. Much time has passed since Lintner's work. However, recently it was found by, among which Brav et al. (2005), Lintner's view still holds in this respect. This implies that a change in dividends says something about managers' view on the company's future earnings prospects. When it is assumed that managers' future earnings views are correct, a dividend change or a lack thereof conveys information to investors. The announcement of a dividend increase, then, increases the share's stock price at the date of announcement. This increase is only permanent if the firm does in fact do as well as the dividend change indicated. Firms therefore have an incentive to make the right future earnings predictions and to be prudent when it comes to dividend changes. Managers are said only to increase dividends when they are absolutely sure the firm can maintain the higher future dividend stream. The notion of managers conveying information about managers' view of future earnings prospects through dividend changes is called the dividend signalling hypothesis.

Over the last couple of years, the dividend signalling hypothesis has earned much attention. At first, evidence was found in favor of the dividend signalling hypothesis. However, only later serious flaws were found in the methodology of many of these studies. Flaws which included not controlling for the announcement effects of earnings reports, using an incorrect model to model future earnings and not controlling for earnings patterns and mean reversion

(Asquith et al., 1986 and Benartzi et al., 2005). More and more opponents of the dividend signalling hypothesis arose and deAngelo et al. in 1996 decided to test the hypothesis under stringent conditions. These were conditions under which, if the dividend signalling hypothesis contains only the slightest effect, the results will show up in their study. The situation included using firms in their sample that had increasing earnings for at least 9 consecutive years and faced their first earnings decline at year 0. In such case, firms have an incentive to use dividend signalling, if it were to exist. Additionally, investors are particularly interested in this situation about firms' managers' view on future earnings. Is the decline in earnings transitory or permanent? In the end, they found very little evidence in favor of the dividend signalling hypothesis. In cases where evidence for the hypothesis was found, they found the effect of a very small nature. Three reasons ultimately explain these results according to DeAngelo et al.: overconfidence by managers, mistakes by managers, and the possible lack of reliability of the dividend signal. Due to the nature of the first two explanations, only the third reason is subject to further examination. What determines the reliability of a signal? What sets dividends apart from other information conveyors is cash. Does cash make a signal reliable? DeAngelo et al. were not able to answer this question because their sample firms' dividends were too small. An answer to the question could explain why the dividend signalling hypothesis is supposedly not valid.

In sum, few factors remain contributing to an answer to the question. Firstly, whether dividends are liked or not liked depends on the population of investors a certain stock faces. From a tax perspective, most investors and corporations favor smaller dividends. Further, the possibility that most investors are irrational cannot be excluded. The total mix of population of investors for a certain stock determines the optimal dividend strategy for the firm. The answer is hence more complex than only looking at higher and lower dividends. Different investors have different preferences for dividends. The results differ per firm and are dependent on the firm's investor population. Further, to open up the black box of supposed

irrational investors, in the next section it is reviewed what behavioral finance has to say about the matter.

2.2 Behavioral Finance

In this study, responses of investors to market information are tested. Possible behavioral biases by investors could help explain why firms pay dividends. Based on the previous section, irrationality seems to play a large role in finding the key to the answer. Therefore, it only makes sense to also view this problem from a behavioral point of view. The theory of behavioral finance helps to better predict and interpret the outcomes of the empirical work presented later on in this paper. First, the in this context relevant behavioral bias is explained, after which its possible implications for this study are discussed.

One often mentioned behavioral bias investors suffer from is overconfidence. Overconfidence is defined as: ‘’the tendency of individuals to believe they have more information or knowledge than they actually possess’’[2]. Evidence for under-confidence in the market is also found. It is therefore hard to predict when decision makers will be over- or under-confident, just like it is hard to predict when the market will over- or under-react.

Griffin and Tversky (1992) came up with a theory, which can predict over- and under-reactions. Under this theory, a distinction is made between good news/bad news and statistical reliability. These two groups are named: strength and weight. Strength represents the degree to which the information is favorable or unfavorable. Weight represents the information’s statistical reliability. Griffin and Tversky find that agents tend to pay too much attention to strength (size) and in turn not enough attention to weight (reliability). Therefore, overreactions should be observed when information is of low weight (reliability) and high strength (size). Under-reactions should be

[2] Definition is taken from Bloomfield et al. (1998). The definition originates from Lichtenstein and Fischhoff (1977) and Lichtenstein, Fischhoff and Phillips (1982).

observed when information is of low strength with high weight. What this means is that investors will tend to underestimate the reliability of highly reliable signals, while overestimating the reliability of highly unreliable signals. This could explain why recently much evidence against the dividend signalling hypothesis is found. Even though the dividend signal is supposedly reliable, investors underestimate the reliability of the signal. Excess returns and earnings surprises are therefore not detectable, because of an under-reaction by investors to the dividend signal.

The phenomenon of investors judging the reliability of signals based on their prior beliefs is called: moderated confidence. Investors are said to imply statistical significance on previous events. Without further making assumptions about investors' prior beliefs, it can be said that the more information an investor has[3], the larger the under-reaction in market price will be. Since dividends are usually paid quarterly and is a constant stream, the prior information investors have is relatively large. Therefore, the likelihood of investors under-reacting to dividend signals is relatively large. It logically follows that the likelihood of under-reaction for initial dividends is smaller. Indeed, it is found by Michaely et al. (1995) that market prices appear to under-react to dividend changes. These results should be interpreted with care, however, since market prices include an element of random error, which cause higher price swings[4] (Bloomfield et al., 1998). This random error is insufficiently taken into account by investors, which causes prices to be too high.

There is hence a difference between initial dividends and quarterly dividends. Initial dividends have no prior observations and are therefore, according to the theory, of low statistical reliability. Initial dividends' strength (size) is presumably larger than that of quarterly dividends, since it is a first time dividend. Dividend

[3] Information is defined as information concerning prior events/experiences, which increases reliability.

[4] For the same reason, long run price behavior to study the actual reliability of dividend signals is left for what it is in the empirical section. In line with DeAngelo et al. (1996), the effects that cause swings in long run market price are near impossible to disentangle.

increases tend to be small[5]; hence, initial dividends are expected to be larger. If then, initial dividends are of high strength and low weight, it is expected investors will overreact to initial dividends.

A similar distinction can be made between high and low dividends. Higher dividends have a higher strength. Investors, according to Griffin and Tversky, pay too much attention to strength. Assuming an equal weight, investors are expected to overreact to higher dividends.

Finally, the reason why companies pay dividends might be due to a large part of investor population behaving imperfectly. Investors are expected to overreact to higher dividends, under-react to lower dividends, overreact to (large) initial dividends and under-react to quarterly dividend increases. These findings make it puzzling why firms would make small dividend increases, since investors are expected to under-react to them. In the next chapter it is researched whether investors do overreact to (higher) initial dividends.

[5] Dividend increases tend to be small because firms have a prudent approach to dividends according to Lintner (1956) and later Brav et al. (2005). Firms are highly reluctant to cut dividends and need to take into account that they need to maintain the new higher dividend stream into the future.

3. Research Design and Data Requirements

3.1 Research Design

How can it be determined whether higher cash dividend signals are interpreted as being more reliable? Essentially, investors' reaction to cash signals is tested. In particular, do investors believe higher cash dividends contain more information, if any?

In order to test this assertion, first a measure of the investors' reaction to the signal needs to be defined. Here, the stock's initial stock price reaction at the time of publication of the dividend is used. It is at this time, investors catch knowledge of the information possibly entailed in the dividend signal. The more unexpected this piece of information is to outsiders, the higher the stock price reaction would be and therewith the abnormal return. In this study, only the immediate reaction by investors is tested and not the reaction over longer time. Over longer time many variables enter the equation and it is complex and uncertain to disentangle effects as can be seen from DeAngelo et al., 1996. The so-called surprise effect at the publication date is expected to be highest the first time a firm announces a dividend because of fewer expectations[6]. Therefore, in this study the abnormal returns for firms' initial dividend payouts around the time of publication are studied[7].

The amount of abnormal return between several categories based on size of initial dividend payouts is compared. The positive earnings surprise at the time of the dividend is defined as the abnormal return at the day of the publication of the dividend plus the abnormal return the day before the publication date. The two

6 Conflicting opinions exist about the generality of findings for initial dividends. Initial dividends are sometimes considered as a special dividend. Therefore its generality to regular dividends (increases) should be interpreted with care.

7 The exact time frame examined is -10 to +10 trading days surrounding *The Wall Street Journal* publication date. Previous literature applies a testing period of up to -15 to +15 trading days. Both testing frames -10 to +10 and -15 to +15 were initially applied to test whether the length of the testing frame affects the results and conclusion. This is not the case in this sample.

abnormal returns are aggregated because of uncertainty, concerning the release of information, around the announcement, in line with Asquith et al. (1986). The abnormal return is computed using the market-adjusted method to measure the normal return. The market-adjusted method is a simplification of the market model[8]. However, according to Chandra, Moriarity and Willinger (1990), in practice both models are equally powerful. The market's equal-weighted return is applied from a consistency point of view. Each stock gets an equal weight, as also is the case in aggregating the abnormal return to confound an average effect. Apart from that, since this study constitutes of only a short test period, not large differences in results are to be expected by using either a value-weighted index or the S&P500 index.

In addition to this categorical analysis, a regression analysis is applied. It is tested whether dividend size: payout ratio, cash dividend, and/or cash dividend / cash help explain abnormal return at the time of the announcement. This is done with the CAPM-model, the Fama-and-French-model, and by regressing dividend size on abnormal return while controlling for other factors. For all three models, the intercept represents abnormal return. Adding the correct independent variables to the regression should decrease the intercept, because factors that explain abnormal return are modelled in. A more elaborate explanation of the regression analysis can be found under section 4.2.

3.2 Sample Selection

The sample is constructed of 57 firms, which are listed on either the New York Stock Exchange (NYSE) or on the American Stock Exchange (AMEX). Searching the Wall Street Journal Report for firms, which distribute an initial dividend in the year 2011, identified

8 The market model models the stock's normal return, subtracted from the stock's daily return to arrive at the abnormal return, as: $R_{it} = a_i + b_i * R_{MIt} + u_{it}$. Where R_{MIt} stands for the return on the market index for period t and u_{it} denotes the error term. The market-adjusted method assumes in the market model that $a_i = 0$ and $b_i = 1$.

these firms. Using the Center for Research in Security Prices (CRSP) and COMPUSTAT tapes, the sample was narrowed down based on the following criteria:

1. It must not be a financial institution (SIC codes: 6000-6999)[9]

2. All necessary data must be available for each firm on CRSP and COMPUSTAT

3. The dividend information from the Wall Street Journal must match the information in CRSP and COMPUSTAT

4. It must be a US firm with all relevant data available in the US currency

5. The initial dividend must be a regular one

6. Earnings must be positive one quarter prior to the dividend announcement

In total, 82 firms were excluded from the initial sample collected from *The Wall Street Journal* based on the abovementioned criteria. Extra care had to be taken in collecting the correct data concerning dividend initiations[10]. In particular, whether the dividends were indeed first time dividend payouts and whether they were not special dividends based on distribution code. A special dividend is possibly not interpreted in the same way by the market as an initial dividend, hence their exclusion from the sample. 49 firms were excluded from the sample based on incorrect information in *The Wall Street Journal Report*. Further, only US firms are used because most literature regarding dividends focus on US firms, which simplifies comparing findings. As a final requirement, the earnings figure for each firm must be positive because for these firms a negative quarterly earnings figure is most likely a transitive one. This, hence, represents an out of the ordinary situation, which is best excluded from the analysis. It also causes a negative payout ratio. Both implications complicate

[9] In line with Benartzi et al. (1995).

[10] Incorrect information includes: WSJ reporting an initial dividend while it is not the firm's first dividend according to CRSP. This was checked by tracking dividend history from 2001 until 2011 using CRSP daily database dividend distribution information. Other incorrect information includes wrong dividend per share amount and wrong dividend announcement date according to CRSP.

interpretation and inference. Finally, an analysis of the SIC codes proves the sample exhibits no industry clustering[11].

3.3 Variables' Definitions and Descriptive Statistics

The main variable in this paper is payout ratio, which comprises: dividends and earnings. Payout ratio is the main categorical variable used to determine categories based on size of the dividend. The earnings figure is retrieved from the CRSP/COMPUSTAT database as net income one fiscal quarter prior to the initial dividend announcement. The initial dividend is defined as the dividend per share announced at the publication date in *The Wall Street Journal* times the number of shares outstanding on that date, retrieved from the CRSP daily stock database.

This variable automatically comprises the first categorical variable used to categorize dividends on size. In order to infer investors' sophistication with respect to interpreting cash signals, three categories representing the size of the cash dividend are used. In order of superficiality with which investors observe cash signals[12]: the absolute cash dividend amount, the percentage of total cash dividend on the cash balance, and the payout ratio are tested. As mentioned earlier, the absolute cash dividend amount is simply the incremental cash dividend payout as of *The Wall Street Journal* announcement date. The percentage of the cash dividend payout on the cash balance is determined as the absolute amount of cash involved in the dividend payout divided by the firm's cash balance one fiscal quarter prior to the dividend announcement. Finally, the payout ratio is determined as the incremental cash dividend payout divided by the firm's net income one fiscal quarter prior to the dividend announcement. The payout ratio is the most representative of the height of the incremental cash payout involved in a dividend payout. The payout ratio controls for net income. It contains

[11] A step-by-step description how the sample was constructed can be found in appendix section 1.1.
[12] The first mentioned is the most superficial.

information about whether it can sustain the dividend incremental cash payout in the future. Therefore, if higher dividends are indeed more reliable, this should be reflected in a higher abnormal return in the highest payout ratio quintile. For these reasons, payout ratio is the main measure used to determine the size of the initial dividend.

Table 10: Descriptive statistics
The sample contains 57 initial dividend announcements made by New York Stock Exchange/American Stock Exchange (NYSE/AMEX) firms during the year 2011. B/M ratio is calculated as the firm's shareholder's equity divided by the firm's market value one quarter prior the dividend announcement, retrieved from CRSP/COMPUSTAT merged quarterly stock database. Size is defined purely as the firm's market value and is displayed in billions of US dollars. A B/M ratio higher than 1 means the firm is undervalued.
On average firms are undervalued in this sample. A size smaller than 2 billion US dollars means a firm is small. Most firms in this sample are small, with a few exceptions which are very large.

Variable	Minimum	Maximum	Mean	Median
B/M ratio	-0.65	16.02	2.48	1.84
Size	0.03	86.8	4.87	0.83

Table 10 shows the main characteristics of sample firms. Book-to-market ratio is calculated as the firm's shareholder's equity divided by the firm's market value. The components of the equation are taken form CRSP/COMPUSTAT merged quarterly database. Both are as of one quarter prior to the dividend announcement to reflect the information known by investors at the time. Size is purely the market capitalization of the firm one quarter prior to the dividend announcement, which is also the denominator of book-to-market ratio.

The book-to-market ratio is higher than 1 if firms are undervalued. Both the median and the mean of book-to-market ratio are higher than 1, which means that on average sample firms are undervalued before they announce their dividend initiation. If market value is lower than 2 billion US dollars, a firm is small. Table 10 shows that most firms are small with a median below 1. It also shows there are some very large firms present in the sample which drive up the mean market capitalization of the sample. According to Fama and French, small firms have more risk, which is priced on the market.

This also counts for firms with a high book-to-market ratio. These measures are, hence, expected to explain a large part of excess return and abnormal return, which leaves little room for other explanatory variables. Whether this holds, is reviewed in section 4.2.

4. Results

The analysis is split in two parts. The first part is the categorical analysis and studies whether abnormal returns are generated across quintiles. The second part is the regression analysis and studies whether the size of the dividend additionally helps explain abnormal returns.

4.1 Categorical analysis

The first step in the categorical analysis is to determine the size of the initial dividend. This is calculated as the announced dividend per share times the number of shares outstanding. Then, the dividends are divided into quintiles according to their magnitude. Their magnitude is based on three assumptions about investors' behavior[13]. Quintile 1 represents the group of lowest initial dividends and quintile 5 represents the group of highest initial dividends.

Next, the abnormal return is calculated for each firm and for each of the 10 trading days surrounding the announcement date[14] to examine how the abnormal return in the event period develops. To calculate ar, firstly the equal weighted return needs to be subtracted from the stock's daily return at each relevant t. To be able to make inferences about ar, the abnormal returns have to be aggregated in some way. Taking the average over all firms for each relevant t does this. This average (AR) is subsequently tested for, whether it differs significantly from 0 for each trading day and within each quintile. The magnitude measure of the dividend, used to calculate the significance of AR in the 5 quintiles, is the payout ratio. The payout ratio is used because it is the most accurate measure of the size of the cash dividend. It is therefore assumed, in this analysis, that investors

[13] See section 3.3 for a more elaborate discussion of how the quintiles are determined.
14 ar is calculated over the trading days range -10 to +10, for each firm.

Table 2
Summary Performance Measure: Event Specific
Significant result in the highest groups are robust. Abnormal return is also positively significant for large enough low payout ratio groups.
5 Quintiles: N=11. 3 Groups: N=17. 2 Groups: N=26.

	A. All firms		B. Quintile 1		C. Quintile 2		D. Quintile 3		E. Quintile 4		F. Quintile 5	
	CAR (%)	***t* Value**	CAR (%)	*t* Value	CAR (%)	*t* Value	CAR (%)	*t* Value	CAR (%)	*t* value	CAR (%)	*t* value
Days in holding period[a]												
-1 to AD	2.07%	3.41****	3.40%	1.379	2.26%	2.013	1.24%	1.312	0.96%	.587	**2.44%**	**3.04*** **
-1 to AD	2.07%	3.41****	3.05%	2.002*	0.84%	1.143	**2.24%**	**2.224****				
-1 to AD	2.07%	3.41****	2.62%	2.4448***	**1.44%**	**1.9411***						

[a]The holding period includes the beginning and ending date
Two-sided test
*0.10
**0.05
***0.025
****0.005

recognize that. The result of this analysis is summarized in table 1 and 2[15].

Table 2 shows that AR differs significantly from 0 at the time of the event for all firms and for firms in the fifth quintile. According to the efficiency market hypothesis all information is processed perfectly by the market. Abnormal returns are supposed to be 0 according to this hypothesis. AR differing from 0 means investors did not fully anticipate the initial dividend announcement. AR is 2.07% across all firms. This means investors partially anticipate dividend initiation from other information available before the announcement; otherwise the effect would be larger. However, the announcement was not fully anticipated: the actual announcement of the dividend initiation conveys information to the market. This result is in line with the prior theoretical review. Theory suggests there is an overreaction to initial dividends because of low strength and high weight. The result here does not reject this expectation. In addition, these results, across all firms, are in line with results for initial dividends by Healy and Palepu (1988).

Two further observations are interesting about this analysis. The first is the notion of AR being significantly different from 0 at the time of the event for firms in the 5th quintile. AR does not significantly differ from 0 in other quintiles. AR is 2.44% at the event in the 5th quintile. In line with the prediction of section 2.2 based on the theory of Griffen and Tversky, investors also overreacted to higher initial dividends. Since AR is higher in the 5th quintile than overall, investors over weighted the favorability of the

[15] For a complete tabulation of the results of the categorical analysis: see Appendix 2.1.

high dividend and under weighted the statistical reliability of the *high* initial dividend.

The second interesting notion is the pattern of AR across quintiles. The pattern is in line with expectation if the graph is a linear curve with AR being highest in the 5th payout ratio quintile. Then, high initial cash dividends are responded to more positively and are regarded as being credible. Figure 2 in Appendix section 2.1, however, shows something different: a parabolic curve where AR is highest for the 1st payout ratio quintile. This is an interesting twist in the analysis. Investors respond most positively to low initial dividends. Whether this difference is significant is explained later on in this section.

Several explanations for this pattern are possible. The first one being that small initial cash dividends are correlated with small firms, which do not get much attention from investors. This information asymmetry would cause investors to be more surprised for such firms, which explains the higher abnormal return for these firms. The information asymmetry decreases for larger firms with higher initial dividends until the size of the dividend in the highest quintile overwhelms investors. The magnitude effect of Griffin and Tversky takes over. Another explanation is: investors anticipate a firm's future dividend stream. Investors subsequently make a value judgement whether they believe the firm can maintain the future dividend stream. They therefore prefer small initial dividends because it is least risky. Again, at a certain point, the magnitude effect takes over. To be able to discriminate between these two explanations, in the next section a regression analysis is performed to explain abnormal return.

Another explanation has to do with the quality of the dataset. An outlier in the 5th quintile could cause the 5th payout quintile generating a significant positive abnormal return. Further, an outlier in the 1st quintile could explain why abnormal returns are higher in that quintile. To test this possibility it needs to be determined where the clouds of observations are across quintiles. It quickly becomes apparent from figure 4 in appendix section 2.1 that there are 2

outliers: only in the 3rd quintile. Therefore, the pattern in AR and the significance in the 5th quintile cannot be explained by special observations[16].

Since outliers do not drive the results, more tests are needed to make further statements about the implications of these results. Firstly, to test the robustness of the significant abnormal returns in the 5th quintile, the categorical analysis is performed again but this time the observations are split in 3 and 2 equal groups. If abnormal returns in the highest group are still significant, there must be some effect of high initial dividends on initial share price reaction. Table 2 shows the answer. Abnormal return in the highest groups is still positively significant across both divisions. Further interesting to note is that here abnormal return is also positively significant in the lowest groups. The answer to the question posed in the introduction is hence more complex than: do higher dividends yield higher returns?

Before making any statements about the earlier found pattern in AR, it first needs to be tested whether the differences in AR between quintiles is a significant one. Table 5 in the Appendix shows no such thing. AR does not differ significantly between quintiles for payout ratio. The effect of a high initial dividend on abnormal return is hence a small one. That there is no significant difference between quintiles is important because it implies despite that the investor population differs per firm, investors value each size initial dividend approximately equal. The policy implication for firms is then to keep the initial dividend as small as possible to be able to sustain the future dividend stream, since investors do not respond significantly different to higher amounts.

The analysis is also performed for the absolute cash dividend and for the cash dividend / cash ratio. This is done because it could be the case that payout ratio is not perceived by investors and that they rather perceive the absolute cash amount or the dividend as a percentage of cash. Which measure is actually perceived is a subject

[16] The categorical analysis is redone, omitting the two outliers in the 3rd quintile. The outliers do not change results. See appendix section 2.1: table 3 and 4 with corresponding figure 3.

for the regression analysis. Table 5 in the appendix reports significant differences between quintiles in the mid-section. Specifically: between 1 and 3, 2 and 3, 2 and 4, 3 and 4 and 4 and 5. It does not show, however and in line with results for payout ratio, a significant difference between 1 and 5. Investors do seem to respond differently to different sizes of dividends when measured not by payout ratio. If the regression analysis shows that investors do perceive these measures, then the size of the dividend does matter. Just not in the strict sense of investors strictly preferring higher initial dividends. The advantage of analyzing initial dividends here is that it can be assumed all initial dividends are equally statistically reliable, since there are no prior dividends. Then, the only difference across observations to investors is the degree of good news. Differing responses should hence solely be due to the magnitude of good news/surprise.

Cash dividend and cash dividend / cash have differing responses between quintiles. Also, payout ratio has significant results in the highest and lowest region, not in the mid-section. Section 2.1 identified some factors, which could explain differing reactions across quintiles. One of these factors is differing tax preferences qua dividends per type of investor. The investor population differs per firm; therefore the results differ per firm and per initial dividend. It is near impossible to identify for a firm what groups the firm's investor population consists of and what the dominant group is (Black, 1976). Allowing for different investor groups per firm with differing dividend preferences, could explain the results.

One further stance is taken on the difference between high and low dividend payouts in the next test performed on AR. All three dividend size measures: payout ratio, cash dividend, and cash dividend / cash are split in half. AR at the time of the event in both halves for all three measures is compared to each other[17]. For one variable (Cash Dividend), the difference between the two halves in AR, is significant. There is a higher abnormal return present for firms with lower absolute initial cash dividends. It cannot be said whether

[17] Results of this test can be found in Appendix section 2.1: table 6.

investors also perceive other measures of the size of the dividend such as cash dividend and cash dividend / cash because this test tests a difference in AR between two halves. Not whether AR is significant in the first place within these halves for these measures. Whether the measures are in fact perceived is left for regression analysis.

In sum, this study reports a significant abnormal return effect at the time of the event for all dividend-initiating firms. Hence, investors do process extra information from the initial dividend initiation in this sample. There is a significant positive response in the 5^{th} quintile based on payout ratio. When splitting AR in less than 5 groups, AR is still positively significant for the highest groups and also positively significant for the lowest groups. Investors (over) react to initial dividends and, in particular, to high initial dividends. These effects are small since their differences are not significant. Overall, the small effects imply cash plays a small role in making signals more reliable. The results in DeAngelo et al. (1996) are then not due to their sample containing too few large dividend increases, which are not reliable. In the next section, it will be examined whether dividend size has an effect at all and in what form.

4.2 Regression analysis

The categorical analysis analyzed the effect of several initial dividend sizes. Unsolved mysteries remain, among which what investors perceive as the size of the dividend: payout ratio, cash dividend and/or cash dividend / cash. Also, the magnitude of the effect of the dividend size is uncertain and the direction of these effects. Therefore, to further investigate these unsolved intricacies, in this section a regression is performed. In the first part of this analysis, two models are used: CAPM and Fama-and-French to determine whether abnormal returns are present in the sample and to measure the riskiness of stocks. In the second part a new model is introduced to determine what explains AR and how.

To be able to discuss the results of these regressions, it first needs to be explained how these models work and how they are put together. First up is the CAPM.

(1) $r_i(t) - R_f(t) = ai + b_i*(R_M(t) - R_f(t)) + e$

The dependent variable represents excess return and the independent variable represents the market risk premium. The CAPM explains higher return with higher risk, which is represented in beta. The intercept is also known as Jensen's alpha and measures the average amount of abnormal return generated in the portfolio. By adding intercept dummies, it can be determined whether these dummies help to explain abnormal return. In particular, if Jensen's alpha approaches zero and is no longer significant if these dummies are added, it must be the case that its explanatory variables are now modelled into the regression.

For the same purpose, the Fama-and-French model is also put into action. Fama and French extended the CAPM-model to include factors that also capture risks, which explain excess return. These factors are: size (b_2) and book-to-market ratio (b_3). Fama and French ascertain that small companies and companies with a high book-to-market ratio have more risk than other companies, which is subsequently priced on the market.

(2) $r_i(t) - R_f(t) = ai + b_1*(R_M(t) - R_f(t)) + b_2*SIZE + b_3*HML + e$

The CAPM and the Fama-and-French model are based on quarterly data in this paper. The effects and returns are hence a summed average of all firms during the quarter of the firm's dividend initiation. Excess return is calculated by subtracting the relevant risk-free rate from individual stock's return during the quarter of the dividend initiation. The risk-free rate is taken as: yield on a 10-year US government bond. The market risk premium is calculated by subtracting this same risk-free rate from the equal-weighted market return during the quarter of the firm's dividend initiation. In addition, for the Fama-and-French model, small is determined to mean a market capitalization of below 2 billion US dollars. A high book-to-market ratio is one that is higher than 1, in such a case the firm is

said to be undervalued by the market. The book value of the firm is taken as shareholder's equity at the beginning of the year and market value as market capitalization at the beginning of the year.

Apart from CAPM and Fama-and-French, another regression is performed in the time frame of the event: AD to -1. Here, the explanatory dummy variables, also used for the CAPM and Fama-and-French, are regressed on the abnormal return generated during the 2 event days. These independent variables include dummies for: payout ratio, cash dividend, cash dividend / cash and industry. Here, the intercept also represents abnormal return, which is not captured by the model. By including the right explanatory variables, the intercept should approach zero.

A variable needs to be modelled to capture and explain normal returns in the regression on abnormal return. Including the returns in a control period for each firm does this. This control period is taken as trading days -9 and -10[18]. A period before the event is chosen, because the initial dividend announcement could alter the way in which investors respond to the stock in question. A regression of this sort with payout ratio as an explanatory variable would look like the equation below.

(3) $r_i(t) - R_M(t) = a_i + b1*(r_i(control) - R_M(control)) + b2*payout\ ratio + b3*industry + e$

Where variables for: b2, b3, and b4 are dummy variables. Payout ratio is dividend in 5 quintiles, where the reference category is the 5th quintile. Industry is divided according to two-digit SIC codes and the reference category is transportation and public utilities[19]. Regression

[18] A control period with trading days: -14 and -15 is also tried. However, this period turned out not to be representative of normal returns. During this period, the normal returns had a negative effect on abnormal return. If normal returns go up, abnormal returns should also go up, which is the case in control period (-9, -10). Results can be found in appendix section 2.2, table 9.

[19] Industries include: mining, construction, manufacturing, retail trade, services, public administration, and non-classifiable establishments.

(3) is redone for cash dividend and cash dividend / cash[20]. Results for these models and regressions can be found in appendix section 2.2.

First up for discussion are the results of the CAPM. The market return has a significant positive effect on explaining excess return in all specified models. Beta is approximately 0.2, which means that the firms in the sample are of very low risk. The implication of having low risk firms in this sample is that the effect of initial dividends is more likely to show up. This is hence a welcome feature in the sample. Apart from that, cash dividend is the only other factor, which has a significant explanatory effect on excess return. In particular, the 1st quintile of cash dividend has an effect of approximately 1.5% on abnormal return. Cash dividend in its totality also has a significant explanatory effect on abnormal return, controlling for: market return, industry and time of the dividend initiation.

These results should be interpreted with much care, because this regression measures the average effect of firms over a very large time frame: the quarter of the firm's dividend initiation. These effects hence could be due to many other events occurring at that time and possibly has nothing to do with the event of interest here. The implications of this time frame become immediately apparent when studying Jensen's alpha. During the quarter, firms generate a significantly negative abnormal return. From the categorical analysis, it is know that firms generate a significantly positive abnormal return during the event. Therefore, this model does not capture a relevant environment necessary to test the effects for the event of interest.

The Fama-and-French model suffers from the same limitations as the CAPM model in this study. The same conclusions and results as for the CAPM hold here. However, here it is found that the Fama-and-French variables: small size and high book-to-market ratio do not capture additional risk to explain excess return in this sample. The Fama-and-French model, hence, does not provide an improvement on the CAPM model in this sample in particular. The Fama-and-French model could be improved by omitting the Fama-

[20] Regressions are also performed to solely include payout ratio and control period to name two. For a complete list of performed regressions and results see appendix section 2.2.

and-French variables from the model. Therefore, the CAPM is the better model for explaining excess return and abnormal return in this study.

To draw more accurate conclusions from the results of the regression, next regressions are performed with a smaller time frame[21]. The time frame is event specific and only includes two days. Firstly, the return earned in the control period is regressed on the abnormal return during the event. The intercept is positively significant, which means positive abnormal returns are earned during the event of 2 percent. This is in line with the result in the categorical analysis for all firms. This regression also shows that the returns in the control period have a positively significant explanatory effect on abnormal return. If the normal return perfectly explains abnormal return, the coefficient would be 1. Here, however, the coefficient is 0.08. It significantly differs from 1, which means there is still room for other explanatory factors such as payout ratio.

Payout ratio, however, does not have a significant explanatory effect on abnormal return neither in the exclusion of the normal returns nor when controlling for all factors. The 3rd quintile of payout ratio does have a significant effect on abnormal return compared to the 5th quintile. When, in the sample, firms are in the 3rd quintile, they earn a 3.5 percent higher abnormal return than when they are in the 5th quintile given the effects of normal return and industry. This effect is still not enough to make payout ratio significant as a total variable. The same story counts for cash dividend / cash, however here the 3rd quintile for payout ratio is the 2nd quintile for cash dividend / cash. Abnormal returns are on average 4 percent higher when firms are in the 2nd quintile compared to the 5th quintile. No such thing can be said about the cash dividend variable. Cash dividend is not a significant explanatory variable for abnormal return. Industry as whole is not significant, however manufacturing is significant compared to transportation and public utilities.

What is interesting in this model is that at first the abnormal returns are significant, when only controlling for normal returns.

[21] Results for this model can be found in Appendix Section 2.2: table 9.

However, when adding the other explanatory variables, abnormal return does no longer significantly differ from zero. Only when, cash dividend is used as only independent variable is abnormal return still significant. This means cash dividend does not explain abnormal return. However, the other variables either combined or alone, are able to capture the average abnormal return. Hence, there are no grounds to reject the notion that the size of the dividend explains abnormal return at the time of the event. The effect, however, is very small since the grouped variables are not significant. Investors seem to perceive only payout ratio and cash dividend / cash. The earlier findings for cash dividend, hence, are most likely due to other factors influencing the outcome with respect to cash dividend. Nothing can be said about the direction of the effect between quintiles, because there are too few significant results to be able to point at one measure, one pattern and one regression.

The results here are mainly in line with those of the categorical analysis. There are significant abnormal returns being generated during the time of the event of around 2 percent. There is no evidence which says that investors do not respond to the size of the initial dividend: payout ratio and/or cash dividend / cash. In addition, investors respond differently to different sizes initial dividends, of which the direction is unclear. Any effect the size an initial dividend has on abnormal return is small, which is bad sign for reliability.

5. Limitations

Inherent to any research are limitations. The first one being the time frame in which the effects are tracked. Only the immediate response is tested for. To test whether abnormal returns continue in the future, whether these firms actually pay out the initial dividend announced, and whether those with higher initial dividends have higher earnings in the future to track actual reliability, a longer testing period is needed. Even though doing such longer period research would be very resourceful, using a longer time frame comes with many problems. For one, it would be hard to disentangle effects as DeAngelo et al. (1996) shows.

Another obvious limitation has to do with the quality of the dataset. Firstly, the possibility exists that easy mistakes are made in collecting, processing, and interpreting the data. Secondly, the total amount of firms included in the sample is, put carefully, not excessive. Many times, observations in this study are categorized by ratios, industry, and size. The total amount of observations within each class is mostly fairly thin, which is problematic for statistical inferences.

One final data limitation is that the earnings figure is not deflated by shareholder's equity, where shareholder's equity is measured at the one quarter prior to the announcement. According to Benartzi et al. (1997) this is problematic because raw earnings differ across firms for many reasons, which makes it that certain factors are not controlled for in these analyses. The earnings figure is mainly used to calculate payout ratio, which is one of the most important variables in this paper. Benartzi et al. (1997) also say that earnings are supposed to be before extraordinary items to avoid the transitory component of earnings. From examining the dataset used, it cannot be said with certainty that the earnings figure used in this paper is before extraordinary items.

There is another fundamental problem in the basic setup of the work. Initial dividends are used instead of quarterly dividends because initial dividends are more likely to show results. Initial

dividends, however, are not the same as quarterly dividends and a generalization in terms of implications for the dividend signalling hypothesis based on initial dividends is problematic as section 2.2 explains. It does, however, suffice as a first investigation into the possibility. What both signals have in common is that they are backed with cash. In this study, hence, whether the amount of cash payout determines reliability is tested by using initial dividends. Whether the results here also hold for quarterly dividends is an area for future research.

In the categorical analysis, AR is tested within quintiles only for payout ratio. The other two measures: cash dividend and cash dividend / cash are only subject to differences between quintiles tests and not within quintiles tests. This is done because the other two measures do not accurately reflect the size of the dividend, taking into account whether the firm can maintain the dividend as payout ratio does. However, if investors do perceive the other two measures as still being representative for the size of the dividend, the other two measures should also be subject to within quintiles tests. In this study the possibility that investors do not perceive the other measures cannot be excluded, although investors do not seem to perceive absolute cash dividend.

The next limitation applies to the regression analysis. The CAPM model and the Fama-and-French model turned out not to be good models to explain abnormal return due to the length of the testing frame. Using a time frame of one month would have been more representative of the effects around the event. However, the relevant monthly data necessary to conduct such an analysis is not available in the files of the used databases.

Another limitation to the regression analysis is that no theoretical model is available to assess the effects that explain abnormal return. Whether the model used now is accurate is hence debatable and their results are questionable. Apart from that, in this last model, the time of the dividend initiation variable is not modelled in because of a statistical problem in defining the variable. It cannot be said with certainty whether all factors that explain AR

are modelled in. Not to mention the small amount of observations within the seven specified industries. This probably causes industry as a total variable not to have an effect on AR.

One more factor is not controlled for in these analyses. Namely, it cannot be said with certainty that the significant abnormal returns are generated because of the dividend initiation announcement. Whether other events were occurring around the time of dividend initiation announcement is not controlled for. It often occurs dividend announcements follow earnings reports and these earnings reports might cause all of the abnormal return generated during the time of interest.

Finally, there is no definite answer found to the question what size initial dividends investors prefer. Conflicting results are found in the pattern of AR across quintiles. The regression analysis could also not give a final answer. What makes this research problematic is that investors' behavior is explained by means of their actions. It is up to the researcher how to interpret these results. The answers to reasons for action stated here might not be the overall average (or median) reason to action of investors. In the future, a further stance needs to be taken on what size dividends investors prefer and why by possibly taking a more practical approach. Here, recognizing it is firm specific and that it depends on the preferences of investors makes a good start. The effects, however, are small and of minor economic significance.

6. Conclusion

No matter how you divide the pie, abnormal returns are significantly positive for *high* initial dividend paying firms. When cutting the cake in larger pieces, abnormal returns are also significantly positive for *low* initial dividend paying firms. Behavioral finance theory suggests investors overreact to (high) initial dividends. No evidence is found to reject this notion.

Differences in abnormal return between quintiles for payout ratio are not significant. This means that there is something going on in the 1st and 5th quintile of payout ratio, which is not due to outliers, but the effect the size of the dividend has is very small. There is also no robust evidence, yet, that the size of the dividend has an overall effect in explaining abnormal returns at the announcement date. Hence, any overreaction mentioned in the first paragraph is of a very small nature and of minor economic significance. Cash has only a small effect on explaining abnormal returns and, therefore, on increasing reliability of signals. A policy implication from this result is that firms might as well pay out low initial dividends as to make sure they can maintain the future dividend stream.

Earlier it was mentioned how conflicting results exist about which size dividends investors prefer. Different investors have different preferences and each firm has their own unique set of investors. This explains controversial results regarding size. Whether they are relevant, however, is questionable due to the small differences between dividend sizes in investors' reactions.

Now we know cash does not add to reliability. So what? What does that mean? It means that investors do not believe higher cash payouts go together with more positive information about the firm's future prospects. Or, that they do not believe in the signal. It is not a credible one. This can explain why recently researchers have found much evidence against the dividend signalling hypothesis. Initial dividends are not the same as quarterly dividends, as can be seen from section 2.2. However, whether cash adds to credibility is a

question relevant to both *signals*. Just like repurchases and equity offers are also cash signals.

Non-credibility of cash signals also has implications for false signalling. False signalling could be a worthwhile strategy for firms. Firms could capture the low abnormal return for low initial dividends and never pay up to investors. What incentives firms have to engage in such a strategy, whether such a strategy works, and whether they actually use such a strategy is also a promising new area of future research.

In sum, showering investors with cold, hard cash does not lead to hot returns in the immediate run. It is open whether showering investors with cash does lead to hot returns in the long run and whether showering them continuously leads to sustainable hot returns.

7. Literature

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Appendix 1.1: Step by step description: Data collection

1. Go to http://online.wsj.com/mdc/public/page/2_3022-dividends.html?mod=topnav_2_3002_europe to identify U.S. initial paying dividend firms
2. By browsing through every historical date of 2011, identify each firm and copy the information per firm in excel
3. Look up PERMNO for each sample firm on the WRDS web site and copy them in a word document (leave a single space per PERMNO)
4. Access the CRSP annual update daily stock data database on the WRDS web site and insert all PERMNO
5. Check boxes for the following variables in the CRSP annual update daily stock database for 01-01-2011 until 31-12-2011: date, TKR, SIC-code (major group), stock exchange code (stocks must be traded on main stock exchanges), dividend declaration date, shares outstanding, currency, dividends per share, equal-weighted return incl. dividends, and return
6. Take each firm's dividend announcement date from the data file with your WSJ data and mark each firm's dividend announcement date with 0 in your CRSP annual update daily stock file
7. Mark all other surrounding trading days for each firm from -10 through +10 so that you can filter per trading day and easily import this data in SPSS to test AR for each trading day (table 1)
8. Filter so that you can only see results for day 0. Check whether your data matches with the WSJ data. Preference data from CRSP because of step 9.
9. As another step to check whether the data from WSJ is correct, retrieve from the CRSP daily index distributions database the dividend distribution information for each sample firm from 2001 until 2011 and check for each firm whether the WSJ announced dividend is really the firm's first dividend. If not, take these firms out of the sample.
10. Go to CRSP quarterly data CRSP and COMPUSTAT merged and retrieve: fiscal quarter, TKR, total assets, cash, and net income (loss) for all sample firms.

11. Use announcement dates to determine in which quarter the firm announces the dividend. Mark not this quarter but the previous quarter in the CRSP and COMPUSTAT merged database.
12. Delete all other observations and put your CRSP/COMPUSTAT variables in the previous data file with WSJ data and CRSP daily data.
13. Now we're ready to compute our own variables. First calculate cash dividend by multiplying shares outstanding with dividend per share. Shares outstanding are in thousands, I transformed all numbers in real numbers to avoid mistakes.
14. Calculate payout ratio: cash dividend / net income
15. Calculate cash dividend / cash
16. Calculate abnormal return: return minus equal-weighted return for all trading days

SPSS

17. Abnormal returns are put in SPSS separately for each trading day. AR for the event is then transformed into one variable by adding ar at day 0 to ar at day minus 1.
18. Quintiles are determined by using descriptive statistics in SPSS for payout ratio, cash dividend, and cash dividend / cash and splitting in 5 equal groups. Write down all borders and use them to compute new variables: ar within each quintile for all trading days (payout ratio) and only for the event for the other two measures.

Eviews

19. Make dummy variables for all quintiles for all measures: payout ratio, cash dividend, and cash dividend / cash
20. Make dummy variables for time of the dividend initiation and industry where industry is based on major groups
21. Make dummy variables for HML and size. Size is computed as market value / shareholder's equity one quarter prior to the dividend announcement found in CRSP/COMPUSTAT quarterly database
22. For CAPM and Fama-and-French, the quarterly returns needs to be calculated. Retrieve quarterly market return and risk-free rate from CRSP quarterly index where market return is equal-weighted and

risk free rate is 10 year US government bond. The market return is calculated as market return minus risk-free rate for each stock during the stock's quarter of dividend initiation.

23. Excess return is calculated as: stock's return minus market return. The stock's return needs to be quarterly so take the average over the stock's return by summing the returns of the 3 months of the quarter and dividing it by 3.

Appendix 2.1: Categorical Analysis

Figure 1. Abnormal Stock Returns for Largest Initial Dividends

CAR around the announcement is regressed for firms in the 5th payout ratio quintile. There is a clear trend, which indicates the presence of the event and investors responding significantly pos

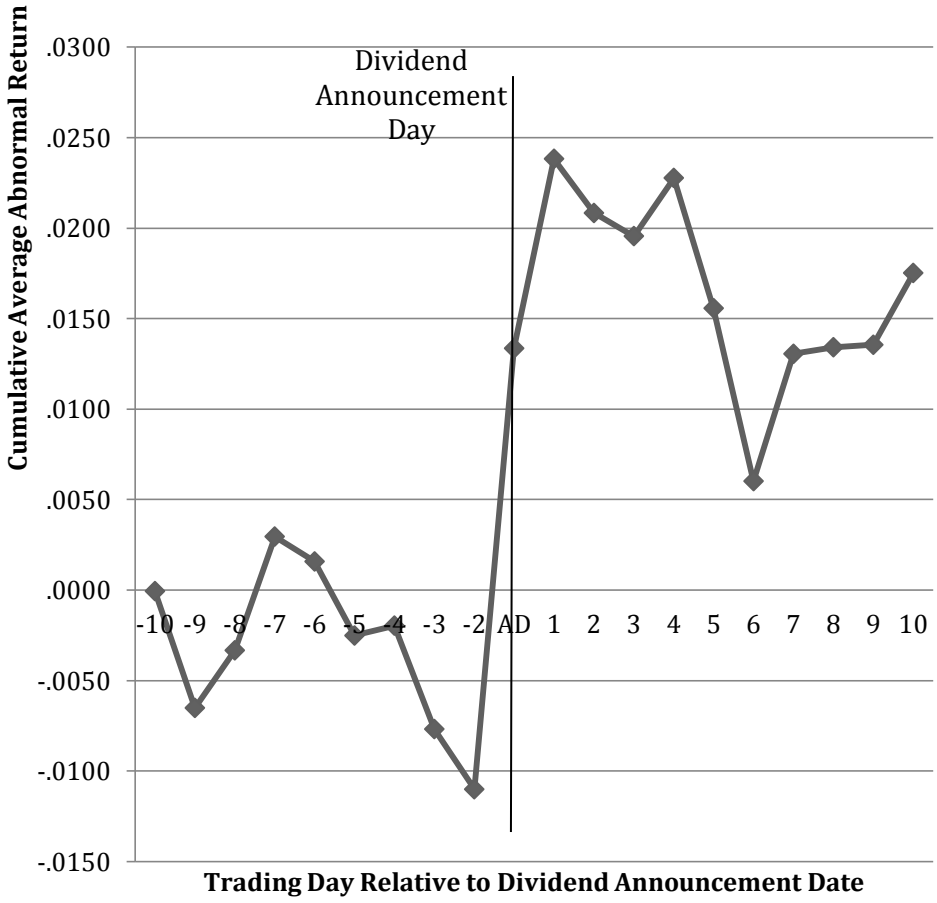


Figure 2

This figure corresponds to table 2 in the main text. The x-axis represents quintiles based on payout ratio. The y-axis represents AR at the time of the event (-1, AD). This is repeated for 5, 3, and 2 groups of dividend sizes. The pattern shows AR is highest in the lowest regions, lowest in the mid-section and then higher again for the highest regions. In table 5 it is found the difference between these results are not significant, which means there is only a small effect of investors discriminating across quintiles. The effect could be explained by investors anticipating the firm's future dividend stream and therefore there is a preference for initial dividends, which are as low as possible such that firms can sustain the stream in the future. At a certain point investors get overwhelmed by the amount of good news according to the magnitude effect, which explains the effect in the highest regions.

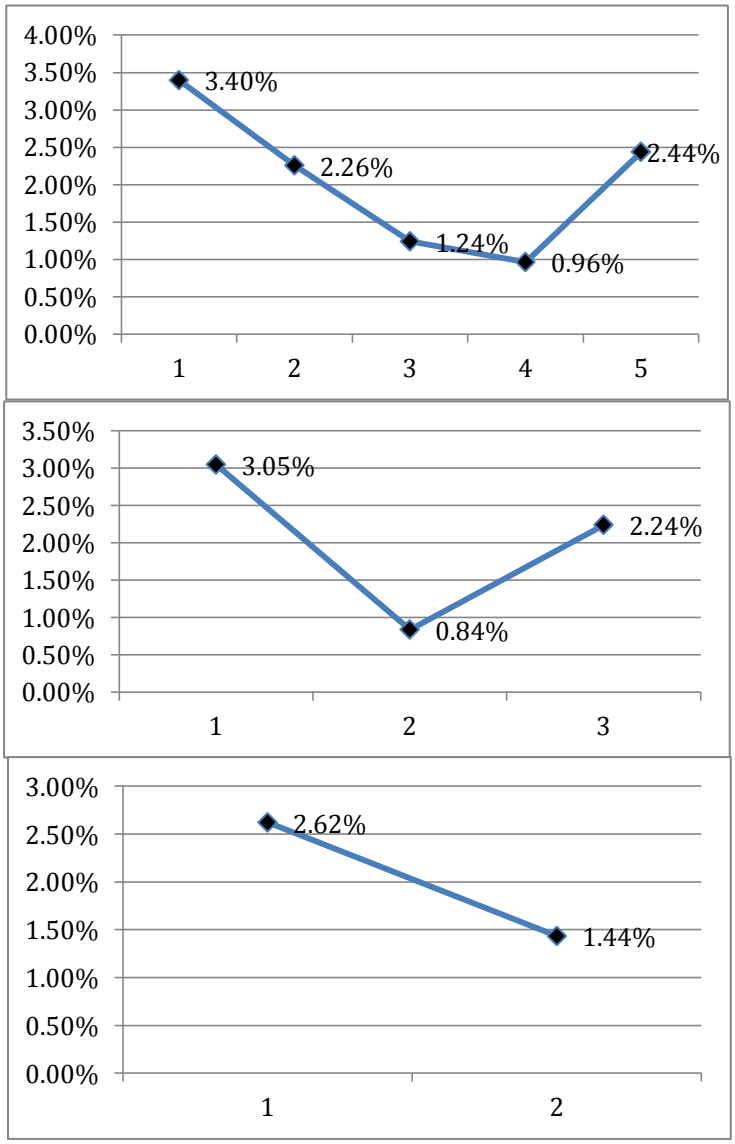


Table 1

Performance Measures for Days Surrounding *the Wall Street Journal* announcement date, AD

Quintiles are based on Payout Ratio

Abnormal returns at the time of the event for all firms and for the 5th quintile are significantly positive. Abnormal return is, on average, higher in the 5th quintile.

Days Relative to	-10	-9	-8	-7	-6	-5	-4	-3	-2	AD	1	2	3	4	5	6	7	8	9	10
A. All Firms																				
AR (%)	0.25%	0.22%	-0.56%	0.50%	-0.28%	0.29%	0.02%	-0.76%	0.08%	2.07%	0.81%	0.04%	-0.08%	-0.28%	0.09%	-0.77%	-0.04%	-0.40%	0.03%	-0.20%
t Value	1.00	.72	-1.79	1.76	-1.00	1.35	.08	-1.87	.20	**3.41*****	1.68	.15	-.35	-1.21	.33	-1.65	-.12	-1.88	.09	-.69
CAR (%)	.0025	.0047	-.0009	.0041	.0013	.0042	.0045	-.0031	-.0023	.0184	.0265	.0270	.0261	.0233	.0242	.0165	.0161	.0121	.0123	.0104
B. Quintile 1																				
AR (%)	0.94%	0.45%	-0.50%	1.14%	-0.63%	0.73%	0.15%	-1.71%	1.06%	3.40%	0.82%	-0.07%	-1.11%	-1.51%	0.44%	0.40%	-1.83%	-1.16%	0.43%	-0.75%
t Value	1.085	.453	-.732	1.147	-.459	1.218	.130	-1.528	.500	2.013	.723	-.188	-2.034	-2.414	.585	.552	-1.746	-2.044	.552	-.872
CAR (%)	.0094	.0139	.0089	.0203	.0140	.0213	.0228	.0057	.0162	.0502	.0584	.0577	.0467	.0316	.0359	.0399	.0216	.0101	.0143	.0069
C. Quintile 2																				
AR (%)	0.55%	0.71%	0.84%	-0.29%	-0.42%	0.61%	0.83%	-0.30%	0.80%	2.26%	-0.14%	0.30%	0.21%	-0.89%	0.42%	-2.93%	-0.28%	-0.18%	-0.19%	-1.15%
t Value	1.525	1.267	2.166	-.741	-1.306	1.931	1.240	-.953	1.925	.276	-.120	.268	.877	-2.003	.621	-1.272	-.744	-.258	-.149	-1.547
CAR (%)	.0055	.0126	.0209	.0181	.0139	.0199	.0282	.0252	.0332	.0558	.0544	.0575	.0596	.0507	.0549	.0256	.0228	.0211	.0191	.0076
D. Quintile 3																				
AR (%)	-0.41%	-0.31%	-1.08%	0.82%	0.02%	-0.27%	0.01%	-0.74%	-0.29%	1.24%	-0.01%	0.55%	0.30%	0.89%	-0.61%	-0.08%	-0.17%	0.05%	-0.12%	0.26%
t Value	-.995	-.368	-2.111	.940	.042	-.521	.031	-2.38*	-.646	1.312	-.020	1.036	.429	1.341	-1.020	-.168	-.292	.118	-.209	.553
CAR (%)	-.0041	-.0072	-.0181	-.0098	-.0096	-.0123	-.0122	-.0196	-.0225	-.0101	-.0102	-.0047	-.0016	.0073	.0012	.0005	-.0013	-.0008	-.0020	.0006
E. Quintile 4																				
AR (%)	0.12%	0.17%	-1.01%	-0.05%	-0.32%	0.32%	-0.83%	0.69%	-0.28%	0.96%	2.81%	-0.09%	0.33%	-0.31%	1.11%	-0.06%	1.36%	-0.61%	-0.30%	-0.60%
t Value	.166	.344	-1.419	-.097	-.760	.601	-1.683	.504	-.409	.587	1.560	-.123	.560	-.829	1.252	-.104	1.381	-1.574	-.529	-.824
CAR (%)	.0012	.0030	-.0071	-.0076	-.0108	-.0076	-.0159	-.0091	-.0118	-.0022	.0259	.0250	.0283	.0252	.0363	.0357	.0492	.0431	.0401	.0341
F. Quintile 5																				
AR (%)	-0.01%	-0.65%	0.32%	0.63%	-0.14%	-0.41%	0.05%	-0.57%	-0.33%	2.44%	1.05%	-0.30%	-0.13%	0.32%	-0.72%	-0.96%	0.70%	0.04%	0.01%	0.40%
t Value	-.016	-1.662	.595	1.433	-.516	-.830	.127	-1.477	-.702	**3.04****	.974	-.688	-.252	.913	-2.40*	-2.163	1.753	.083	.052	.925
CAR (%)	**-.0001**	**-.0065**	**-.0033**	**.0030**	**.0016**	**-.0025**	**-.0020**	**-.0077**	**-.0110**	**.0134**	**.0238**	**.0208**	**.0196**	**.0228**	**.0156**	**.0060**	**.0131**	**.0134**	**.0135**	**.0175**

*0.05

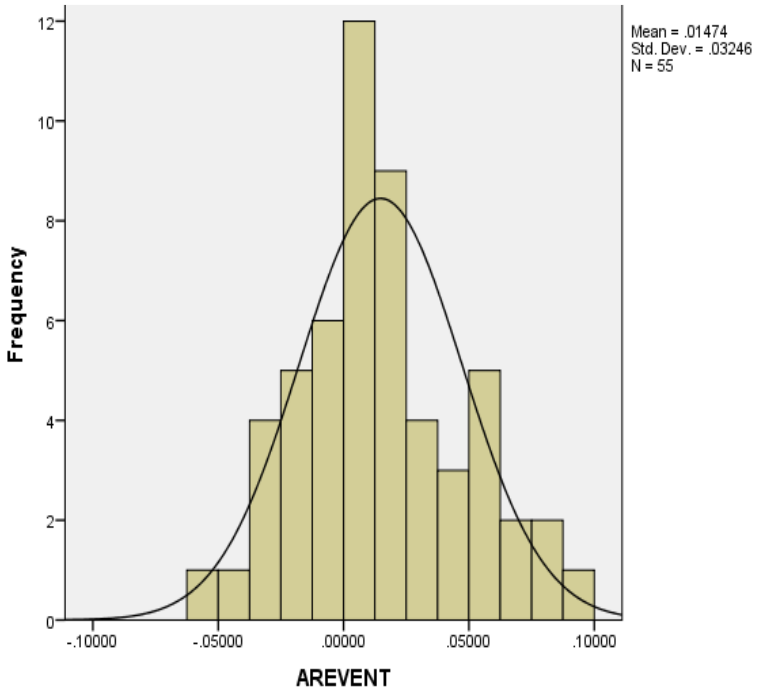
**0.025

***0.005

Two-sided test

Figure 3

The upper figure corresponds to table 4 and the lower figure corresponds to table 3. It shows that excluding the two outliers in the 3rd quintile (figure 4) does not influence results. The pattern in AR (figure 2) is not due to outliers.



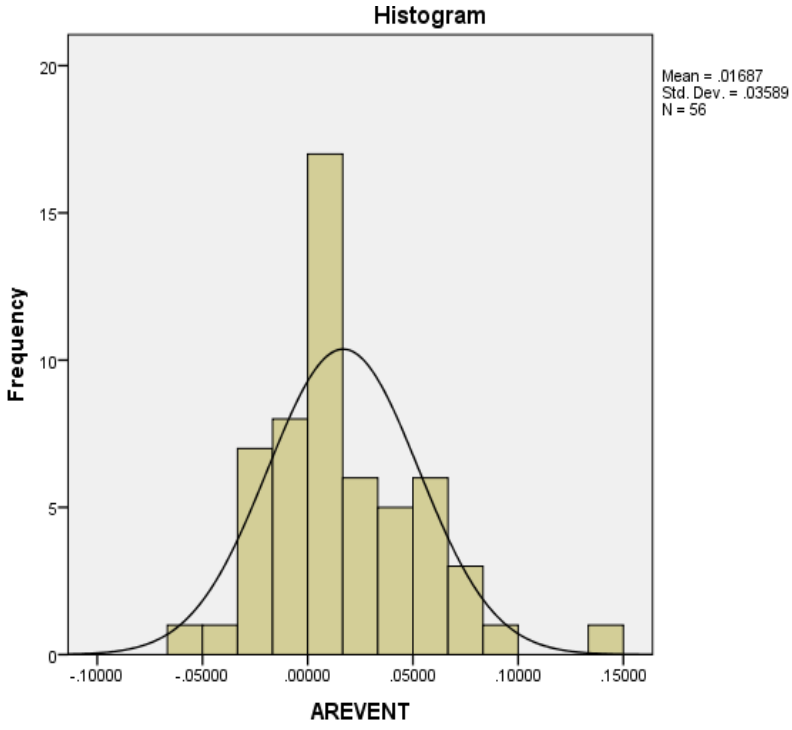


Table 3

Performance Measure Event Specific with Quintiles based on Payout Ratio, excluding largest observation ar=0.23368

Exluding only the largest observation does not change outcomes.

	A. All firms		B. Quintile 1		C. Quintile 2		D. Quintile 3		E. Quintile 4		F. Quintile 5	
	CAR (%)	***t* Value**	CAR (%)	*t* Value	CAR (%)	*t* Value	CAR (%)	*t* Value	CAR (%)	*t* value	CAR (%)	*t* value
Days in holding period[a]												
-1 to AD	**1.69%**	**3.51******	3.40%	1.38	2.26%	2.01*	1.24%	1.31	0.96%	.59	**2.44%**	**3.04*****
-1 to AD	**1.69%**	**3.51******	3.05%	2.00*	0.84%	1.14	**2.24%**	**2.22****				
-1 to AD	**1.69%**	**3.51******	**2.62%**	**2.44*****	**1.44%**	**1.94***						

[a]The holding period includes the beginning and ending date

Two-sided test

*0.10

**0.05

***0.025

****0.005

Table 4

Performance Measure Event Specific with Quintiles based on Payout Ratio, excluding the 2 largest observation ar=23.37% and ar=13.39%

Excluding the largest 2 observations does not change outcomes.

	A. All firms		B. Quintile 1		C. Quintile 2		D. Quintile 3		E. Quintile 4		F. Quintile 5	
	CAR (%)	***t* Value**	CAR (%)	*t* Value	CAR (%)	*t* Value	CAR (%)	*t* Value	CAR (%)	*t* value	CAR (%)	*t* value
Days in holding period[a]												
-1 to AD	**1.47%**	**3.37******	3.40%	1.38	2.26%	2.01*	1.24%	1.31	0.96%	.59	**2.44%**	**3.04*****
-1 to AD	**1.47%**	**3.37******	3.05%	2.00*	0.84%	1.14	**2.24%**	**2.22****				
-1 to AD	**1.47%**	**3.37******	**2.62%**	**2.44*****	**1.44%**	**1.94***						

[a]The holding period includes the beginning and ending date

Two-sided test

*0.10

**0.05

***0.025

****0.005

Table 5

Difference in Significance of CAREVENT between Quintiles

There are no significant differences in abnormal return between quintiles based on payout ratio. This means the effect is small.

There are significant differences in abnormal return between quintiles based on cash dividend and cash dividend / cash.

Whether investors actually perceive these measures is left for regression analysis.

Conducted with a paired differences t-test assuming unequal variances.

		A. Cash Dividend Quintiles		*B. Cash Dividend / Cash Quintiles*		*C. 5 Payout Ratio Quintiles*		*D. 3 Payout Ratio Quintiles*		*E. 2 Payout Ratio Quintiles*	
Base Quintile	Comparison Quintile	*t* value	CAR (%)	*t* value	CAR (%)	*t* value	CAR (%)	*t* value	CAR (%)	*t* value	CAR (%)
1	2	-1.26	-3.52%	-0.78	-1.43%	0.48	1.14%	1.31	2.21%	.91	1.07%
	3	0.34	0.57%	**-2.58****	-3.02%	0.90	2.21%	0.44	0.81%		
	4	1.69	2.01%	-0.59	-0.52%	0.86	2.43%	-1.15	-1.40%		
	5	**-0.04**	**-0.07%**	**-1.77**	**-2.55%**	**0.34**	**0.96%**				
2	1	-1.26	3.52%	-0.78	1.43%	0.48	-1.14%				
	3	**2.17***	4.09%	-0.84	-1.59%	0.69	1.07%				
	4	**2.11***	4.89%	1.29	2.35%	0.64	1.29%				
	5	1.52	3.46%	-0.63	-1.12%	-0.12	-0.18%				
3	1	0.34	-0.57%	-2.58**	3.02%	0.90	-2.21%				
	2	2.17*	-4.09%	-0.84	1.59%	0.69	-1.07%				
	4	1.65	1.44%	**1.83***	2.51%	0.17	0.22%				
	5	-0.55	-0.64%	0.32	0.47%	-1.29	-1.25%				
4	1	1.69	-2.01%	-0.59	0.52%	0.86	-2.43%				
	2	2.11*	-4.89%	1.29	-2.35%	0.64	1.29%				
	3	1.65	0.64%	1.83*	-2.51%	0.17	-0.22%				
	5	**-2.10***	-2.07%	-1.43	-2.03%	-0.79	-1.47%				
5	1	-0.04	0.07%	-1.77	2.55%	0.34	-0.96%				
	2	1.52	-3.46%	-0.63	1.12%	-0.12	0.18%				
	3	-0.55	-0.64%	0.32	-0.47%	-1.29	1.25%				
	4	-2.10*	2.07%	-1.43	2.03%	-0.79	1.47%				

*0.10

**0.05

***0.025

****0.005

Table 6

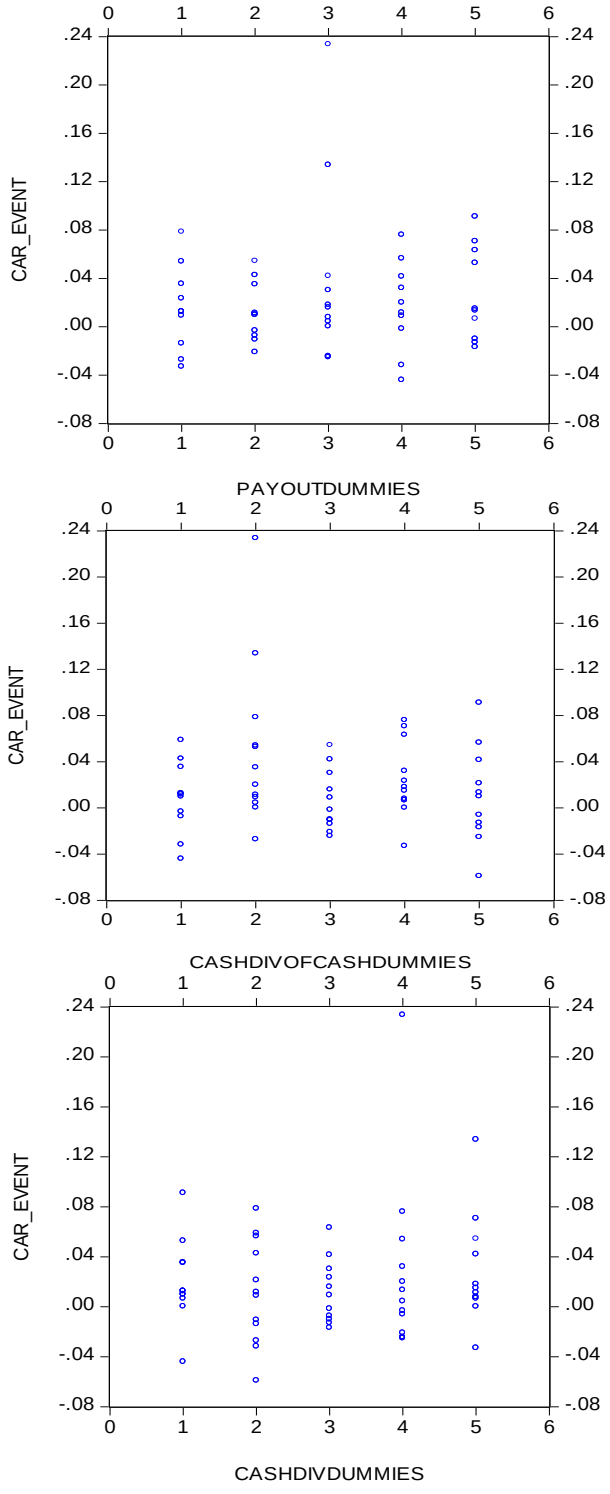
Difference in CAR for holding period (-1, AD) between high and low initial cash dividend payout
No significant difference for payout ratio. There is a significant difference in cash dividend.
Whether this means something is left for regression analysis.
Conducted using an independent samples t-test

	CAR (%)	*t* value
A. Cash Dividend		
< 50%	3.31%	-2.075*
>= 50%	0.87%	
B. Cash Dividend / Cash		
< 50%	1.73%	0.545
>= 50%	2.40%	
C. Payout Ratio		
< 50%	2.62%	-0.911
>= 50%	1.44%	

Two-tailed test
*0.05
**0.025
***0.005

Figure 4

An examination of where the clouds of observations are of AR with respect to dividend size measures: payout ratio, cash dividend, and cash dividend / cash. The first graph shows there are two outliers in the 3rd quintile and no outliers in the 1st and 5th quintile, which could explain the pattern in figure 2. The other two figures show that observations are also spread moderately evenly across quintiles.



Appendix 2.2: Regression Analysis

Table 7

CAPM-model with extension. The dependent variable excess return is defined as: the stock's average return in the quarter of the dividend initiation minus the risk free yield on 10 year US government bonds in the quarter of the firm's dividend initiation.

The market return is defined as: the equal-weighted return in the quarter of the firm's dividend initiation minus the risk free yield on 10 year US government bond in the quarter of the firm's dividend initiation.

The intercept represents Jensen's alpha and measures whether there exist abnormal returns on average during the quarter of the firms' dividend initiation.

Industry classification is based on 2-digit SIC codes, where the base category is transportation and public utilities. The industries are: mining, construction, manufacturing, retail trade, services, public administration, and non classifiable establishments.

Season refers to the quarter of the firm's dividend initiation, where the base categories are quarter 3 and 4 (July until end of the year).

This model is not valid because it measure the average abnormal return during the quarter of the dividend intiation, which is a too large time frame for measuring the effects of the announcement. However, this model does prove that the stocks in the sample are of very low risk, which is a beneficial sample feature in this stu

The base category for all quintiles is the 5th quintile.

T-values are in parentheses. F-values are given for grouped dummy variables: A - F.

Dependent variable: Excess Return

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Intercept	-0.025	-0.055	-0.055	-0.055	-0.051	-0.05539	-0.054	-0.057	-0.054
	(-5.70)****	(-13.76)****	-11.16)***	(-11.29)****	9.32)****	10.15)****	(-6.10)****	(-5.88)****	(-6.20)****
A. Market return	0.199	0.208	0.208	0.208	0.209	0.20265	0.197	0.201	0.207
					(13.55)**				
	(6.83)****	(13.95)****	13.78)***	(14.59)****	**	(9.48)****	(8.25)****	(8.14)****	(8.98)****
B. Payout ratio		(1.22)					(1.09)		
Quintile 1		0.010					0.005		
		(1.51)					(0.67)		
Quintile 2		0.004					0.003		
		(0.58)					(0.37)		
Quintile 3		-0.002					-0.007		
		(-0.37)					(-0.98)		
Quintile 4		-0.004					-0.007		
		(-0.63)					(-0.89)		
C. Cash Dividend / Cash			(0.57)						
Quintile 1			0.005					0.007	
			(0.70)					(0.88)	
Quintile 2			0.006					0.005	
			(0.87)					(0.75)	
Quintile 3			0.001					-0.005	
			(0.09)					(-0.55)	
Quintile 4			-0.003					-0.001	
			(-0.40)					(-0.07)	
D. Cash Dividend				**(2.20)***					**(2.17)***
Quintile 1				0.013					0.015
				(1.94)*					**(2.03)****
Quintile 2				0					0.000
				(0.06)					(-0.04)
Quintile 3				-0.004					-0.002
				(-0.63)					(-0.32)
Quintile 4				-0.003					-0.003
				(-0.42)					(-0.39)
E. Industry					(0.52)		(0.41)	(0.54)	(0.55)
Construction					-0.011		-0.012	-0.009	-0.006
					(-0.63)		(-0.67)	(-0.50)	(-0.32)
Manufacturing					-0.004		-0.005	-0.004	-0.005
					(-0.59)		(-0.70)	(-0.59)	(-0.76)
Mining					0.001		0.001	0.001	0.001
					(0.11)		(0.17)	(0.06)	(0.18)
Non classifiable establishments					0.006		0.007	0.012	0.009
					(0.57)		(0.60)	(0.93)	(0.80)
Retail trade					0.003		0.002	0.003	0.000
					(0.38)		(0.25)	(0.31)	(0.06)
Services					-0.007		-0.006	-0.006	-0.007
					(-0.85)		(-0.70)	(-0.75)	(-0.86)
F. Season						(0.13)	(0.33)	(0.26)	(0.28)
Quarter 1						0.006	0.006	0.006	0.002
						(0.28)	(0.66)	(0.61)	(0.24)
Quarter 2						0.003	0.005	0.005	0.004
						(0.50)	(0.79)	(0.71)	(0.69)

Two-sided test

*0.10

**0.05

***0.025

****0.005

Table 8

The Fama-French-model with extentions. The same descriptions for the dependent and independent variables hold as for the CAPM-model. Size is defined as the firm's market capitalization. Small means a market capitalization smaller than 2 billion US dollars and large means larger than 2 billi dollars, in the quarter prior to the announcement. B/M Ratio is defined as the book value of the firm's shareholder's equity divided by the market capita in the quarter prior to the announcement. A high B/M Ratio refers to a ratio larger than 1, where the firm is undervalued. The original Fama-French model notes smaller stocks and high B/M ratios capture risk and help explain excess return, therefore these ratios are used in the subsequent models. The Fama-French model is captured in the third model, because small size and large B/M ratio are the reference categories. The Fama-French model, here, is not an improvement upon the CAPM-model.

Dependent variable: Excess Return

Intercept	-0.0551	-0.0564	**-0.050**	-0.054	-0.057	-0.063	-0.059
			(-17.49)**	(-12.89)****	(-4.42)****	(-5.31)****	(-4.50)****
A. Market return	0.211	0.208	**0.213**	0.211	0.200	0.206	0.209
			(14.23)**		(7.91)****		
	(13.86)****	(13.67)****		(13.98)****		(8.05)****	(8.70)****
B. Fama-French Variables	(0.63)	(0.14)	**(1.55)**	(0.81)	(0.07)	(0.43)	(0.14)
Size (small)		0.001		0.002	0.001	0.005	0.001
		(0.21)		(0.46)	(0.22)	(0.56)	(0.23)
Size (large)	-0.005		**-0.006**				
	(-1.01)		**(-1.14)**				
B/M Ratio (high)	0.004	0.003			0.002	0.007	0.003
	(0.68)	0.492			(0.31)	(0.92)	(0.46)
B/M Ratio (low)			**-0.009**	-0.008			
			(-1.51)	(-1.40)			
C. Payout ratio					(0.96)		
Quintile 1					0.006		
					(0.70)		
Quintile 2					0.003		
					(0.36)		
Quintile 3					-0.007		
					(-0.87)		
Quintile 4					-0.006		
					(-0.69)		
D. Cash Dividend / Cash						(0.74)	
Quintile 1						0.007	
						(0.80)	
Quintile 2						0.005	
						(0.71)	
Quintile 3						-0.006	
						(-0.65)	
Quintile 4						-0.002	
						(-0.31)	
E. Cash Dividend							(2.02)
Quintile 1							**0.015**
							(2.03)**
Quintile 2							0.001
							(0.17)
Quintile 3							-0.002
							(-0.22)
Quintile 4							-0.002
							(-0.27)
F. Industry					(0.35)	(0.48)	(0.49)
Construction					-0.012	-0.010	-0.007
					(-0.69)	(-0.53)	(-0.38)
Manufacturing					-0.0046	-0.00376	-0.005
					(-0.58)	(-0.50)	(-0.61)
Mining					0.001	0.001	0.001
					(0.14)	(0.07)	(0.18)
Non classifiable establishments					0.007	0.013	0.009
					(0.55)	(0.93)	(0.77)
Retail trade					0.002	0.002	0.001
					(0.21)	(0.21)	(0.07)
Services					-0.006	-0.006	-0.007
					(-0.65)	(-0.72)	(-0.80)
G. Season					(0.37)	(0.43)	(0.40)
Quarter 1					0.006	0.004	0.002
					(0.63)	(0.57)	(0.26)
Quarter 2					0.006	0.005	0.006
					(0.85)	(0.71)	(0.82)

Two-sided test
*0.10
**0.05
***0.025
****0.005

Table 9

The dependent variable is defined as the cumulative abnormal return for the stock at the time of the announcement (AD) and the day before (-1).
The indepent variable car_event_control is defined as the cumulative abnormal return in the control period, either 14 days or 9 days before the dividend initiation.
The control period is chosen before the event, because the event could change the investors reaction towards the stock after the announcement.
The following models use the control period of 9 and 10 days before AD, because the control period (-15, -14) has a counterintuitive sign on the slope parameter.
An increase in the control period's return should result in an increase in the event's abnormal return. Therefore, control period (-10, -9) is more representative of a 'normal' control period. F-values for CAR_EVENT_CONTROL (-15, -14) and (-10, -9) are tested as H0: bi=1, because bi=1 would imply a perfect correlation between abnormal return and normal return. The size of the cash dividend has an explanatory effect on abnormal return, since the intercept shrinks as these variab are included. No significant total effect for all three measure: payout ratio, cash dividend, and cash dividend / cash.
If there does exist an effect of size of the dividend on abnormal return, it must be a very small one.
T-values are in parentheses. F-values are given for variables: A - F.
Dependent Variable: CAR_EVENT

Intercept	**0.020**	**0.020**	0.018	0.010	**0.030**	-0.013	**-0.008**	0.011
	(3.20)* **	**(3.31)*** **	(1.60)	(0.78)	**(2.12)** **	(-0.66)	**(-0.41)**	(0.51)
A. CAR_EVENT_CONTROL (-15, -14)	**-0.069**							
	(-5.52)** **							
B. CAR_EVENT_CONTROL (-10, -9)		0.079				0.234	0.048	0.135
		(-5.10)****				(-4.03)****	(-5.19)****	(-4.03)****
C. Payout Ratio			(0.61)			(1.14)		
Quintile 1			-0.003			0.013		
			(-0.17)			(0.59)		
Quintile 2			-0.006			-0.008		
			(-0.34)			(-0.43)		
Quintile 3			0.021			**0.035**		
			(1.17)			**(1.70)***		
Quintile 4			-0.001			0.014		
			(-0.08)			(0.72)		
D. Cash Dividend / Cash				(2.03)			(1.73)	
Quintile 1				-0.001			-0.001	
				(-0.08)			(-0.06)	
Quintile 2				**0.040**			**0.042**	
				(2.18) **			**(2.16)** **	
Quintile 3				-0.004			-0.001	
				(-0.21)			(-0.06)	
Quintile 4				0.014			0.012	
				(0.74)			(0.63)	
E. Cash Dividend					(0.42)			(0.39)
Quintile 1					-0.010			-0.010
					(-0.48)			(-0.46)
Quintile 2					-0.018			-0.014
					(-0.94)			(-0.69)
Quintile 3					-0.017			-0.023
					(-0.88)			(-1.04)
Quintile 4					0.000			-0.002
					(-0.01)			(-0.09)
F. Industry						(1.22)	(0.87)	(0.88)
Construction						0.039	0.029	0.047
						(0.81)	(0.60)	(0.92)
Manufacturing						**0.038**	**0.030**	0.029
						(1.90)*	**(1.69)***	(1.47)
Mining						-0.017	-0.020	-0.007
						(-0.75)	(-0.94)	(-0.33)
Non classifiable establishments						-0.025	-0.005	-0.013
						(-0.81)	(-0.15)	(-0.42)
Retail trade						0.025	0.022	0.026
						(1.04)	(0.94)	(1.06)
Services						0.020	0.008	0.012
						(0.89)	(0.74)	(0.51)

Two-sided test
*0.10
**0.05
***0.025
****0.005