ARE DIVIDENDS AND SHARE REPURCHASES SUBSTITUTES?
EVIDENCE FROM THE REACTION OF FINANCIAL ANALYSTS

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Doctor of Philosophy

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by
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ARE DIVIDENDS AND SHARE REPURCHASES SUBSTITUTES?

EVIDENCE FROM THE REACTION OF FINANCIAL ANALYSTS

presented by ANAMARIA C. DICKSON, a candidate for the degree of Doctor of Philosophy,
and hereby certify that, in their opinion, it is worthy of acceptance.

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DEDICATION

I dedicate this work to my parents, especially to my father, who has always dreamt that I would become a doctor one day. I know you wanted me to be part of the medical profession, but I hope you will be happy with having a doctor in finance in the family. Although we have been apart for the last 16 years, I felt your love and support from across the ocean every single day. Thank you!

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ABSTRACT

In this study, I propose a novel test that can contribute towards resolving whether repurchases do in fact substitute for dividends. I contend that using the reactions of financial analysts to announcements of dividends initiations / increases and share repurchases can effectively test whether repurchases do substitute for dividends. If the substitution hypothesis holds, then the analysts' changes in recommendations following the announcement of a dividend initiation or increase and a repurchase announcement should be the same, *ceteris paribus*. My findings show that when analysts' reactions include no changes, positive and negative changes in recommendation, dividends and repurchases are viewed as substitutes. However, when there is an actual change in the analysts' recommendation following a distribution announcement, the analysts downgrade more and upgrade less the firms that announce share repurchases programs as opposed to dividend initiations / increases. They are also more likely to make a recommendation change when there is a share repurchases announcement. Further, I explore whether the analysts' preference might be justified. Specifically, I investigate how the signal quality of the payout method, the potential for earnings management of the payout method, or behavioral biases might play a role in the analysts' decision making process. I find that, given an actual change in recommendation, financial analysts upgrade less and downgrade more firms with share repurchases announcements when the firms are associated with higher earnings management, during period of higher demand for dividends, and when the firms have been downgraded in the month preceding the announcement. Financial analysts view dividends and repurchases as substitutes post 2004 and when repurchases are classified as serial repurchases.

1. INTRODUCTION

The purpose of this study is to test the substitution hypothesis of dividends and share repurchases using the financial analysts' reaction at the announcement of such events. The existing literature provides mixed results on whether or not dividends and share repurchases are substitutes. The substitution issue serves as the research focus of this paper.

Publicly traded companies in the U.S use two main distribution channels to return cash to their investors: dividends and share repurchases. Share repurchases have become the preferred form of earnings distribution during the past two decades, with several authors documenting an increase in recent share repurchases activity (Jagannathan, Stephen and Weisbach, 2000; Brockman and Chung, 2001 ; Jagannathan and Stephens, 2003).

At the same time, a number of studies report a decline in firms' propensity to pay cash dividends. Fama and French (2001) find a sharp decline in the percentage of dividend-paying firms since 1978 even after controlling for the change in firm characteristics most associated with dividend payment. Allen and Michaely (2003), Baker and Wurgler (2004), and Amihud and Li (2006) document the same dividend disappearing phenomenon. This combination of an increase in share repurchases programs and the decline in the number of dividend paying firms has led finance researchers to ask whether share repurchases might substitute for cash dividends as a form of earnings distribution to shareholders.

Empirically testing the substitution hypothesis, however, has produced mixed results. Grullon and Michaely (2002) find evidence in support of the hypothesis, while Dittmar (2000) concludes that cash dividends and share repurchases are not substitutes. Existing tests of the substitution hypothesis focus on the correlation between share repurchases activity and the dividend forecast error (Grullon and Michaely, 2002), or the relation between share repurchases and the dividend payout ratio (Dittmar, 2000).

In this study, I propose a novel test that can contribute towards resolving whether repurchases do in fact substitute for dividends. I contend that using the reactions of financial analysts to the announcements of dividends initiations / increases and share repurchases can effectively test whether repurchases do substitute for dividends. I define the analysts' reaction as the change in their recommendation following the distribution announcement. Hence, the analysts' reaction to an earnings distribution announcement can take one of the following forms: no change, positive change, and negative change. Given the role of analysts in disseminating value-relevant information to investors, I chose to focus on their reaction to dividend initiations / increases and share repurchases announcements. Dividend initiations or increases and repurchases are distributions to the shareholders and the focus of the paper is on the substitution of the two payout methods. Dividend cuts and / or omissions are ignored since they represent cuts or decreases of payout to the shareholders and there is no repurchase analogy to a dividend cut.

If dividends and share repurchases are substitutes for each other, then analysts' reactions should be identical to both types of announcements, *ceteris paribus*. We should not find that analysts are more likely to have a favorable (unfavorable) reaction to one form of distribution announcement relative to another, *ceteris paribus*. Hence, analysts should have no preference regarding dividends or repurchases if the substitution hypothesis is correct.

In a perfect market, the valuation of two firms, identical in all respects except their choice of payout, should lead to similar intrinsic values if dividends and repurchases are perfect substitutes. The effect of repurchases and dividends on the firms' balance sheet is the same: reduction in the cash balance by the amount of the repurchases or dividends, accompanied by a drop in the book value of equity by the same value. Hence, to the extent that the analysts' recommendations are based on a firm's valuation, any change in recommendation should be in the same direction if dividends and repurchases are substitutes. *Ceteris paribus*, if analysts change a firm's recommendation following the

announcement of a dividend initiation or increase then they should make a corresponding change for a firm following a repurchase announcement. Analysts will not be more likely to upgrade or downgrade a firm based on the firm's payout method, suggesting a preference for a particular way to distribute earnings. Alternatively, a preference for one form of distribution over the other provides evidence against the substitution hypothesis.

My findings point out to two different pictures based on the financial analysts' reaction to the dividend initiations /increases and share repurchases announcements. The analysis shows that the analysts view the two forms of distribution as substitutes when I consider all three possible reactions from the financial analysts in the computation of my dependent variable: no changes, positive changes, and negative changes. However, when the dependent variable reflects only the analysts' changes in recommendations (eliminate "hold" recommendations), the results show that analysts downgrade more and upgrade less the share repurchasing firms following the distribution announcement.

The results of this study contribute to the finance literature in several ways. First, they contribute to the growing literature on payout policy by providing a new test of the substitution hypothesis. Currently there is mixed evidence on whether share repurchases are substitutes for cash dividends. The validation of the substitution hypothesis has implication for existing theories regarding corporate distributions, can help us better understand current trends in corporate payout practices, and may have implications for firm valuation. If analysts are more likely to give favorable recommendation to one type of distribution over another, then managers should be more inclined to use the preferred method for providing payout to shareholders. My findings point out that the magnitude of an upgrade and downgrade by the financial analysts following an announcement depends on the type of the earnings distributions announced, with firms with share repurchases announcements being upgraded less and downgraded more. However, the difference in upgrades and downgrades for dividends and

share repurchases announcements is not statistically significant starting with 2004 which is consistent with the substitution hypothesis.

Second, the study contributes to the corporate governance literature. Financial analysts are part of the external system of corporate control, providing external monitoring for the companies they follow and serving as information intermediaries in the stock market. The results of this study can provide insight regarding their effectiveness as monitors. For example, analysts might prefer dividends to share repurchases when repurchases are used to mask earnings management, which imply that analysts are effective external monitors. My findings show that conditional of an actual change in recommendation present, financial analysts upgrade less and downgrade more the repurchasing firms associated with a higher level of discretionary accruals, my proxy for earnings management.

Third, my findings contribute to the behavioral finance literature. Several studies suggest that analysts suffer from cognitive biases which might explain their tendency to overreact or underreact to information contained in earnings announcement (De Bondt and Thaler, 1990; Mendenhall, 1991; Easterwood and Nutt, 1999). If analysts are biased in their revisions of recommendations forecast post earnings announcements, they might also exhibit biases in their reactions to dividend and repurchases announcements. Analysts might be influenced by the institutional investors beliefs about firms and provide recommendations that are consistent with these beliefs. Hence, the analysts might cater to institutional investors. Analysts might also not be willing to accept evidence that contradicts their beliefs about firms, thus exhibiting confirmation bias. In this paper I examine how these behavioral biases: catering and confirmation bias might affect the analysts' decision making process and explain why analysts might have a preference for one form of earnings distribution over another. My findings show that analysts downgrade more share repurchasing firms in periods with higher demand for dividends as well as repurchasing firms that have been downgraded in the month preceding a share

repurchase announcement. I find no evidence that financial analysts cater to institutional investors' preference for dividends.

2. THEORETICAL DISCUSSION

In this section I describe how existing theoretical developments in economics, accounting and behavioral finance can be used to explain the analysts' reaction to earnings distribution announcements. The finance literature documents that announcements of dividends initiations / increases trigger a reaction from the financial analysts' community in the form of recommendations changes or earnings forecast revisions. Ofer and Siegel (1987), Carroll (1992), and Denis, Denis and Sarin (1994) find significant analyst forecast revisions following dividend changes and the revisions are directly related with the direction of the change.

The evidence regarding analysts' reaction to share repurchases announcement however is mixed. Hertznel and Jain (1991) and Bartov (1991) show that analysts revise upward their earnings per share forecast following such announcements and provide a signaling explanation for their findings. Zhu and Westphal (2010) suggest that analysts issue more positive earnings forecasts after share repurchases announcements even if they are not convinced that the repurchase enhances firm value. They contend that analysts underestimate the extent to which other analysts have reservations about repurchases plans, and consequently tend to issue more positive earnings forecasts despite their reservations. Alternatively, some evidence indicates a negative reaction by analysts to the announcement of share repurchases. Studies by Vermaelen and Peyer (2009) and Chou and Lin (2004) suggest that analysts actually downgrade companies that announce share repurchases plans either because they have downgraded the firm prior to the announcement and are unlikely to admit a possible mistake, or they perceive the announcement as camouflaging earnings management by the firm.

Financial analysts might be more favorable towards dividend-paying firms and less favorable in their recommendations and revisions towards those firms that distribute their earnings via repurchases. This preference might be justified by several reasons: the signal quality of the payout method, the potential for earnings management of the payout method, or for behavioral biases.

Evidence of an analyst preference for one form of distribution relative to the other, is inconsistent with dividends and repurchases serving as substitutes.

2.1 Signaling

Financial analysts might exhibit a preference for one form of earnings distribution over another because of differences in the signaling ability of the two methods. In his seminal paper, Spence (1973) posits that the problem of asymmetric information can be mitigated through signaling. Companies use various devices to reduce or eliminate information asymmetry between managers and investors. Dividends initiations / increases and share repurchase announcements are two common mechanisms available to signal management's optimism regarding future earnings and growth prospects.

Based on the communication theory, we can think of the signaling process as a three components-system. The first component is the sender, which in the case of dividends or repurchases is the firm making the announcement. The second component is the signal, which is the announcement itself. The last component is the receiver, who is the financial analyst. The receiver's response to a signal is based on his interpretation of the signal and that interpretation may or may not correspond to the senders' intended objective. So, a key component for signaling effectiveness is the correct interpretation of the signal because this interpretation creates, alters, or confirms expectations. The sender might chose signals with various attributes to signal his beliefs.

The finance literature on signaling equates a high quality (credible) signal to a costly signal (Ross 1977, Bhattacharya 1979, Kalay 1980, Myers and Majluf, 1984, Miller and Rock, 1985). I argue that two other attributes of the financial signal, strength and clarity, are important and increase the probability that the receiver's interpretation of the signal is in alignment with the sender's intentions. Therefore, I propose that the existence of three signal's characteristics may facilitate the interpretation process and hence, lead to the outcome anticipated by the sender. These signal characteristics are cost, strengths, and clarity. Consequently, a signal's quality can be modeled as:

$$\text{Signal quality} = f(\text{cost, strength, clarity})$$

Hence, a high quality signal will be costly, strong and clear. A high quality signal is a signal interpreted by the receiver as intended by the sender. Financial analysts as receivers in the signaling process might show a preference for one payout method given the cost, strength and/or clarity of the signal.

2.1.1 Signal's Cost

Spence (1974) and Ippolito (1990) show that for a signal to serve its purpose it must have a "bonding" feature so that a false signaler incurs a cost. The presence of the cost component prevents poor-quality firms from mimicking good-quality firms and provides reliability to the signal. I define signal cost as the monetary and reputational costs associated with the act of signaling. The fact that dividends once issued are seldom decreased and almost never omitted (see De Angelo, De Angelo 1990, De Angelo, De Angelo, and Skinner 2004, Daniel, Denis and Naveen 2008) make dividends a costly signal. By contrast, firms are not obligated to follow through and complete repurchases and no penalty is imposed on them (Hribar, Jenkins, and Johnson 2006, Whang, Strong, Tung, and Lin 2009). Basically firms can announce share repurchasing programs even if they have no immediate intention to execute them. For example, in a sample of 2,297 firm repurchase announcements from 1985 to 1995, Bhattacharya and Dittmar (2004) find that 46% of the announcing firms do not purchase any shares in the quarter of or the quarter following the announcement. Moreover, as opposed to fixed-price repurchases, open-market repurchases authorize firms to buy back shares, but no binding commitment is required. At the same time, open-market repurchases are the most used method to repurchase shares, accounting for 94.3% of all repurchases announced in the 1990s (Grullon and Ikenberry, 2000).

Given the ongoing commitment of dividends and the non-binding character of share repurchases, dividend initiations or increases are a costlier signaling device. Thus, analysts might have a preference for dividends as a more costly signal regarding the firm's profitability and future revenue growth.

2.1.2 Signal Strength

Ramaswami, Dreher, Bretz, and Wiethoff (2010) introduces the concept of “signal strength” to study the impact of mentoring on career success in a corporate environment. In their study, the “signal strength” is linked to the type of mentor that can most advance a protégé’s career. I define signal strength as the signal’s ability to indicate confidence in a future outcome. A sender with a high level of confidence in a currently unobservable outcome will chose a stronger signal than a sender who is less certain about the future. Hence, one distribution method to shareholders might be a stronger signal of confidence in future prospects than another.

The value of the firm, like the value of any asset, comes from its potential to generate future cash flows. While transient cash flows may temporary increase the value of the firm, a permanent increase in earnings is preferred and will provide greater value enhancement. Although firms use dividends and share repurchases to signal better future prospects, it is important to distinguish between permanent and transitory increases in earnings. Graham, Cannice, and Sayre (2002) find that analysts associate high quality of earnings with earnings with a greater permanence.

The results of Lintner’s (1956) survey show that managers perceive a dividend cut as a negative signal sent to the market. Consequently, they hesitate to increase dividends, fearing a reversion to previous levels later in the future. Due to this “sticky” nature of dividends, firms are reluctant to initiate or increase dividends if they do not expect a permanent improvement in earnings. Jagannathan, Stephens, and Weisbach (2000) find that dividends are initiated or increased following a permanent increase in cash flows. Healy and Palepu (1988) observe that firms that initiate dividends increase earnings in the previous year, during and for two years following the announcement. Other survey evidence shows that a dividend cut is the action of last resort, after assets are sold off, employees are laid off, or the firm undertakes heavy borrowing (Brav et al. 2005, Kothari et al. 2009). Contrary to dividends, a share repurchase plan can be a “one time deal” not driven by permanent earnings. Guay

and Harford (2000) find that firms distribute temporary earnings through share repurchases while they chose to increase dividends when the earnings growth is more permanent.

The empirical evidence discussed above shows that firms distribute permanent earnings through dividends and temporary earnings with share repurchases. Therefore, a firm that opts to repurchase shares rather than initiate/ increase dividends might signal greater uncertainty in future cash flows than a firm announcing a dividend initiation or increase. Consequently, I argue that dividends are a stronger signal of managerial confidence in the firm's future prospects. Hence, analysts are more likely to respond positively to announcements of dividend initiation / increases, *ceteris paribus*.

2.1.3 Signal's Clarity

The clarity of a signal can also enhance its quality. The clarity of a signal is the attribute that gives a unique interpretation to the signal. By contrast, a signal that lacks clarity is ambiguous and can be interpreted in different ways. A clear signal does not allow for multiple meanings. Heil and Robertson (1991) contend that a clear signal is easy to read by the receiver and that dissemination of a clear signal suggests that the sender desires a "quick competitive reaction." Hirst and Hopkings (1998) investigate the impact on the analysts' valuation judgment of the issuance of the Statement of Financial Accounting Standards No:130 (1997) calling for "clear" comprehensive income reporting and find evidence that the clarity of disclosure positively influences analysts' valuation judgments.

According to the signaling hypothesis, firms use dividends to convey favorable information about future prospects. Existing literature interprets the announcement of dividends initiation/ increases as an indicator of management's confidence in long run earnings, or as an indicator of a decrease in firm's risk (Asquith and Mullins, 1983; Dyl and Weigand, 1998).

Unlike dividends, share repurchases are associated with messages other than conveying favorable information about future earnings or risk. The empirical evidence show that firms use share repurchases to accomplish numerous objectives. Bagwell and Shoven (1989) and Howakimian, Opler

and Titman (2001) find that firms repurchase shares to change their capital structure. Jolls (1998), Fenn and Liang (2001), Kahle (2002) provide evidence on repurchases used to offset the potential EPS dilution effect of executive or employees stock options, and Dann and De Angelo (1983), Denis (1990), Dittmarr (2000) show that firms can use share repurchases to dissuade hostile takeovers.

It appears that dividends and repurchases differ in terms of their signal clarity. The multiple uses of repurchases make such announcements an ambiguous and noisy signal relative to dividend initiation / increases announcements. Therefore, analysts might prefer dividends over repurchases as a clearer signal of the firm's future prospects.

2.2 Potential for Earnings Management

Financial analysts might exhibit a preference for one form of earnings distribution over another because of their potential use in earnings management. A major input in analysts' forecasting and valuation models is earnings. Therefore the analysts' perception of earnings quality has real implications as far as recommendations are concerned. Analysts are interested in more than just the level of earnings per share that the firms report. The quality and sustainability of earnings are important, as well as the various actions firms take to achieve these earnings. Earnings management, which produces a lower earnings quality or higher current earnings per share at the expense of future prospects, should lead to an unfavorable response by analysts. Barker and Imam (2008) use both an interview approach and content analysis to explore how analysts understand earnings quality and use its interpretation to create equity research reports. They find that analysts use both accounting and non-accounting information to assess earnings quality. Barker and Imam (2008) show that when analysts have a negative perception of earnings quality they are unlikely to issue a buy recommendation while when the perception is positive they are very unlikely to recommend a sell.

Unlike dividends, share repurchases, with open-market repurchases in particular, are associated with various forms of earnings management. Surveys on managers' reasons to initiate a share

repurchases program identify earnings per share as the main reason for the decision to repurchase (Brav et al., 2005; Badrinath and Varaya 2000). Share repurchases reduce the number of shares outstanding and consequently increase the earnings per share when the price earnings ratio is higher than the opportunity cost of funds used to fund the repurchase (Hribar et al., 2006).

When management's compensation is linked to stock performance, managers have a strong motivation to boost stock prices. Zhang (2010) investigates the relationship between share repurchases and performance-based executive compensation. He finds that repurchases are both more likely to occur and are larger in firms where the CEO's bonus is explicitly tied to earnings per share. Hribar et al. (2006) shows that repurchases are used to boost reported earnings. They find that some firms use repurchases to meet analysts' expectations and miss the analysts' forecasts when they fail to repurchase. Marquardt, Tan and Young (2011) find that firms prefer accelerated share repurchases plans over open-market plans when executive bonus compensation is tied to earnings, the repurchase is EPS accretive, or when the managers are more entrenched.

Another form of earnings management occurs prior to the repurchase announcement when managers have incentives to reduce the repurchasing price. For instance, Gong, Louis, and Sun (2008) examine firm performance following repurchases announcements. They find that firms which repurchase shares intentionally deflate earnings using negative abnormal accruals to minimize the cost of buybacks. Moreover, their results show that the level of downward earnings management is an increasing function of CEOs ownership.

Share repurchasing firms might engage in various type of earnings management either prior to the repurchase or through the repurchase itself. This potential for earnings management questions the earnings quality of such firms. Firms that announce dividend initiation or increases, however, are less likely to be associated with earnings management. Therefore, we might see that financial analysts have a preference for dividend-announcing firms as opposed to repurchasing firms.

2.3 Behavioral Biases

Financial analysts might have a preference for dividend paying firms or for repurchasing firms because of behavioral biases. Financial analysts are considered sophisticated users of financial information. However, the “expert” status does not preclude them from being subject to behavioral biases. By analogy, mutual fund’s managers are also considered sophisticated users of financial information, yet various studies show that they too exhibit various behavioral biases. Choi and Lou (2008) show that mutual fund managers are susceptible of self-serving attribution bias. Chow, Lin, Lin and Weng (2009) find overconfidence bias in mutual fund managers, and Adebambo and Yan (2016) explain the momentum effect through overconfidence bias.

The literature identifies several biases in analysts’ forecasts: herding, over optimism, conflict of interest (Welch 2000, O’Brien, McNichols, and Lin 2005, Clarke and Subramanian 2006). In the following section I address why and how two behavioral biases, catering and confirmation bias, might explain the analysts’ preference regarding a payout method.

2.3.1 Catering

Analysts might reveal a preference for one form of earnings distribution due to clientele catering. Typically, analysts work for brokerage houses which derive trading revenues from institutional investors. Statman, (1999), Hong and Kubik, (2003), and Fang (2009) suggest that financial analysts cater to their direct clients. The direct clients are the institutional investors who are not only the main readers of financial analysts’ reports, but have a direct impact on analysts’ compensation through the fees paid to the analysts’ employers. In addition, several prominent financial publications consider the institutional investors’ input in the process of ranking financial analysts (Boni and Womack, 2002). Lai (2004) proposes a model adapted from Mullainathan and Shleifer (2005) concerning how financial analysts cater to their direct clients. He finds support for catering producing a bias in analysts’ recommendation.

Potential loss of business and concerns about compensation or career opportunities raise the possibility that analysts cater to institutional investors. The analysts' reactions to the announcements of dividend initiations or share repurchases could be influenced by the preferences of institutional investors. If institutional investors prefer share repurchasing firms over dividend paying firms, catering financial analysts might decide to issue more favorable recommendations for these types of firms.

2.3.2 Confirmation Bias

Confirmation bias might also explain why analysts have a preference for one distribution type relative to another. Klayman (1995) defines "confirmation bias" as "an inclination to retain, or a disinclination to abandon a currently favored hypothesis". Therefore, people with a confirmation bias overweight the evidence consistent with their views while underweighting contradictory evidence (Shefrin, 2001).

This confirmation bias is operational in the analyst mistake hypothesis of Vermaelen and Peyer (2009). This hypothesis contends that firms initiate share repurchases plans as a reaction to prior downgrades from the analysts' community. The firms believe they are unfairly undervalued and announce repurchases to signal their undervaluation to the market. Vermaelen and Peyer argue that financial analysts are unlikely to admit a possible "mistake" and continue to downgrade the earnings forecasts for the repurchasing firms, with the most significant downgrade occurring during the announcement month. The analysts' reaction is consistent with confirmation bias since they can see the firm's decision to repurchase shares as an action that contradicts their own opinion about the firm's value.

It is unlikely however, that firms will initiate or increase dividends to react to analysts' downgrades due to the sticky nature of dividends and the consequent lack of financial flexibility. Hence, dividend paying firms are less likely to be a source of confirmation bias among analysts'

recommendations. Therefore, because of the presence of confirmation bias, analysts may show a preference for dividend- paying firms.

3. HYPOTHESIS DEVELOPMENT

In this section I develop a set of hypothesis centered around two research questions: (1) are dividends and share repurchases perceived as substitutes by the financial analysts? (2) under what circumstances do financial analysts perceive dividends and share repurchases as substitutes? I propose that if there is a preference for one form of earnings distribution over another, the preference is influenced by the quality of the signal sent by the announcing firms, the potential for earnings manipulation of the two forms of earnings distribution, and by behavioral issues. I develop the arguments in greater detail below.

3.1 Substitution hypothesis

In this study I test the substitution hypothesis by comparing analysts' reaction to dividend initiation / increases and share repurchase announcements. The analysts' reaction is defined as the change in their recommendations following the event's announcement. If dividends and share repurchases are perfect substitutes, then analysts should react similarly to each type of announcement *ceteris paribus*. Consequently, my first hypothesis is:

H1: There is no difference in analysts' reactions to dividend initiations / increases and share repurchase announcements.

3.2 Signal Quality

An analyst's preference for one form of distribution over another might be based on some difference in one of the three components of signal quality. If the strength, the cost, and/or the clarity of dividend and repurchases announcements are comparable, an analyst's preference should be less pronounced or perhaps non-existent. I propose that the factors that make a signal's attributes more comparable between repurchases and dividends will result in smaller differences in an analyst's reaction to these announcements.

The frequency of repurchase can make dividends and repurchases more comparable signals. If a firm is a serial repurchaser, then a successful implementation of a repurchase plan in the past can be an indicator that the firm actually does what it claims. Therefore, the signal sent by a serial repurchasing firm is viewed as stronger and hence improves the signal's quality. In addition, Jagannathan and Stephens (2003) show that firms with more frequent repurchases have similar characteristics to firms that increase dividend payments. Consequently, I hypothesize that:

H2: The difference in analysts' reaction to dividend initiation / increase and share repurchase announcements is smaller if the firms are serial repurchasers.

The signal's quality can also be enhanced when the regulatory environment calls for more transparency and greater disclosure, therefore increasing the cost of the signal in monetary terms, reputational terms, or both. The monetary costs arise from the additional administrative work needed to comply with the regulations. Reputational costs are due to the fact that enhanced transparency and disclosure eases the process of identifying the firms that do not behave in the manner they claim. Because firms establish a reputation by fulfilling their promises, failure to fulfill these promises lead to a loss of reputation which prevents them from effective signaling in the future (Herbig and Milewicz, 1983). This phenomenon is even more pronounced when the market can easily separate the firms that fulfill their promises from those that do not.

Beginning in March 15, 2004, The Securities and Exchange Commission through modification of Rule 10b-18 of the Securities Exchange Act of 1934, requires all publicly traded firms to report the number of shares repurchased as part of the publicly announced plan, the average price paid per share, as well as the maximum number of shares remaining under other repurchasing plans. The motivation behind these changes is that a higher level of disclosure helps investors become better informed about the firms' repurchasing activity. Although the SEC requirement does not mandate completion of repurchases, it allows for identification of firms that fail to do so. Simkovic (2008) and Bonaime

(2011) investigate the impact of this regulatory change on the behavior of repurchasing firms and find a significant increase in the completion rates of repurchase plans for the post 2004 subperiod. Their findings suggest that share repurchase announcements post 2004 are less likely to be considered as “cheap talk” than prior to the change.

The need for greater disclosure imposed by the new SEC regulation requires additional accounting and administrative labor which involves greater monetary costs. Further, enhanced transparency makes it easier for investors to detect management cheap talk, (i.e. firms that announce repurchases but do not complete the announced plans). A firm falling into the “no completion” category could be perceived as false signaler, incurs a loss of credibility, and any future signals that it might send will be discounted by the market. Firms might be more cautious before making such announcements, since sending a deceitful signal to the market will detract from the firm’s reputation. Hence, I argue that firms announcing repurchases post 2004 are more likely to subject themselves to reputational monitoring. Because of this increased monitoring of the repurchasing firm, the quality of a share repurchase announcement as a signal improves in the post 2004 period. Therefore, I hypothesize:

H3: The difference in analysts’ reactions to dividend initiation / increase and share repurchase announcements is smaller post 2004.

3.3 Earnings Management

As explained in section 2, firms may announce share repurchases plans while engaging in earnings management. Chou and Lin (2004) find that managers adjust discretionary accruals around share repurchases announcements to make the earnings look “higher”. Motivated by these “higher” earnings, managers claim that the shares are undervalued and announce an open market repurchase plan to boost share price. Chou and Lin show, however, that analysts are not fooled by these accounting

maneuvers and react negatively to share repurchases announcements. Specifically, they find that analysts revise their earnings forecasts downwards in the month of share repurchase announcement.

Repurchases accompanied by earnings management make the process of forecasting earnings more challenging because it is difficult to determine earnings quality. Uncertainty about the quality of earnings can trigger a negative reaction from the analyst community. Hence, based on the potential for earnings management I propose that:

H4: The difference in analysts' reaction to dividend initiation / increase and share repurchase announcements is larger when the repurchase is accompanied with greater earnings management.

3.4 Behavioral Issues

3.4.1 Catering to investors sentiment

Difference in analysts' reaction to dividends and share repurchases might also be influenced by investor sentiment regarding dividends. Baker and Wurgler (2004) show there are times when investors place a premium on dividend paying stocks and managers respond to this preference by initiating dividends payments. They further argue that the demand for dividend-paying stocks is driven by investor sentiment. Several studies find that analysts respond to investor sentiment when making earnings forecasts (Clement et al. 2010; Mikhail et al. 2009). Bagnoli, Clement, Crawley and Watts (2010) examine the profitability of stock recommendations when analysts respond to investor sentiment. They find that analysts issue more favorable recommendations when investor sentiment is high. Further, they determine that recommendations on stocks that are more sensitive to investor sentiment are more profitable when analysts align with current investor sentiment. Consequently, I propose:

H5: The difference in analysts' reactions to dividend initiation / increase and share repurchase announcements is larger in periods when the dividend premium is high.

3.4.2 Confirmation Bias

As noted earlier, financial analysts might suffer from a confirmation bias. Financial analysts suffering from confirmation bias judge evidence inconsistent with their prior beliefs differently from that which is supportive. By downgrading a firm's stock, analysts assert that the stock's current trading price is higher than they think warranted. By announcing a repurchase plan, however, a firm indicates that the current trading price is lower than it should be. Therefore, when analysts hold a negative view about a firm, as indicated by a previous downgrade or sell recommendation, the announcement of a share repurchase can be seen as refutation of the analyst's opinion.

If these analysts also suffer from a confirmation bias, then they are unlikely to change their recommendations in spite of evidence suggesting that the firm's equity is undervalued. Vermalen and Peyer (2009) show that financial analysts continue to downgrade firms announcing share repurchases when the repurchase follows an earlier analyst downgrade. Because of the potential for confirmation bias, analysts are unlikely to revise their downgrades even after the announcement of a share repurchase. Therefore, I hypothesize that:

H6: The difference in analysts' reactions to dividend initiation / increase and share repurchase announcements is larger for firms that have been downgraded prior to the repurchase announcement

3.4.3 Catering to institutional investors

Financial analysts might adjust their recommendations and revise earnings forecast to reflect the preferences of institutional investors. Analysts might cater to institutional investors to generate revenues for their brokerage houses or for reasons related to performance ratings and career concerns (Statman, 1999; Hoje Jo, 2003; Hong and Kacperczyk, 2009). Boni and Womack (2003) show that sell side analysts have favorable views on the stocks held by their institutional investors' clients. They also show that the pressure of institutional investors is the main motivation for such favorable views.

Assuming that institutional ownership reflects institutional preference regarding a firm's financial policies, and that analysts cater to these institutional investors, I propose:

H7: Analysts' reactions to dividend (share repurchase) announcements are positively (negatively) related to the dividend preferences of the firm's institutional investors.

4. DATA AND VARIABLES CONSTRUCTION

The sample for this study consists of a set of U.S. publicly traded firms with earnings distribution announcements for the period 1993 through 2015. To be included in the sample, a firm must be covered by at least one analyst, must have a regular dividend initiation, a regular dividend increase announcement, or at least one open market share repurchase plan announcement. I consider a firm to have a dividend initiation announcement if the firm has not paid dividends in the prior ten years. A firm has a dividend increase announcement if the regular cash dividend declared for the current quarter is greater than the paid dividend in the prior quarter. Consistent with Dittmar (2000), I exclude financial institutions and public utilities because of the extensive regulation present in these industries. I also eliminate firms that have both a share repurchases announcement and a dividend increase /initiation announcement within the 60 days window because I cannot distinguish to which announcement the analysts react. Further, I require that all firms in the sample have financial accounting information on COMPUSTAT and stock price information available on Center for Research in Securities Prices (CRSP). I begin the analysis with 12,220 observations.

I use the Institutional Brokers Estimate System (I/B/E/S) database to extract the variable of interest: the monthly consensus in analysts' recommendations. The Summary Recommendation file contains the consensus recommendations for each stock where the mean recommendation is computed on the third Thursday of the month using all the recommendations outstanding for a given stock. I use the consensus in analysts' recommendations to compute the dependent variable for the analysis: the change in analysts' recommendation following the announcement. The recommendation change (*Rec_Change*) is computed as the mean recommendation before the announcement date minus the mean recommendation after the announcement. The time span between the two recommendations is up to 60 days. The number of days between an announcement and a new recommendation ranges from

0 to 29 with a mean of 14.18 days. A positive number for the *Rec_Change* variable indicates that the analysts upgrade the firm' stock.

For all firms with I/B/E/S coverage, I obtain the announcement dates for open market share repurchases and the amount from the Securities Data Corporation (SDC) Mergers and Acquisitions database. Additionally, I obtain information on the name of firms announcing a repurchase, the repurchase announcement date, status of repurchase program, type of repurchase, the amount authorized for repurchase, as well as the number and the percentage of shares sought to be repurchased from SDC. Following Jagannathan et al. (2000), I eliminate duplicate entries for repurchases announcements when necessary.

I collect the announcement dates for regular cash dividend initiations or increases from the annual stock event file from (CRSP) database together with stock price and stock return. I exclude special dividends, dividends defined as year-end, and dividends paid in foreign currency.

I use the Thomson Reuters Spectrum 13F database to collect information on portfolio holdings of institutional investors. The database contains filings of quarterly holding by institutional investors to the SEC. Institutional investors consist of banks, insurance companies, mutual funds, investment advisors, pension funds, and university endowment funds. For each firm in the sample I extract data on institutional holdings in the quarter prior to announcements to assess the institutional investors' preference (or lack thereof) for dividend payers based on their holdings prior to dividend initiations /increases or share repurchase announcements.

Lastly, I obtain the annual dividend premium variable from Professor Jeffrey Wurgler's website. The value- weighted dividend premium variable is available monthly and annually from 1960 to 2015.

Table 1 summarizes the major dataset sample descriptive statistics for this study. Panel A shows the distribution of firms across the time period under observation as well as the average number of

analysts following them. Consistent with findings in prior literature, the number of analysts following the firms is increasing for both groups during the period under analysis. The number of firms announcing dividends initiations / increases declines up until 2002, but there is a comeback after 2002. Share repurchases announcements are generally increasing over time with a significant drop in 2009. Panel B presents statistical data on the analysts' recommendations prior and post the announcements as well as on the distribution announcement itself. The mean recommendation is 2.19 prior to the announcement and 2.20 after the announcement, suggesting a slight downgrade overall following an announcement. Firms initiate an average \$0.44 dividend on an annual basis and have a 14% increase in dividends on average from the prior quarter. The average amount authorized for repurchases is \$515 million. Panel C presents the mean for the control variables for the entire sample, as well as for the two groups. The group with dividend initiation / increases is larger, more levered, shows better accounting and market performance. The repurchases group has a higher distribution of earnings. Panel D shows the sample distribution based on Fama French 12 industry classification. However, since I exclude finance and utilities companies, there are only ten industries represented. The business equipment industry has the highest concentration of firms in the dividend group, followed by the miscellaneous industry classified as "others", and wholesales. The share repurchases firms have the highest concentration in manufacturing industry, followed by "others" and wholesales.

5. METHODOLOGY AND RESULTS

5.1 Substitution Hypothesis

The substitution hypothesis states that dividend and share repurchases are substitute forms of earnings distribution. Hence, holding everything else constant, there should be no difference in analysts' change in recommendations between dividend announcements and share repurchases announcements.

5.1.1 Initial Results

I first test the substitution hypothesis using a univariate analysis with the change in recommendation as the variables of interest. I perform the analysis using five different sample: the entire sample, a sample that consists of all dividend initiations and share repurchases announcements, a sample that consists of all dividend increases and share repurchases announcements, a sample that consists of all dividends and small share repurchases announcements, and a sample of firms with all dividends and large share repurchases announcements. A small repurchases announcement is an announcement with a total value authorized for repurchase scaled by the market capitalization below the mean, while a large repurchase announcement is an announcement with a total value authorized for repurchase larger than the mean. I maintain this frame throughout most of the subsequent analysis. Table 2 presents the results for the univariate analysis. The results show that analysts downgrade firms after both types of announcements. An explanation would be that dividend initiations and repurchases might signal that the firms have fewer profitable investments, so the growth would slow down going forward. Also, for the dividend increases subset, it is possible that the announced increases in dividends was less than the amount expected by the market. The analysts also downgrade firm with repurchases announcements more than the ones with dividend announcements. The difference in means is significant at 1% level for all categories except for the sample of dividend initiations and share repurchases. The univariate analysis suggests that, in general, analysts have a preference for dividend

announcements versus share repurchases which is evidence against the substitution hypothesis. They view the two types of announcements as substitutes in the case of dividend initiations and share repurchases.

5.1.2 Multivariate Analysis

I next test the hypothesis in a multivariate regression framework. I use a pooled Ordinary Least Square (OLS) with clustered errors across firms where the dependent variable is the change in analysts' recommendations. I also use a logistic regression to see if the likelihood of a change in recommendation depends on the type of the announcement. The regression models are:

$$Rec\_change_{j,t} = \beta_0 + \beta_1 * SRP + \beta_2 * \sum Firm\_Char_{j,t-1} + \varepsilon_{i,j,t} \quad (1)$$

$$P(Y=1) = \beta_0 + \beta_1 * SRP + \beta_2 * \sum Firm\_Char_{j,t-1} + \varepsilon_{i,j,t} \quad (2)$$

where $Rec\_change_{j,t}$ is the change in the consensus recommendation for the firm j at time t . I compute the variable Rec_change by subtracting the mean recommendation after the announcement from the mean recommendation before the announcement. This way, a positive value of the dependent variable indicates an upgrade from the financial analysts. Y is a variable equal to 1 if there was a change in the analysts' recommendation after an announcement, SRP is an indicator variable equal to 1 if the firm announces a share repurchases plan and 0 if the firm announces a dividend initiation or increase, $Firm\_Char_{i,t}$ is a vector of firm characteristics. I control for firm size, leverage, return on assets, amount of distribution announced, cumulative daily return between the two analysts' recommendations, and the standard deviation for the returns. I also control for the presence of earnings announcements between the analysts' recommendation dates. I use an indicator variable $EA=1$ if there was an earnings announcement, and 0 otherwise. A complete definition of the control variable is provided in the Appendix 2.

Table 3 shows the results of the OLS regression with the Rec_change as the dependent variable. Panel A shows the results for the entire sample, the dividend initiations and share repurchases category,

and the dividend increases and share repurchases category. The variable of interest *SRP* is not statistically significant in any of the three cases, suggesting that dividends and repurchases are viewed as substitutes by the financial analysts. In panel B, I classify the dividend increases group into tertile based on the percentage increase in the amount of dividend announced. Here, again, there is no difference in analysts' reaction to the two type of announcements. The same result holds true when I divide the repurchases firms into small and large repurchases in panel C, where the cutoff point for division is the mean of the amount of repurchase announced scaled by the market capitalization of the firm.

The financial analysts' reaction after an earnings distribution announcement can take one of three possibilities: a hold (no change in recommendation), an upgrade (a positive change in recommendation), and a downgrade (a negative change in recommendation). For approximately 50% of the data, there is no change in analysts' recommendation following the two announcements. I find a change in analysts' recommendations for 48.5% of firms with dividend initiations / increases announcements, and for 49.5% of firms with share repurchases announcements. While maintaining a recommendation is also a reaction to the news, I want to test the hypothesis in scenarios where the analysts actually do make a change, either a positive or a negative one. Hence, I divide the sample into two categories: one with positive changes in analysts' recommendations, and one with negative changes in analysts' recommendations.

Table 4 presents the results of the substitution hypothesis based on the magnitude of the upgrades /downgrades. Panel A shows the results for the sample with positive changes in analysts' recommendations and panel B for the negative changes. Given that the analysts upgrade a firm post an earning distribution announcement, the magnitude of the upgrade is smaller for the repurchasing firms. The coefficient for the *SRP* variable is negative and significant at 1% level for the entire sample, the dividend increases and repurchases sample, and the dividend announcements and small repurchases

sample. The coefficient is marginally significant in the dividends versus large repurchases sample. In the subset of dividends initiation versus share repurchases, the magnitude of upgrades is still negative for the repurchasing firms, but the coefficient is not significant, suggesting that repurchases and dividend initiations are viewed as substitutes. Given a downgrade post the announcement, the downgrade is more pronounced for the repurchasing firms for the entire sample and the subsets, except for the dividend initiations and share repurchases subset. The coefficient for the variable of interest is positive and significant at 1% and 5% level, except for the dividend initiations and share repurchases subset. Table 4 findings show that the type of earnings distribution announcement impacts the magnitude of the change in recommendations in all cases except for the case of dividend initiations and share repurchases.

I also test the substitution hypothesis using a logistic regression considering the likelihood of a change in analysts' recommendation. If substitution hypothesis holds, analysts should not be more likely to make a recommendation change based on the type of earnings distribution announced, *ceteris paribus*. Table 5 presents the results of the test. Panel A shows the results for the entire sample, the dividend initiations and share repurchases category, and the dividend increases and share repurchases category. The analysts are 38% more likely to make a change in recommendations when the firms announce a repurchase. They are more likely to make a change in recommendation when using the entire sample, or the subsets previously described. In the dividend initiations and share repurchases subset, the analysts are still more likely to make a recommendation change for the repurchases group, but the coefficient is only marginally statistically significant. Panel B presents the results when I classify the dividend increases in tertile based on the dividend amount announced. Analysts are 51%, 31% and 37% more likely to make a change in recommendation when there is a share repurchase announcement then for small, medium and large dividend initiations / increases announcements, respectively. In Panel C I test the likelihood of a recommendation change when I classify the

repurchases announcements into small and large. I find that analysts are 34 %, and 52% more likely to make a recommendation change for small (large) repurchases announcements than for dividend initiations/ increases announcements. While, I cannot infer a preference for one form of distribution over the other, the results show that analysts are more likely to change their recommendation for firms with share repurchases announcements which is inconsistent with the substitution hypothesis.

Testing the analysts' reaction to share repurchases and dividend increases /initiations announcement using multivariate analysis produced mixed results. When the dependent variable includes all possible reactions from the financial analysts (no changes, positive changes and negative changes), there is no difference between the two forms of distribution which is consistent with the substitution hypothesis. However, when analyzing the likelihood of a change in recommendation and the magnitude of positive and negative changes, the results show that analysts are more likely to make a recommendation change when the announcement is a repurchase announcement, they upgrade less firms with repurchases announcements and downgrade them more, *ceteris paribus*. These findings are inconsistent with the substitution hypothesis. Only in the subset of dividend initiations and share repurchases there is no statistically significant difference between the two forms of distribution considering the likelihood of a recommendation change or the magnitude of the upgrades / downgrades, suggesting that the analysts view dividend initiations and share repurchases as substitutes.

5.2 Serial Repurchases

The serial repurchases hypothesis states that the difference in analysts' reaction to dividend initiation / increase and share repurchase announcements is smaller if the firms make serial repurchases. In other words, the hypothesis projects that dividend and serial repurchases are viewed more like substitutes. The motivation for the hypothesis comes from the assumption that a company with a history of completed share repurchases programs might send a more credible signal when it announces a new share repurchases plan. I consider a firm to be a serial repurchase if it had completed a repurchase

program prior to the new announcement. A company that has completed a repurchase program has a code of “C” in the SDC database. I exclude from the sample the repurchasing firms that are not classified as serial repurchasers to test the hypothesis. I follow the procedure used in testing the substitution hypothesis. Specifically, I use an OLS regression where the dependent variable includes all analysts’ reactions to the announcements, only the actual changes in the recommendation following an announcement, as well as a logistic regression to test the likelihood of a change. The regression models are:

$$Rec\_change_{j,t} = \beta_0 + \beta_1 * SSRP + \beta_2 * \sum Firm\_Char_{j,t-1} + \varepsilon_{i,j,t} \quad (3)$$

$$P(Y=1) = \beta_0 + \beta_1 * SSRP + \beta_2 * \sum Firm\_Char_{j,t-1} + \varepsilon_{i,j,t} \quad (4)$$

where *SSRP* is an indicator variable equal to 1 if the announcement was a serial repurchase announcement and 0 otherwise.

Table 6 presents the results of the OLS regression with the change in analysts’ recommendation as the dependent variables. I include all analysts’ reactions: no changes, positive changes, and negative changes. Panel A shows the results for the entire sample, the dividend initiations and share repurchases category, the dividend increases and share repurchases category, the dividend and small repurchases, and the dividend and large repurchases. Panel B presents the results when the dividend increases are classified in tertile based on the increase in the amount announced. The coefficient for the *SSRP* variable is not significant in any of the subsamples. The results indicate that the analysts view dividends and serial repurchases as substitutes.

In Table 7 I use the same regression model to test the hypothesis, but the dependent variable includes actual changes in analysts’ recommendation, either positive or negative changes. Panel A presents the regression results where the dependent variable reflects positive changes in the analysts’ recommendation. The *SSRP* coefficient is negative and significant at 5% level in columns 1, 3, and 4. The analysts upgrade less the firms with serial repurchases announcements in the entire sample, in the

sample of dividend increases and repurchases, and in the sample of dividend initiations/ increases and small repurchases. There is no difference in the upgrades between the two categories in the sample of dividend initiations and repurchases, and the sample of dividend increases / initiations and large repurchases. These findings suggest that analysts view dividend initiations and large serial repurchases as substitutes. Panel B shows the results when the change in the analysts' recommendation is a downgrade. The coefficient for the indicator variable *SSRP* is not significant in any of the samples, suggesting that analysts view the two forms of distribution as substitutes when they downgrade the firms post the announcement.

I also examine the likelihood of a recommendation change based on the type of the announcement. Table 8 presents the results of the logistic regression. There is no statistically significant evidence that the analysts are more likely to change their recommendation based on the type of the announcements. This holds true for the entire sample as well as for the other four subsamples.

The results from tables 6, 7, and 8 mainly support the serial repurchases hypothesis. When considering the magnitude of the change in analysts' recommendation and the likelihood of a recommendation change, the dividends and the serial repurchases are viewed as substitutes. The only situation when the results do not support the hypothesis is when the change in analysts' recommendation is an upgrade. The analysts will upgrade less firms announcing repurchases compared to firms announcing dividend distributions even if the firms had already completed a repurchases program, unless the new announced repurchase is a large repurchase, or the new announced distribution is a dividend initiation. In unreported analysis, I also tested the hypothesis using all the repurchasing firms with an indicator variable for serial repurchasers and I obtained similar findings.

5.3 Repurchases post 2004

My third hypothesis states that the difference in analysts' reactions to dividend initiation / increase and share repurchase announcements is smaller starting with the year 2004. One problem with

the share repurchases announcements concerns the credibility of the signal conveyed by the announcement. Since firms are obligated to disclose the number of shares repurchased and the actual price paid among other things starting with 2004, it is easier for investors to identify the firms who announce but do not repurchase. To test the hypothesis I include an indicator variable *Y2004* equal to 1 if the year of the announcement was greater or equal to 2004. The regression models are:

$$Rec\_change_{j,t} = \beta_0 + \beta_1 * SRP + \beta_2 * SRP * Year + \beta_3 * Y2004 + \beta_4 * \sum Firm\_Char_{j,t-1} + \varepsilon_{i,j,t} \quad (5)$$

$$P(Y=1) = \beta_0 + \beta_1 * SRP + \beta_2 * SRP * Year + \beta_3 * Y2004 + \beta_4 * \sum Firm\_Char_{j,t-1} + \varepsilon_{i,j,t} \quad (6)$$

Table 9 presents the results for the OLS regression where the dependent variable reflects all the changes in recommendations (no changes, positive and negative changes). Panel A shows the results for the entire sample, the dividend initiations and share repurchases category, the dividend increases and share repurchases category, the dividend and small repurchases, and the dividend and large repurchases category. The variable of interest *SRP_Year* is the interaction between share repurchases and *Y2004* variable. The results show a positive statistically significant difference between dividend announcing firms and post 2004 share repurchases announcing firms in all cases except for the subset of dividend initiations and repurchases (column 2) and dividends and large repurchases announcements (column 5). It appears that the legislation change did make the repurchases announcement a more credible signal. The sign and the significance of the *SRP_Year* variable suggests that a post 2004 repurchase announcement sends an even more credible signal than a dividend announcement. The results are similar in Panel B where the dividend increases are classified into tertile according to the percentage increase announced. The *SRP_Year* variable is significant at 5% level in the case of repurchases versus medium increases in dividend announcements.

Table 10 shows the results for the magnitude of upgrades and downgrades for the entire sample and the four subsets. There is no difference in upgrades or downgrades between dividend firms and post 2004 share repurchases firms, supporting the hypothesis that dividends and repurchases behave more like substitutes post 2004.

In Table 11 I look at the likelihood of a change in analysts' recommendation. The likelihood of a change in recommendation for firms with post 2004 repurchases announcements is 10% greater than for firms with dividend announcements. However the coefficient *SRP_Year* is not statistically significant in the entire sample or the other four subsets, suggesting that after 2004 analysts are not more likely to make a change in recommendation for firms with repurchases announcements than they are for firms with dividend initiations / increases announcements.

The hypothesis predicts that dividends and repurchases are viewed more like substitutes by the financial analysts after 2004 because of the increased credibility of the share repurchases announcements following the legislation changes. The results suggest that the quality of the repurchase signal improves after 2004. Conditional on an actual change in recommendation present, the type of earnings distributions does not impact the magnitude of upgrades and downgrades issued by the financial analysts. Overall, these findings support the hypothesis.

5.4 Earnings Management

The earnings management hypothesis conjectures that the difference in analysts' reaction to dividend initiation / increase and share repurchase announcements is larger when the repurchase is accompanied with greater earnings management.

I use discretionary accruals in this study to measure the extent to which share repurchasing firms engage in earnings management, since discretionary accruals are widely used and accepted in the accounting literature.(Healy, 1985; DeAngelo, 1986; Jones, 1991; Dechow, Kothari, and Watts, 1998; Dechow and Skinner, 2000; and Kothari et al., 2005). I estimate discretionary accruals as the residuals from the

modified Dechow model (Dechow and Dichev 2002) for each firm that announced a share repurchasing program, in the year of the announcement. I then take the mean absolute value of the discretionary accruals, 0.053, and separate the firms into 2 categories: firms with low discretionary accruals and firms with high level of discretionary accruals. The specific model for calculating the discretionary accruals is provided in Appendix 3. The regression models to test the hypothesis are:

$$Rec\_change_{j,t} = \beta_0 + \beta_1 * SRP\_LowA + \beta_2 * SRP\_HighA + \beta_3 * \sum Firm\_Char_{j,t-1} + \varepsilon_{i,j,t} \quad (7)$$

$$P(Y=1) = \beta_0 + \beta_1 * SRP\_LowA + \beta_2 * SRP\_HighA + \beta_3 * \sum Firm\_Char_{j,t-1} + \varepsilon_{i,j,t} \quad (8)$$

Table 12 presents the results of the OLS regression with the change in analysts' recommendation as the dependent variable. The dependent variable includes all 3 possible situations: no changes, positive changes, and negative changes. *SRP_LowA* and *SRP_HighA* are two indicator variables equal to 1 if the announcement was a repurchase announcement of a firm classified as having low (high) level of discretionary accruals, and 0 otherwise. The findings show no difference in analysts' reaction based on the level of discretionary accruals which proxy for earnings management. The coefficients for the two indicator variables are not significant in the entire sample or in any of the four subsample. The findings do not support the earnings management hypothesis.

Next, I test the hypothesis considering the positive and negative change in the recommendations by the financial analysts. Table 13 presents the results. Panel A shows the findings when the change in analysts' recommendation is an upgrade. Consistent with prior findings, the analysts upgrade less the firms announcing share repurchases, but they upgrade even less the repurchasing firms classified as firms with a high level of discretionary accruals. The coefficient for the *SRP_HighA* is higher than the *SRP_LowA* and significant at 1% level in all cases except for the case of dividends versus large repurchases. Given an upgrade following the earnings distribution announcement, the upgrade is lower

for firms with share repurchases announcements, and even lower for the ones associated with a higher level of earnings management.

Panel B shows the findings when the analysts downgrade the firms post the announcement. Once again, the analysts downgrade more the firms with share repurchases announcements and downgrade even more the ones associated with higher earnings management. The case of dividend versus large repurchases is the only subsample where the coefficient for *SRP_HighA* is not statistically significant. For this subsample, analysts downgrade more the repurchasing firms associated with a lower level of discretionary accruals.

Lastly, I test the likelihood of a change in analysts' recommendation in Table 14. The likelihood of a change in recommendation is 44.5% higher for a firm associated with high level of discretionary accruals and 34.5% higher when associated with low level of discretionary accruals for the entire sample. Except for the subsample of dividend initiations and share repurchases, and the subsample of dividends and large share repurchases, the likelihood of a change in recommendation is greater when the repurchasing firms are associated with a high level of accruals.

The findings support partially the earnings management hypothesis when the financial analysts actually issue a recommendation other than a hold and when the share repurchases are not classified as large repurchases. In unreported results, I tested the hypothesis using an interaction term between firms with share repurchases and the actual level of the accruals. I obtained similar findings with analysts upgrading less the firms with higher level of accruals and downgrading them more.

5.5 Dividend Premium

Baker and Wurgler (2004) argue that managers tend to respond to investors sentiment by issuing / increasing dividends when the demand for dividends is high. Financial analysts also take into consideration the investors' sentiment when making their recommendation. Hence, I expect financial analysts to react more to dividends initiations / increases and share repurchases in periods

with high dividend premium. I use the dividend premium as computed by Baker and Wurgler (2004) as a proxy for investors' sentiment. The dividend premium variable has a range of -50.23 to 17.12 with a mean value of -6.27. The regression model is:

$$Rec\_change_{j,t} = \beta_0 + \beta_1 * SRP + \beta_2 * SRP\_Div + \beta_3 * DPREMIUM + \beta_4 * \sum Firm\_Char_{j,t-1} + \varepsilon_{i,j,t} \quad (7)$$

The *SRP_Div* is the interaction term between the indicator variable *SRP* and *DPREMIUM*, the dividend premium variable. I test the hypothesis using all the values for the dividend premium variable, as well as using only the positive values for the variable.

Table 15 Panel A and Panel B presents the results for the OLS regression when all dividend premium variables are included as well as all the analysts' reactions: no changes, positive changes and negative changes. The coefficient for the interaction term *SRP_Div* is not statistically significant in any of the samples, suggesting that analysts do not view differently the two types of announcements when the dividend premium varies. The same results are in Panel C and D when I only consider the observations with an actual change in analysts' recommendation.

Next, I repeat the analysis using only periods with positive dividend premium. Panels A and B of the Table 16 show the results when all analysts' reactions are included. The substitution hypothesis holds in all samples, with no significant difference for the repurchasing firms. Panels B and C present the results when there is a recommendation change following the announcement. The higher the dividend premium, the lower the upgrade for the repurchasing firms, but the coefficient on *SRP_Div* is not statistically significant. The results also show that the analysts downgrade more firms with repurchases announcements in periods with high dividend premium. The interaction term *SRP_Div* is statistically significant at 5 or 10% level in all cases, except for the case of dividends versus large repurchases firms.

The findings from tables 15 and 16 offer weak support for the dividend premium hypothesis. In general, there is no difference in analysts' reaction to share repurchases and dividend announcements in periods with large dividend premium. They only react differently when they downgrade firms during periods with positive dividend premium. Given that there is a downgrade, they downgrade more firms that announce share repurchases during periods with greater demand for dividends.

5.6 Confirmation Bias

Vermalen and Peyer (2009) show that financial analysts continue to downgrade firms announcing share repurchases when the repurchase follows an earlier analyst downgrade. The confirmation bias hypothesis states that the difference in analysts' reaction to repurchases and dividend initiations / increases announcements is larger when the repurchasing firms have been downgraded prior to the announcement. I classify the firms with a share repurchases program announcement into firms that have been downgraded prior to the announcement and firms that have not been downgraded prior to the announcement. A firm belongs to the downgrade group if the analysts' recommendation issued within 30 days prior to the repurchases announcement was a downgrade. I use an indicator variable *DSRP* equal to 1 if the repurchasing firm has been downgraded prior to the announcement, and 0 otherwise. *NDSRP* is an indicator variable equal to 1 if the repurchasing firm has not been downgraded prior to the announcement, and 0 otherwise. I use the following OLS regression to test the hypothesis:

$$Rec\_change_{j,t} = \beta_0 + \beta_1 * DSRP + \beta_2 * NDSRP + \beta_3 * \sum Firm\_Char_{j,t-1} + \varepsilon_{i,j,t} \quad (8)$$

Table 17 presents the results. In Panel A I include all three analysts' reactions: no changes, positive changes and negative changes. Consistent with the findings throughout the paper when I use all analysts' reactions, there is no statistically significant difference between the prior downgraded firms and firms without a prior downgrade. Panel B and C show the results when there was an actual change in analysts' recommendation following the announcement. Given that a positive reaction is

present, the analysts upgrade less repurchasing firms that belong to the downgrade group. The results hold true for the entire sample, as well as for the four subsamples. The coefficient for the *DSRP* variable is statistically significant at 1% level in all cases except for the subsample of dividend initiations and share repurchases where is only marginally significant. When financial analysts downgrade firms following an earnings distribution announcement, they downgrade more the firms with share repurchasing announcements that have been downgraded prior to the announcement. In addition, they do not downgrade more the repurchasing firms that have not been downgraded before the announcement. While the *DSRP* coefficient is positive and significant at 1 and 5 % level in all cases, the *NDSRP* coefficient is not significant in any subsamples.

The findings from table 17 show no difference in financial analysts' reaction to announcements of dividends and share repurchases with or without a prior downgrade when the dependent variable includes no changes, positive changes, and negative changes in analysts' recommendation. The difference appears when the analysts' reaction to an earnings announcement constitutes an actual change in recommendation. When there is a positive or negative change in analysts' recommendations, firms with share repurchases announcements that have been downgraded prior to the announcement are downgraded more and upgraded less following the announcement. The findings are consistent with the confirmation bias hypothesis.

5.7 Catering to Institutional Investors Preferences

The catering hypothesis links the analysts' reaction to earnings distribution announcements to the institutional investors' preference for dividends. It conjectures that analysts' reaction to dividend initiations/ increases announcements is positively related to the institutional investors' preference for dividends. The opposite is expected for the share repurchases announcements. To test the catering hypothesis, I create a variable, *Institutional_Preference*, to measures the institutional investors' preference for dividends. I use the dividend yields of the institutional investors' holdings in the

quarter prior to a dividend initiation / increase or a share repurchases announcement to compute a weighted dividend yield, where the weights are represented by the stock ownership as percentage of reported holdings, and the dividend yield is the dividend amount paid per quarter by each stock divided by its price at the end of the quarter. I compute the *Institutional_Preference* variable at the firm level as the weighted average by institutional equity ownership of the institutional investors' average equity portfolio dividend yield. Appendix 4 presents detailed description and calculation of the *Institutional_Preference* variable.

I test the hypothesis using an OLS regression with clustered standard errors in the entire sample, only firms with dividend initiations / increases, and only firms with share repurchases announcements. The OLS regression model is:

$$Rec\_change_{j,t} = \beta_0 + \beta_1 * SRP + \beta_2 * Institutional\_Preference + \beta_3 * \sum Firm\_Char_{j,t-1} + \varepsilon_{i,j,t} \quad (9)$$

Table 18 presents the results. The coefficient for the *Institutional_Preference* variable has the opposite sign than my expectations. There is an inverse relationship between the measure for institutional preference for dividends and the change in analysts' recommendation in the entire sample, the dividend announcing firms subsample, and a positive (yet not significant) in the share repurchases announcing firms.

The results do not support the catering to institutional investors' hypothesis. On the contrary, the relationship between my measure of institutional preference for dividends and the analysts' recommendation is a negative one. Because my measure of institutional investors' preference for dividends is based on their stock ownership, my findings are more in line with Ljungqvist et al (2007) who find that analysts' recommendations are negatively associated with the presence of institutional investors' ownership.

6. SUMMARY AND CONCLUSION

Using a set of data from 1998 to 2015, I provide a new test for the substitution hypothesis. I address two issues in this study. One tests the substitution hypothesis by analyzing the financial analysts' reaction to the announcements of share repurchases and dividend initiations / increases, where the reaction is defined as the change in analysts' recommendation following a distribution announcement. The second issue identifies cases in which share repurchases and dividends might be perceived as substitutes by the financial analysts. I hypothesize that analysts might not exhibit a preference for one form of earnings distribution over another under certain conditions. Specifically, I hypothesize that the share repurchases and the dividends are closer substitutes when firms have a history of completed share repurchases programs, after 2004 when The Securities and Exchange Commission through modification of Rule 10b-18 of the Securities Exchange Act of 1934 required more disclosure from the firms announcing repurchases, and during a period with declining demand for dividends, where the demand is proxied by the dividend premium. I use the signaling theory, earnings management concepts, and behavioral theories to explain why analysts might have a preference for dividends versus repurchases. I test the hypothesis using the entire sample as well as the following subsamples: dividend initiations vs. share repurchases; dividend increases vs share repurchases; dividend vs. small share repurchases; dividend vs. large share repurchases. I also use three different scenarios for the dependent variable, *Rec_change*, based on the three possible analysts' reactions: no changes, positive changes, and negative changes.

My results support the substitution hypothesis when the analysts' reactions to earnings distribution announcements include all three possibilities: no changes, upgrades, and downgrades. However, given an actual change in recommendations present, the financial analysts downgrade more and upgrade less the firms with share repurchases announcements.

To identify cases where the two forms of distributions might be perceived as substitutes, I look at two situations where the announcements of share repurchases send a similar signal as the announcements of dividends increases / initiations. The two situations include serial repurchasing firms and firms with repurchasing announcements starting in 2004. In the majority of the situations, I find that financial analysts view serial repurchases and dividends as substitutes. While the magnitude of an upgrade is still lower for serial repurchasing firms announcing small repurchases, there is no difference in upgrades for large repurchases. Also, there is no difference in the magnitude of a downgrade between dividend announcing firms and serial repurchasing firms. The results suggest that firms send a more credible signal when they announce a share repurchases program if they have already completed one prior to the announcement. The signal's quality further improves for the firms with share repurchases beginning in 2004. My findings show no difference in the magnitude of the financial analysts' change in recommendation between firms with dividend initiation/ increases announcements and firms with share repurchases announcements from the year 2004 to 2015. These findings suggest that analysts view dividends and repurchases as substitutes after 2004.

Next I look at the financial analysts' ability to identify firms associated with earnings management by asking whether or not there is a difference in analysts' reaction to the announcements of share repurchases for firms with low and high level of discretionary accruals. In the aggregate sample where the analysts' reaction includes no changes, positive changes, and negative changes, I find no difference in the change in recommendations following share repurchases announcements between firms associated with low or high level of earnings management. However, the magnitude of a positive change is lower for firms associated with higher level of earnings management. The magnitude of a downgrade is higher for firms associated with higher level of earnings management, except for the case of large share repurchases announcements. These findings provide some marginal support to the

hypothesis that financial analysts play an effective role as external monitors for the corporate governance.

The final section of my study focuses on potential behavioral issues facing financial analysts. Specifically, I investigate if / how financial analysts cater to investors' sentiment and to institutional investors, and whether or not financial analysts exhibit confirmation bias. Consistent with my prior findings, I typically see no evidence of catering or confirmation bias when I consider all three possible changes in recommendations (no changes, upgrades, and downgrades) to the earnings distribution announcements. However, I do find that the higher the dividend premium the lower the upgrade and the higher the downgrade for firms with share repurchases announcements in periods with positive dividend premium. I also find evidence for the presence of a confirmation bias in the tests of the magnitude of upgrades and downgrades. Financial analysts upgrade significantly less share repurchasing firms that have been downgraded in the month preceding the share repurchases announcement compared to the ones without a prior downgrade. They also downgrade significantly more this group of firms.

In conclusion, using all financial analysts' reactions to earnings distribution announcements to test the substitution hypothesis I find that dividends and share repurchases are viewed as substitutes, *ceteris paribus*. Conditional of a positive or negative change in recommendation being present, financial analysts do treat dividend announcing firms and share repurchases announcing firms differently. They issue lower upgrades and higher downgrades for the latter following an announcement. The difference disappear for the most part for the firms that make serial repurchases and for the firms that announce the repurchase from 2004 on. The financial analysts also upgrade less and downgrade more firms announcing share repurchases during periods of greater demand for dividends, and when these firms have been downgraded before the announcement, consistent with catering to investors' sentiment and with the confirmation bias hypothesis.

The results of my study have implications for corporate managers and for investors. Considering all possible reactions of financial analysts to share repurchases and dividend initiations / increases announcements, the two forms of earnings distributions are perceived as substitutes. Hence, managers can select either method when setting the payout policy. My findings also show a difference in the magnitude of upgrades and downgrades following the two types of announcements, which is important to investors. Financial analysts upgrade less and downgrade more the share repurchasing firms as opposed to the ones with dividend initiation / increases, which means they see less of potential price appreciations for the stocks of the repurchasing firms. This view can be justified by the signal strengths of the two distributions methods. Holding everything else constant, investors following the analysts' recommendations should prefer dividend announcing firms as opposed to the repurchasing ones, at least short term.

APPENDIX 1: Industry classification

Industry is classified primarily by using Fama-French 12-industry category. This table presents the definition of each industry code used in this study.

Fama-French sectors	Definition
FF1	Consumer Non-Durables -- Food, Tobacco, Textiles, Apparel, Leather, Toys
FF2	Consumer Durables -- Cars, TV's, Furniture, Household Appliances
FF3	Manufacturing -- Machinery, Trucks, Planes, Office Furniture, Paper, Computer Printing
FF4	Oil, Gas, and Coal Extraction and Products
FF5	Chemicals and Allied Products
FF6	Business Equipment -- Computers, Software, and Electronic Equipment
FF7	Telephone and Television Transmission
FF9	Wholesale, Retail, and Some Services (Laundries, Repair Shops)
FF10	Healthcare, Medical Equipment, and Drugs
FF12	Other -- Mines, Construction, BldMt, Transportation, Hotels, Business Service, Entertainment

APPENDIX 2: Definitions of Variables

Variables	Definition
<i>Dependent Variables</i>	
Rec_change	Difference between the average analysts' recommendation before the announcement and after the announcement
<i>Test Variables</i>	
SRP	Indicator variable =1 if the firm announces a share repurchases program, 0 otherwise
SSRP	Indicator variable =1 if the firm announces a share repurchases program and had completed a repurchases program in the past, 0 otherwise
NSRP	Indicator variable =1 if the firm announces a share repurchases program and had not completed a repurchase program in the past, 0 otherwise
SRP_HighA	Indicator variable=1 if the firm announces a repurchases program and it has a high level of discretionary accruals
SRP_LowA	Indicator variable=1 if the firm announces a repurchases program and it has a low level of discretionary accruals
SRP_Div	Interaction term between SRP variable and the dividend premium variable
DPREMIUM	Dividend premium as computed by Baker and Wurgler (2004).
DSRPD	Indicator variable=1 if the firm announces a repurchases program and it has been downgraded by the analysts prior to repurchasing announcement
NDSRP	Indicator variable=1 if the firm announces a repurchases program and it has not been downgraded by the analysts prior to repurchasing announcement
Institutional_Preference	Variable to capture Institutional Investors preference for dividends. See Appendix 4
<i>Control Variables*</i>	
SIZE	Natural logarithm of market capitalization
ROA	Earnings before extraordinary items divided by total assets
ROE	Earnings before extraordinary items divided by total equity
LEVERAGE	Long term debt divided by total assets
DISTRIBUTION	Annual dividend computed as 4 times the quarterly amount announced for the firms with dividend initiations/ increases announcement. The value of repurchases announced divided by the firms market capitalization on the announcement day
EA	Indicator variable =1 if there was an earnings announcement between the two recommendation dates
CUM_RET	Cumulative daily return between the two recommendation dates
STDEVRET	Standard deviation of the cumulative daily return

* The accounting control variables are measured in the fiscal quarter prior to the announcement

APPENDIX 3: Proxy for Earnings Management

To identify the share repurchases firms with potential for earnings management, I use the model proposed by Dechow Dichev 2002 to measure the level of discretionary accruals for each share repurchasing firm in the year of the announcement. The standard deviation of the residuals from the following firm specific regression model is the measure of discretionary accruals.

$$\Delta WC_t = b_0 + b_1 CFO_{t-1} + b_2 CFO_t + b_3 CFO_{t+1} + \varepsilon_t$$

Where

ΔWC is the change in working capital from year t-1 to year t.

It is defined as $\Delta \text{Accounts Receivable} + \Delta \text{Inventory} - \Delta \text{Accounts Payable} - \Delta \text{Taxes Payable} + \Delta \text{Other Assets}$

CFO is the cash flow from operations

APPENDIX 4: Measure of Institutional Investors Preference

To test the catering hypothesis (hypothesis 7), I need a variable that measures the institutional investors preference for dividends. I create the variable *Institutional_Preference* to measure this preference using the dividend yields of the institutional investor's holdings in the quarter before a dividend initiation / increase or a share repurchase announcement occurs. Specifically, I use the following procedure:

- a) Identify the institutional investors holding a sample stock (one that makes a dividend initiation / increase or a share repurchase announcement) in the quarter prior to the announcement (If a situation occurs such that a stock announces a dividend or a share repurchases in a given quarter yet it is not held by any institutional investors, disregard it).
  - a. Example: Stock A announcing a share repurchase plan is owned by the Institutional Investors I1, I2, I3, I4, I5
- b) Compute the institutional investors' ownership for each stock held by institutional investors in the quarter prior to the event's announcement.
- c) For every institutional holder identified in part a), I use his holdings in the quarter prior to the announcement to compute a weighted dividend yield, where the weights are represented by the stock ownership as percentage of reported holdings, and the dividend yield is the dividend amount paid per quarter by each stock divided by its price at the end of the quarter

- a. Ex. Institutional Investor I1 owns the stocks A, B, and C as following:

Stock	# of shares	Price per share at the end of the quarter	Value of shares at the end of the quarter	Dividend Paid per quarter
A	10,000	\$20	=200,000	0.50
B	20,000	\$150	=3,000,000	0
C	70,000	\$10	=700,000	0.35
Total			3,900,000	

The weighted dividend yield for the investor I1 will be: $\frac{200,000}{3,900,000} \times \frac{0.50}{20} + \frac{3,000,000}{3,900,000} \times \frac{0}{150} + \frac{700,000}{3,900,000} \times \frac{0.35}{10}$

- d) Compute the *Institutional_Preference* variable at the firm level as the weighted average by institutional equity ownership of the institutional investors' average equity portfolio dividend yield (computed in part c).

Example: Institutional Investors I1, I2, I3 own 10, 25, and 35 percent respectively of Stock A which announces a dividend increase. The weighted dividend yields in the quarter prior to the announcement for the I1, I2, and I3 are 3%, 5% and 7% respectively. The *Institutional_Preference* for stock A is computed than as:

$$\begin{aligned} \text{Institutional\_Preference} &= (\text{ownership I1}) * (\text{Dividend Yield I1}) + (\text{ownership I2}) * (\text{Dividend Yield I2}) + (\text{ownership I3}) * (\text{Dividend Yield I3}) \\ &= 10\% * 3\% + 25\% * 5\% + 35\% * 7\% = 3.1\% \end{aligned}$$

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Table 1: Data distribution and descriptive statistics

Panel A: This panel shows the total number of firms used in the analysis broken down by the type of earnings distribution announcement, each year from 1993 to 2015. The earnings distributions are classified as repurchases, dividend initiations, and dividend increases. It also shows the average number of analysts following a firm in each category each year.

Year	All Sample		Repurchases		Dividends		Div. Initiations		Div. Increases	
	# Firms	Avg. # of analysts	# of Firms	Avg. # of analyst	#of firms	Avg. # of analysts	# Firms	Avg. # of analysts	# of Firms	Avg. # of analysts
1993	11	2.18	2	2.50	9	2.11	1	1.00	8	2.25
1994	304	7.31	121	5.69	183	8.38	19	3.37	164	8.96
1995	362	7.69	126	6.29	236	8.44	29	2.66	207	9.25
1996	391	7.20	174	6.16	217	8.04	18	5.28	199	8.29
1997	399	7.28	201	6.24	198	8.34	17	5.35	181	8.62
1998	537	6.53	359	5.48	178	8.65	12	7.42	166	8.73
1999	357	7.32	208	6.36	149	8.66	9	3.11	140	9.01
2000	335	8.10	216	7.36	119	9.45	8	5.00	111	9.77
2001	244	8.50	144	7.83	100	9.46	6	4.33	94	9.79
2002	289	7.56	164	6.74	125	8.63	6	4.83	119	8.82
2003	303	9.04	112	9.06	191	9.03	30	7.33	161	9.34
2004	412	9.96	160	10.78	252	9.44	36	11.06	216	9.17
2005	469	10.09	178	10.07	291	10.10	34	7.35	257	10.46
2006	465	10.38	188	10.26	277	10.45	24	8.33	253	10.66
2007	507	10.76	223	9.61	284	11.67	21	8.14	263	11.95
2008	488	9.74	254	8.54	234	11.05	19	7.32	215	11.38
2009	253	10.72	86	8.66	167	11.78	12	10.00	155	11.92
2010	429	12.00	167	11.25	262	12.48	25	11.08	237	12.63
2011	531	12.67	198	11.52	333	13.35	31	8.39	302	13.86
2012	585	12.38	159	11.74	426	12.62	51	8.04	375	13.24
2013	585	12.78	172	12.23	413	13.01	41	9.88	372	13.35
2014	664	12.82	205	10.95	459	13.65	39	9.82	420	14.00
2015	595	12.68	202	12.01	393	13.03	36	8.44	357	13.49

Panel B: This panel shows summary statistics for the earnings distribution announced and the financial analysts' recommendation before and after the announcement.

Variable	Mean	Median	Q1	Q3	Std. Dev
Recommendation before	2.1918384	2.2	1.89	2.5	0.522192
Recommendation after	2.2010314	2.2	1.91	2.52	0.518619
REC_CHANGE	-0.009193	0	-0.01	0	0.196879
Dividend Initiation Amt.	0.4494329	0.32	0.16	0.6	0.500259
% increase in dividends	0.1445954	0.107143	0.058824	0.176471	0.197422
repurchases authorized *	0.1338101	0.080021	0.048407	0.134127	0.262077
Total value authorized**	515.182586	50.0725	15	269.2225	1828.36

* scaled by the market capitalization

** in millions

Panel C: This panel shows descriptive statistics for the control variables used in this study, for the entire sample as well as for the two subsamples: share repurchases announcing firms and dividend initiations / increases announcing firms.. Variable definitions are provided in Appendix 2. ***, **, and * denote significance level of 1%, 5%, and 10%, respectively, for the *t* test that the means are equal across the two subsamples

Parameter	All Sample	Dividend Group	SRP Group	Difference	t-statistic
	Mean	Mean	Mean		
SIZE	21.21612	21.7238	20.5115	1.2124	33.83***
ROA	0.01894	0.0226	0.0139	0.00865	11.13***
ROE	0.04774	0.0486	0.0465	0.00207	0.18
DISTRIBUTION	0.01443	0.0248	0.1338	-0.109	- 32.27***
LEVERAGE	0.17247	0.1869	0.1514	0.0354	10.47***
CUM_RET	0.07011	0.0222	0.00363	0.0186	6.85***

Panel D: This panel shows the sample distribution based on Fama French 12 industry classification. However, since I exclude finance and utilities companies, there are only ten industries represented

Industry	All Sample	Dividend Sample	SRP Sample
Non-Durables	757	203	554
Durables	386	118	268
Manufacturing	1684	499	1185
Energy	389	98	291
Chemicals and Allied Products	545	114	431
Business Equipment	1719	1157	562
Telecommunication	202	76	126
Wholesales	1532	657	875
Healthcare	699	380	319
Other	1602	717	885

Table 2. Univariate analysis for the substitution hypothesis.

This table shows the results for the univariate analysis of the substitution hypothesis. The dependent variable, *Rec_Change*, is the difference between the mean recommendation prior to the earnings announcement and the mean recommendation following the announcement. The test is done considering the full sample, dividend initiations versus all share repurchases, dividend increases versus all share repurchases, all dividends versus small repurchases (based on the amount authorized scaled by the market cap), all dividends versus large repurchases. ***, **, and * denote significance level of 1%, 5%, and 10%, respectively, for the *t* test that the means are equal across the subsamples

	Variable	D Group	SRP Group	Difference	t-value
All Sample	Rec_Change	-0.00411	-0.0164	0.0123	4.28***
Div. Initiations vs. Repurchases	Rec_Change	-0.0105	-0.0164	0.00589	0.77
Div. Increases vs. Repurchases	Rec_Change	-0.00356	-0.0164	0.0128	4.41***
Dividends vs. Small Repurchases	Rec_Change	-0.00411	-0.0164	0.0123	3.96***
Dividends vs. Large Repurchases	Rec_Change	-0.00411	-0.0164	0.0122	2.77**

Table 3. Multivariate Analysis for the Substitution Hypothesis

This table shows the OLS regression results for the model $Rec\_change_{j,t} = \beta_0 + \beta_1 * SRP + \beta_2 * \sum Firm\_Char_{j,t-1} + \varepsilon_{i,j,t}$. The dependent variable is the change in analysts' recommendation following an earnings announcement. *SRP* is a indicator variable equal to 1 if the announcement was a share repurchase announcement, and 0 otherwise. The analysis is conducted using the entire sample, a sample of firms announcing dividend initiations and repurchases, a sample of firms announcing dividend increases and repurchases, a sample of firms announcing dividends and small repurchases, and a sample of firms announcing dividends and large repurchases. All variables are defined in the Appendix 2. The standard errors are clustered by firms. The t statistics are reported in parentheses. ***, **, and * denote significance level of 1%, 5%, and 10%, respectively.

Panel A. The first column presents the results for the entire sample, column 2 presents the results for a sample of firms with dividend initiation and share repurchases announcements, and column 3 presents the results for a sample of firms with dividend increases and share repurchases announcements.

	All Sample (1)	Dividend Initiations vs. Repurchases (2)	Dividend Increases vs. Repurchases (3)
Parameter	Estimate	Estimate	Estimate
INTERCEPT	0.00638 (0.36)	0.04638* (1.71)	0.00630 (0.34)
SRP	0.00306 (0.99)	0.00401 (0.54)	0.00348 (1.11)
SIZE	0.00028 (0.37)	-0.00135 (-1.11)	0.00031 (0.39)
ROE	0.00014 (0.07)	-0.00024 (-0.08)	0.00172 (0.77)
ROA	-0.07549* (-1.64)	-0.08546* (-1.62)	-0.08841* (-1.93)
DISTRIBUTION	-0.00939 (-1.28)	-0.01050 (-1.39)	-0.00934 (-1.27)
LEVERAGE	-0.00912 (-1.14)	-0.01411 (-1.09)	-0.00619 (-0.77)
CUM_RET	0.14282*** (10.89)	0.16767*** (10.19)	0.14314*** (10.7)
STDEVRET	-0.92072*** (-7.75)	-1.14469*** (-8.06)	-0.94935*** (-7.86)
EA	0.00267 (0.68)	0.00443 (0.8)	0.00225 (0.54)
# Obs.	12,220	5,598	11,648
Adj. R ²	0.032	0.058	0.033

Panel B: This panel presents the regressions results for a sample of dividend increases and share repurchases. The dividend increases are classified in tertile according to the percentage increase in the amount announced.

	First Tertile	Second Tertile	Third Tertile
Parameter	Estimate	Estimate	Estimate
INTERCEPT	0.03123 (1.28)	0.02408 (1.03)	0.02707 (1.12)
SRP	0.00435 (1.11)	0.00487 (1.21)	0.00490 (1.2)
SIZE	-0.00073 (-0.69)	-0.00041 (-0.42)	-0.00050 (-0.47)
ROE	0.00128 (0.46)	0.00236 (0.71)	0.00235 (0.86)
ROA	-0.09433* (-1.87)	-0.09540* (-1.9)	-0.10509** (-2.12)
DISTRIBUTION	-0.01050 (-1.39)	-0.01021 (-1.35)	-0.00968 (-1.31)
LEVERAGE	-0.00525 (-0.46)	-0.00814 (-0.71)	-0.01215 (-1.22)
CUM_RET	0.16490*** (10.61)	0.16192*** (10.35)	0.14961*** (9.8)
STDEVRET	-1.09783*** (-8.13)	-1.09136*** (-8.03)	-1.07995*** (-8.05)
EA	0.00333 (0.64)	0.00360 (0.7)	0.00245 (0.49)
# Obs.	7,248	7,188	7,306
Adj. R ²	0.052	0.051	0.044

Panel C: This panel presents the regression results for the samples of dividend and small repurchases firms (column 1), and a sample of dividend and large repurchases announcing firms (column 2). Firms with share repurchases announcements are classified based on the total value authorized for repurchases scaled by the market capitalization. Small repurchases have a value authorized for repurchases below the mean, while large repurchases have a value authorized for repurchases above the mean.

	Div. vs Small Repurchases	Div. vs Large Repurchases
Parameter	Estimate	Estimate
INTERCEPT	0.00519 (0.28)	-0.02527 (-1.18)
SRP	0.00221 (0.65)	0.00093 (0.16)
SIZE	0.00043 (0.53)	0.00131 (1.42)
ROE	-0.00002 (-0.01)	-0.00181 (-0.85)
ROA	-0.03046 (-0.7)	-0.10732 (-1.58)
DISTRIBUTION	-0.01759 (-0.68)	-0.00973 (-1.21)
LEVERAGE	-0.01332 (-1.59)	-0.00487 (-0.54)
CUM_RET	0.13937*** (9.79)	0.10923*** (6.37)
STDEVRET	-0.88490*** (-6.72)	-0.54473*** (-3.39)
EA	-0.00033 (-0.08)	0.00548 (1.18)
# Obs.	10,904	8,510
Adj. R ²	0.028	0.012

Table 4. Magnitude of the change in analysts' recommendation for the substitution hypothesis.

This table shows the OLS regression results for the model: $Rec\_change_{j,t} = \beta_0 + \beta_1 * SRP + \beta_2 * \sum Firm\_Char_{j,t-1} + \varepsilon_{i,j,t}$ where the dependent variable reflects actual changes in analysts' recommendation following an earnings announcement. (The sample excludes all the observation where there was no change in analysts' recommendation following an announcement). The analysis is conducted separately for changes in recommendations that reflect an upgrade (positive value for the dependent variable), and changes in recommendations that reflect a downgrade (negative value for the dependent variable). All variables are defined in the Appendix 2. The standard errors are clustered by firms. The t statistics are reported in parentheses. ***, **, and * denote significance level of 1%, 5%, and 10%, respectively.

Panel A. This panel shows the regression results for the sample with positive changes in analysts' recommendations. Column 1 shows the results for the entire sample; column 2 for a sample of dividend initiations and repurchases announcing firms; column 3 for a sample of dividend increases and repurchases announcing firms; column 4 for a sample of dividend and small repurchases announcing firms; column 5 for a sample of dividend and large repurchases announcing firms.

Parameter	All Sample Estimate (1)	Div. Initiations vs. Repurchases Estimate (2)	Div. Increases vs. Repurchases Estimate (3)	Div. vs. Small Repurchases Estimate (4)	Div. vs. Large Repurchases Estimate (5)
INTERCEPT	1.00580*** (29.08)	1.05258*** (20.01)	0.99201*** (28.27)	1.00580*** (29.08)	1.0053*** (23.63)
SRP	-0.02147*** (-4.32)	-0.01917 (-1.36)	-0.02139*** (-4.29)	-0.02146*** (-4.32)	-0.01839* (-1.83)
SIZE	-0.03914*** (-27.22)	-0.04132*** (-18.5)	-0.03847*** (-26.37)	-0.03914*** (-27.22)	-0.03924*** (-22.69)
ROE	0.00205 (0.78)	0.00495** (3.1)	0.00218 (0.51)	0.00205 (0.78)	-0.00131 (-0.61)
ROA	0.01867 (0.29)	-0.02040 (0.36)	0.01240 (0.2)	0.01867 (0.29)	-0.02151 (-0.43)
DISTRIBUTION	-0.04002** (-2.32)	-0.03883** (-2.24)	-0.04089** (-2.37)	-0.04002** (-2.32)	-0.04667** (-2.26)
LEVERAGE	-0.03056** (-2.28)	0.01671 (0.78)	-0.03545** (-2.59)	-0.03056** (-2.28)	-0.04381** (-2.81)
CUM_RET	0.02507 (1.37)	0.02334 (1.04)	0.02265 (1.22)	0.02507 (1.37)	0.03762 (1.42)
STDEVRET	0.24188 (1.34)	-0.09718 (-0.44)	0.28781 (1.58)	0.24188 (1.34)	0.39260 (1.52)
EA	0.01807** (2.53)	0.01886** (2.01)	0.01672** (2.31)	0.01807** (2.53)	0.02247** (2.42)
# OBS.	2,846	1,266	2,741	2,846	1,991
Adj. R ²	0.27	0.26	0.27	0.27	0.27

Panel B. This panel shows the regression results for the sample with negative changes in analysts' recommendations. Column 1 shows the results for the entire sample; column 2 for a sample of dividend initiations and repurchases announcing firms; column 3 for a sample of dividend increases and repurchases announcing firms; column 4 for a sample of dividend and small repurchases announcing firms; column 5 for a sample of dividend and large repurchases announcing firms.

Parameter	All Sample Estimate (1)	Div. Initiations vs. Repurchases Estimate (2)	Div. Increases vs. Repurchases Estimate (3)	Div. vs. Small Repurchases Estimate (4)	Div. vs. Large Repurchases Estimate (5)
INTERCEPT	-1.11420*** (-26.65)	-1.11552*** (-18.69)	-1.10964*** (-26.0)	-1.11420*** (-26.65)	-1.14679*** (-21.71)
SRP	0.01885*** (3.34)	0.01733 (1.17)	0.01892*** (3.31)	0.01885*** (3.34)	0.02012** (1.94)
SIZE	0.04406*** (25.56)	0.04404*** (17.7)	0.04376*** (24.92)	0.04406*** (25.56)	0.04535*** (20.75)
ROE	0.00038 (0.38)	0.00113 (1.19)	-0.00011 (-0.16)	0.00038 (0.38)	0.00473 (1.14)
ROA	-0.15507** (-3.0)	-0.14094** (-2.58)	-0.17924*** (-3.65)	-0.15507** (-3.0)	-0.11722 (-0.85)
DISTRIBUTION	0.01678 (1.12)	0.01598 (1.07)	0.01593 (1.07)	0.01678 (1.12)	0.01216 (0.71)
LEVERAGE	0.01421 (0.9)	-0.02931 (-1.27)	0.01945 (1.2)	0.01421 (0.9)	0.04494** (2.43)
CUM_RET	0.08911*** (3.65)	0.11907** (3.72)	0.09253*** (3.71)	0.08911*** (3.65)	0.04295 (1.37)
STDEVRET	-0.95343*** (-4.92)	-0.88866*** (-3.76)	-0.9565*** (-4.88)	-0.95343*** (-4.92)	-0.81474** (-2.84)
EA	-0.00164 (-0.2)	0.00875 (0.79)	0.00023 (0.03)	-0.00164 (-0.2)	-0.00772 (-0.72)
# OBS.	3,133	1,456	3,003	3,133	2,157
Adj. R ²	0.31	0.31	0.31	0.31	0.27

Table 5. Logistic regression for the substitution hypothesis.

This table presents the results of the logistic model : $P(Y=1) = \beta_0 + \beta_1 * SRP + \beta_2 * \sum Firm\_Char_{j,t-1} + \varepsilon_{i,j,t}$ with the dependent variable equal to 1, if there was a change in the analysts recommendation and zero otherwise. All variables are defined in the Appendix 2. The t statistics are reported in parentheses. ***, **, and * denote significance level of 1%, 5%, and 10%, respectively.

Panel A. This panel presents the results for the entire sample (column 1), a sample of dividend initiations and repurchases announcing firms (column 2), and a sample of dividend increases and repurchases announcing firms.

Parameter	All Sample		Dividend initiations. vs. Repurchases		Dividend increases vs. Repurchases	
	(1)		(2)		(3)	
	Estimate	Odds Ratio Estimates	Estimate	Odds Ratio Estimates	Estimate	Odds Ratio Estimates
INTERCEPT	-10.1401*** (-34.73)		-10.4178*** (-24.37)		-10.0970*** (-33.55)	
SRP	0.3230*** (7.22)	1.381	0.1767* (1.84)	1.193	0.3287*** (7.17)	1.389
SIZE	0.4348*** (33.09)	1.545	0.4582*** (23.15)	1.581	0.4331*** (32.07)	1.542
ROE	0.0092 (0.24)	1.009	-0.0014 (-0.03)	0.999	0.0221 (0.48)	1.022
ROA	0.4439 (0.79)	1.559	0.3671 (0.58)	1.444	0.4970 (0.85)	1.644
DISTRIBUTION	0.0551 (0.48)	1.057	0.1063 (0.84)	1.112	0.0554 (0.48)	1.057
LEVERAGE	-0.0844 (-0.75)	0.919	-0.3801** (-2.31)	0.684	-0.0762 (-0.64)	0.927
CUM_RET	-0.2965** (-2.0)	0.743	-0.2802 (-1.56)	0.756	-0.3557** (-2.36)	0.701
STDEVRET	19.5519*** (14.88)	>999.999	18.8277*** (12.04)	>999.999	19.5331*** (14.61)	>999.999
EA	0.2537 (1.289)	1.289	0.2613*** (3.77)	1.299	0.2321*** (4.14)	1.261
# Obs.	12,220		5,598		11,648	

Panel B. This panel presents the regression results for a sample of dividend increases and share repurchases. The dividend increases are classified in tertile according to the percentage increase announced.

Parameter	First Tertile		Second Tertile		Third Tertile	
	Estimate	Odds Ratio Estimates	Estimate	Odds Ratio Estimates	Estimate	Odds Ratio Estimates
INTERCEPT	-10.3153*** (-26.65)		-9.8459*** (-26.08)		-10.5480*** (-27.66)	
SRP	0.4112*** (6.76)	1.509	0.2830*** (4.61)	1.327	0.3092*** (5.32)	1.362
SIZE	0.4411*** (25.37)	1.554	0.4251*** (25.17)	1.53	0.4586*** (26.5)	1.582
ROE	0.0042 (0.09)	1.004	0.0049 (0.09)	1.005	0.0486 (0.75)	1.05
ROA	0.3292 (0.53)	1.39	0.8334 (1.19)	2.301	0.1831 (0.30)	1.201
DISTRIBUTION	0.0894 (0.73)	1.094	0.1008 (0.80)	1.106	0.0753 (0.64)	1.078
LEVERAGE	-0.1133 (-0.73)	0.893	-0.2905* (-1.85)	0.748	-0.2518* (-1.8)	0.777
CUM_RET	-0.2606 (-1.52)	0.771	-0.4109** (-2.4)	0.663	-0.4073** (-2.41)	0.665
STDEVRET	19.1620*** (12.79)	>999.999	18.3802*** (12.35)	>999.999	19.0830*** (12.93)	>999.999
EA	0.2158*** (3.21)	1.241	0.2585*** (3.93)	1.295	0.2173*** (3.37)	1.243
# Obs.	7,188		7,188		7,306	

Panel C. This panel presents the results for a sample of dividend and small repurchases announcing firms, and for a sample of dividend and large repurchases announcing firms. Firms with share repurchases announcements are classified based on the total value authorized for repurchases scaled by the market capitalization. Small repurchases have a value authorized for repurchases below the mean, while large repurchases have a value authorized for repurchases above the mean.

Parameter	Div. vs Small Repurchases		Div. vs Large Repurchases	
	Estimate	Odds Ratio Estimates	Estimate	Odds Ratio Estimates
Intercept	-9.9385*** (-32.31)		-10.2980*** (-28.98)	
SRP	0.2959*** (5.84)	1.344	0.4220*** (5.49)	1.525
SIZE	0.4263*** (30.94)	1.532	0.4377*** (27.53)	1.549
ROE	0.0060 (0.16)	1.006	0.0129 (0.25)	1.013
ROA	0.7367 (1.27)	2.089	-0.0581 (-0.08)	0.944
DISTRIBUTION	-0.1749 (-0.37)	0.84	-0.0604 (-0.49)	0.941
LEVERAGE	-0.0783 (-0.66)	0.925	0.0770 (0.57)	1.08
CUM_RET	-0.2304 (-1.41)	0.794	-0.3071 (-1.5)	0.736
STDEVRET	19.9149*** (13.42)	>999.999	20.3844*** (11.11)	>999.999
EA	0.2229*** (3.81)	1.25	0.3203*** (4.51)	1.378
# Obs.	10,904		8,510	

Table 6. Multivariate Analysis for the serial repurchases hypothesis

This table shows the OLS regression results for the model $Rec\_change_{j,t} = \beta_0 + \beta_1 * SSRP + \beta_2 * \sum Firm\_Char_{j,t-1} + \varepsilon_{i,j,t}$. The dependent variable is the change in analysts' recommendation following an earnings announcement. *SSRP* is a indicator variable equal to 1 if the announcement was a serial repurchase announcement and 0 otherwise. Non-serial repurchases are excluded from the sample. All variables are defined in the Appendix 2. The standard errors are clustered by firms. The t statistics are reported in parentheses. ***, **, and * denote significance level of 1%, 5%, and 10%, respectively.

Panel A. The first column represent the entire sample; column 2 represents a sample of firms with dividend initiation announcements and/or share repurchases announcements; column 3 represents a sample of firms with dividends increases and/or share repurchases announcements; column 4 represents a sample of firms with dividends announcements and/or small share repurchases announcements (below the mean); column 5 represents a sample of firms with dividends announcements and/or large share repurchases announcements (above the mean)

	All Sample	Div. Initiations vs. Repurchases	Div. Increases vs. Repurchases	Div. vs. Small Repurchases	Div. vs. Large Repurchases
Parameter	Estimate (1)	Estimate (2)	Estimate (3)	Estimate (4)	Estimate (5)
INTERCEPT	-0.04911** (-2.27)	-0.05850 (-1.03)	-0.05138** (-2.27)	-0.04145* (-1.92)	-0.05123** (-2.27)
SSRP	0.00609 (0.98)	0.00731 (0.72)	0.00582 (0.94)	0.00903 (1.40)	-0.01975 (-1.03)
SIZE	0.00215** (2.3)	0.00220 (0.85)	0.00229* (2.37)	0.00186** (1.99)	0.00223** (2.28)
ROE	-0.00195 (-0.92)	-0.00729 (-5.16)	0.00078 (0.47)	-0.00197 (-0.93)	-0.00197 (-0.94)
ROA	-0.01893 (-0.25)	0.07087 (0.44)	-0.04556 (-0.63)	-0.01021 (-0.13)	-0.03295 (-0.38)
DISTRIBUTION	-0.00532 (-0.24)	-0.04856 (-0.78)	-0.00533 (-0.24)	0.01303 (0.55)	0.01104 (0.53)
LEVERAGE	-0.01175 (-1.26)	-0.03974 (-1.49)	-0.00681 (-0.74)	-0.01223 (-1.31)	-0.01002 (-1.05)
CUM_RET	0.08996*** (4.67)	0.15606** (3.08)	0.08340*** (4.13)	0.08360*** (4.31)	0.08547*** (4.45)
STDEVRET	-0.06716 (-0.36)	0.14235 (0.32)	-0.05196 (-0.26)	-0.12255 (-0.65)	-0.05616 (-0.29)
EA	0.00035 (0.07)	0.00843 (0.75)	-0.00100 (-0.19)	-0.00027 (-0.06)	0.00019 (0.04)
# OBS.	7,851	1,229	6,622	7,767	7,278
Adj. R	0.005	0.02	0.003	0.03	0.003

Panel B: This panel shows the results for a sample of dividend increases and share repurchases. The dividend increases are classified in tertile according to the percentage increase announced.

	First Tertile	Second Tertile	Third Tertile
Parameter	Estimate	Estimate	Estimate
INTERCEPT	-0.05504 (-1.45)	-0.07107* (-2.1)	-0.05328 (-1.4)
SSRP	0.00696 (1.0)	0.00727 (1.0)	0.00695 (1.03)
SIZE	0.00220 (1.34)	0.00287 (2.11)	0.00250 (1.5)
ROE	-0.00155 (-0.68)	0.00760 (1.18)	0.00209 (0.83)
ROA	0.00994 (0.1)	-0.00333 (-0.03)	-0.09801 (-0.96)
DISTRIBUTION	-0.05473 (-0.85)	-0.04552 (-0.73)	-0.00579 (-0.25)
LEVERAGE	-0.00504 (-0.29)	-0.01249 (-0.69)	-0.02050* (-1.64)
CUM_RET	0.12619*** (3.68)	0.11531*** (3.25)	0.07351** (2.36)
STDEVRET	0.03998 (0.13)	0.10756 (0.32)	-0.00573 (0.02)
EA	0.00359 (0.41)	0.00361 (0.41)	-0.00318 (-0.39)
# OBS.	2,879	2,819	2,745
Adj. R ²	0.01	0.006	0.003

Table 7. Magnitude of the change in analysts' recommendation for the serial repurchases hypothesis

This table shows the OLS regression results for the model: $Rec\_change_{j,t} = \beta_0 + \beta_1 * SSRP + \beta_2 * \sum Firm\_Char_{j,t-1} + \varepsilon_{i,j,t}$ where the dependent variable reflects actual changes in analysts' recommendation following an earnings announcement. (The sample excludes all the observation where there was no change in analysts' recommendation following an announcement). *SSRP* is a indicator variable equal to 1 if the announcement was a serial repurchase announcement and 0 otherwise. Non-serial repurchases are excluded from the sample. The analysis is conducted separately for changes in recommendations that reflect an upgrade (positive value for the dependent variable), and changes in recommendations that reflect a downgrade (negative value for the dependent variable). All variables are defined in the Appendix 2. The standard errors are clustered by firms. The t statistics are reported in parentheses. ***, **, and * denote significance level of 1%, 5%, and 10%, respectively.

Panel A. This panel shows the regression results for the sample with positive changes in analysts' recommendations. Column 1 shows the results for the entire sample; column 2 for a sample of dividend initiations and repurchases announcing firms; column 3 for a sample of dividend increases and repurchases announcing firms; column 4 for a sample of dividend and small repurchases announcing firms; column 5 for a sample of dividend and large repurchases announcing firms.

	All Sample	Div. Initiations vs. Repurchases	Div. Increases vs. Repurchases	Div. vs. Small Repurchases	Div. vs. Large Repurchases
Parameter	Estimate (1)	Estimate (2)	Estimate (3)	Estimate (4)	Estimate (5)
INTERCEPT	0.96031*** (22.25)	0.99518*** (8.37)	0.93695*** (21.31)	0.96263*** (22.2)	0.98176*** (21.56)
SSRP	-0.02207** (-2.64)	-0.01667 (-1.0)	-0.02288** (-2.73)	-0.02055** (-2.33)	-0.03701 (-1.43)
SIZE	-0.03798*** (-21.54)	-0.04033*** (-7.94)	-0.03689*** (-20.67)	-0.03809*** (-21.62)	-0.03870*** (-21.09)
ROE	-0.00094 (-0.53)	0.00223* (1.71)	-0.00425** (-2.55)	-0.00096 (-0.53)	-0.00094 (-0.52)
ROA	0.27444** (2.25)	0.44924** (2.82)	0.28296** (2.21)	0.28572** (2.32)	0.164452 (1.05)
DISTRIBUTION	-0.07116** (-2.49)	-0.06530** (-2.62)	-0.0812** (-2.7)	-0.07058 (-1.02)	-0.06158* (-2.0)
LEVERAGE	-0.05533*** (-3.50)	0.00312 (0.07)	-0.06504*** (-4.1)	-0.05368*** (-3.38)	-0.06038*** (-3.66)
CUM_RET	0.04447 (1.59)	0.08009 (1.32)	0.04021 (1.38)	0.04689* (1.66)	0.0361 (1.22)
STDEVRET	0.85242** (2.99)	0.27582 (0.43)	1.01880*** (3.48)	0.82955** (2.89)	0.87193** (2.82)
EA	0.02494** (2.62)	0.04011* (2.11)	0.02260* (2.31)	0.02476** (2.57)	0.02236* (2.11)
# OBS.	1,877	297	1,772	1,858	1,704
Adj. R ²	0.27	0.27	0.27	0.28	0.27

Panel B. This panel shows the regression results for the sample with negative changes in analysts' recommendations. Column 1 shows the results for the entire sample; column 2 for a sample of dividend initiations and repurchases announcing firms; column 3 for a sample of dividend increases and repurchases announcing firms; column 4 for a sample of dividend and small repurchases announcing firms; column 5 for a sample of dividend and large repurchases announcing firms.

	All Sample	Div. Initiations vs. Repurchases	Div. Increases vs. Repurchases	Div. vs. Small Repurchases	Div. vs. Large Repurchases
Parameter	Estimate (1)	Estimate (2)	Estimate (3)	Estimate (4)	Estimate (5)
INTERCEPT	-1.12986*** (-20.99)	-1.20793*** (-8.15)	-1.12164*** (-20.21)	-1.11070*** (-20.67)	-1.14271*** (-20.43)
SSRP	-0.00435 (-0.30)	-0.01220 (-0.56)	-0.00207 (-0.14)	-0.00179 (-0.12)	-0.04920 (-1.05)
SIZE	0.04497*** (20.28)	0.04807*** (7.77)	0.04464*** (19.6)	0.04432*** (20.03)	0.04532*** (19.69)
ROE	0.00301 (0.69)	0.00336 (1.08)	0.00535 (0.28)	0.00322 (0.74)	0.00355 (0.85)
ROA	-0.08389 (-0.51)	-0.28057 (-0.49)	-0.20821 (-1.58)	-0.07417 (-0.45)	-0.03907 (-0.23)
DISTRIBUTION	0.09202 (0.74)	0.12394 (0.66)	0.05501 (0.40)	0.13631 (1.10)	0.18134 (1.39)
LEVERAGE	0.04208** (2.11)	-0.02312 (-0.46)	0.05397** (2.74)	0.04089** (2.04)	0.04804** (2.34)
CUM_RET	0.02498 (0.77)	0.04205 (0.49)	0.03140 (0.94)	0.01647 (0.51)	0.02281 (0.69)
STDEVRET	-0.90584** (-2.87)	-0.66838 (-0.83)	-0.90031** (-2.81)	-0.98612*** (-3.10)	-0.88662** (-2.69)
EA	-0.01669 (-1.45)	-0.00501 (-0.17)	-0.01548 (-1.25)	-0.02106 (-1.89)	-0.01624 (-1.36)
# OBS.	1,954	277	1,824	1,934	1,827
Adj. R ²	0.26	0.22	0.26	0.26	0.26

Table 8. Logistic regression for the serial repurchases hypothesis.

This table presents the results of the logistic model : $P(Y=1) = \beta_0 + \beta_1 * SSRP + \beta_2 * \sum Firm\_Char_{j,t-1} + \varepsilon_{i,j,t}$ with the dependent variable equal to 1, if there was a change in the analysts recommendation and zero otherwise. All variables are defined in the Appendix 2. The t statistics are reported in parentheses. ***, **, and * denote significance level of 1%, 5%, and 10%, respectively.

Panel A. This panel presents the results for the entire sample (column 1), a sample of dividend initiations and repurchases announcing firms (column 2), and a sample of dividend increases and repurchases announcing firms.

	All Sample (1)		Div. Initiations vs. Repurchases (2)		Div. Increases vs. Repurchases (3)	
Parameter	Estimate	Odds Ratio	Estimate	Odds Ratio	Estimate	Odds Ratio
INTERCEPT	-9.9172*** (-27.02)		-10.3769*** (-11.27)		-9.8035*** (-25.50)	
SSRP	0.1152 (1.25)	1.122	-0.1766 (-1.20)	0.838	0.1152 (1.24)	1.122
SIZE	0.4231*** (26.01)	1.527	0.4551*** (10.77)	1.576	0.4189*** (24.69)	1.52
ROE	0.0058 (0.12)	1.006	-0.0574 (-0.98)	0.944	0.0290 (0.45)	1.029
ROA	0.2473 (0.24)	1.281	0.5175 (0.25)	1.678	0.4670 (0.42)	1.595
DISTRIBUTION	-0.2308 (-0.46)	0.794	2.1602* (1.81)	8.673	-0.2352 (-0.46)	0.79
LEVERAGE	0.0406 (0.28)	1.041	-0.554* (-1.65)	0.575	0.0850 (0.55)	1.089
CUM_RET	-0.1003 (-0.43)	0.905	0.5901 (1.22)	1.804	-0.2546 (-1.04)	0.775
STDEVRET	22.3404*** (9.80)	>999.999	20.9439*** (4.58)	>999.999	22.9319*** (9.52)	>999.999
EA	0.2071** (2.71)	1.23	0.2051 (1.30)	1.228	0.1491 (1.81)	1.161
# OBS.	7,851		1,229		6,622	

Panel B. This panel presents the regression results for a sample of dividend increases and share repurchases. The dividend increases are classified in tertile according to the percentage increase announced.

Parameter	First Tertile		Second Tertile		Third Tertile	
	Estimate	Odds	Estimate	Odds	Estimate	Odds
		Ratio		Ratio		Ratio
INTERCEPT	-9.7367*** (-15.59)		-8.9297*** (-14.95)		-10.4456*** (-17.15)	
SSRP	0.1086 (1.0)	1.115	-0.0813 (-0.69)	0.922	0.0700 (0.70)	1.072
SIZE	0.4172*** (15.13)	1.518	0.3803*** (14.73)	1.463	0.4569*** (16.73)	1.579
ROE	-0.0229 (-0.22)	0.977	-0.2036 (-0.79)	0.816	0.1493** (1.99)	1.161
ROA	-0.4851 (-0.25)	0.616	3.5610* (1.86)	35.198	-0.6386 (-0.40)	0.528
DISTRIBUTION	1.0817 (1.30)	2.95	2.2160* (1.85)	9.171	0.0394 (0.08)	1.04
LEVERAGE	0.2672 (0.99)	1.306	-0.2121 (-0.76)	0.809	-0.1500 (-0.73)	0.861
CUM_RET	0.3804 (0.99)	1.463	-0.3545 (-0.91)	0.701	-0.3370 (-0.96)	0.714
STDEVRET	23.7315*** (6.43)	>999.999	21.4008*** (5.64)	>999.999	21.7835*** (6.28)	>999.999
EA	-0.0361 (-0.27)	0.965	0.1533 (1.19)	1.166	0.0701 (0.60)	1.073
# OBS.	2,879		2,819		2,745	

Panel C. This panel presents the results for a sample of dividend and small repurchases announcing firms, and for a sample of dividend and large repurchases announcing firms. Firms with share repurchases announcements are classified based on the total value authorized for repurchases scaled by the market capitalization. Small repurchases have a value authorized for repurchases below the mean, while large repurchases have a value authorized for repurchases above the mean.

Parameter	Div. vs. Small Repurchases		Div. vs. Large Repurchases	
	Estimate	Odds Ratio	Estimate	Odds Ratio
INTERCEPT	-9.9399*** (-26.96)		-9.9757*** (-26.02)	
SSRP	0.1271 (1.32)	1.136	0.1834 (0.70)	1.201
SIZE	0.4248*** (25.99)	1.529	0.4230*** (24.89)	1.527
ROE	0.0048 (0.10)	1.005	0.0081 (0.16)	1.008
ROA	0.1568 (0.15)	1.17	0.1646 (0.15)	1.179
DISTRIBUTION	-0.6992 (-1.33)	0.497	-0.5303 (-0.90)	0.588
LEVERAGE	0.0395 (0.27)	1.04	0.1195 (0.80)	1.127
CUM_RET	-0.1349 (-0.57)	0.874	-0.1078 (-0.43)	0.898
STDEVRET	22.7218*** (9.85)	>999.999	21.8814*** (8.93)	>999.999
EA	0.1981** (2.57)	1.219	0.2790** (3.45)	1.322
# OBS.	7,767		7,278	

Table 9. Multivariate Analysis for the Year 2004 hypothesis

This table shows the OLS regression results for the model: $Rec\_change_{j,t} = \beta_0 + \beta_1 * SRP + \beta_2 * SRP * YEAR + \beta_3 * Y2004 + \beta_4 * \sum Firm\_Char_{j,t-1} + \varepsilon_{i,j,t}$. The dependent variable is the change in analysts' recommendation following an earnings announcement. *Y2004* is an indicator variable equal to 1 if the year of the announcement is greater than or equal to 2004 and 0 otherwise. All variables are defined in the Appendix 2. The standard errors are clustered by firms. The t statistics are reported in parentheses. ***, **, and * denote significance level of 1%, 5%, and 10%, respectively.

Panel A. The first column represent the entire sample; column 2 represents a sample of firms with dividend initiation announcements and/or share repurchases announcements; column 3 represents a sample of firms with dividends increases and/or share repurchases announcements; column 4 represents a sample of firms with dividends announcements and/or small share repurchases announcements (below the mean); column 5 represents a sample of firms with dividends announcements and/or large share repurchases announcements (above the mean)

Parameter	All Sample	Div. Initiations vs. Repurchases	Div. Increases vs. Repurchases	Div. vs Small Repurchases	Div. vs Large Repurchases
	Estimate (1)	Estimate (2)	Estimate (3)	Estimate (4)	Estimate (5)
INTERCEPT	0.01709 (0.95)	0.07208** (2.46)	0.01777 (0.96)	0.01522 (0.81)	-0.02308 (-1.08)
SRP	-0.00825 (-1.4)	-0.00958 (-0.63)	-0.00735 (-1.23)	-0.01114* (-1.73)	-0.00671 (-0.67)
SRP_Year	0.01637** (2.48)	0.02128 (1.23)	0.01548** (2.32)	0.01978** (2.71)	0.01168 (1.07)
Y2004	0.00015 (0.04)	-0.00473 (-0.29)	0.00077 (0.18)	0.00036 (0.09)	-0.00153 (-0.37)
SIZE	-0.00021 (-0.26)	-0.00246** (-1.98)	-0.00023 (-0.28)	-3.95E- (-0.05)	0.00126 (1.34)
ROE	0.00004 (0.02)	-0.00037 (-0.13)	0.00157 (0.71)	-0.00017 (-0.08)	-0.00180 (-0.84)
ROA	-0.07677* (-1.66)	-0.08373 (-1.57)	-0.08930* (-1.94)	-0.03151 (-0.72)	-0.11033 (-1.62)
DISTRIBUTION	-0.00756 (-1.02)	-0.00870 (-1.15)	-0.00757 (-1.02)	-0.01986 (-0.76)	-0.00840 (-1.02)
LEVERAGE	-0.00810 (-1.01)	-0.01161 (-0.9)	-0.00502 (-0.62)	-0.01246 (-1.49)	-0.00449 (-0.5)
CUM_RET	0.14349*** (10.97)	0.16858*** (10.27)	0.14373*** (10.77)	0.14014*** (9.86)	0.10933*** (6.38)
STDEVRET	-0.86808*** (-7.18)	-1.09248*** (-7.57)	-0.89690*** (-7.29)	-0.81792*** (-6.04)	-0.52599*** (-3.29)
EA	0.00122 (0.31)	0.00255 (0.46)	0.00071 (0.17)	-0.00194 (-0.46)	0.00506 (1.09)
# OBS.	12,220	5,598	11,648	10,904	8,510
Adj. R ²	0.03200	0.06	0.034	0.029	0.012

Panel B: This panel presents the regression results for a sample of dividend increases and share repurchases. The dividend increases are classified in tertile according to the percentage increase in the amount announced.

	First Tertile	Second Tertile	Third Tertile
	Estimate	Estimate	Estimate
INTERCEPT	0.04931** (2.01)	0.04463** (1.91)	0.04124* (1.65)
SRP	-0.00475 (-0.66)	-0.01363* (-1.79)	0.00222 (0.22)
SRP_Year	0.01178 (1.44)	0.02541** (2.99)	0.00534 (0.50)
Y2004	0.00436 (0.69)	-0.01013 (-1.50)	0.01117 (1.18)
SIZE	-0.00168 (-1.54)	-0.00101 (-1.00)	-0.00157 (-1.46)
ROE	0.00112 (0.41)	0.00215 (0.65)	0.00218 (0.80)
ROA	-0.09291* (-1.83)	-0.09584* (-1.89)	-0.10311** (-2.07)
DISTRIBUTION	-0.00871 (-1.15)	-0.00839 (-1.10)	-0.00830 (-1.12)
LEVERAGE	-0.00338 (-0.30)	-0.00592 (-0.51)	-0.01036 (-1.04)
CUM_RET	0.16564*** (10.68)	0.16237*** (10.40)	0.15042*** (9.88)
STDEVRET	-1.04663*** (-7.61)	-1.03320*** (-7.45)	-1.03039*** (-7.55)
EA	0.00149 (0.28)	0.00185 (0.36)	0.00058 (0.11)
# OBS.	7,248	7,188	7,306
Adj. R ²	0.012	0.052	0.045

Table 10. Magnitude of the change in analysts' recommendation.

This table shows the OLS regression results for the model: $Rec\_change_{j,t} = \beta_0 + \beta_1 * SRP + \beta_2 * SRP * YEAR + \beta_3 * Y2004 + \beta_4 * \sum Firm\_Char_{j,t-1} + \varepsilon_{i,j,t}$, where the dependent variable reflects actual changes in analysts' recommendation following an earnings announcement. (The sample excludes all the observation where there was no change in analysts' recommendation following an announcement). *YEAR* is a indicator variable equal to 1 if the announcement was a repurchase announcement from 2004 to 2015 and 0 otherwise. All variables are defined in the Appendix 2. The standard errors are clustered by firms. The t statistics are reported in parentheses. ***, **, and * denote significance level of 1%, 5%, and 10%, respectively.

Panel A. This panel shows the regression results for the sample with positive changes in analysts' recommendations. Column 1 shows the results for the entire sample; column 2 for a sample of dividend initiations and repurchases announcing firms; column 3 for a sample of dividend increases and repurchases announcing firms; column 4 for a sample of dividend and small repurchases announcing firms; column 5 for a sample of dividend and large repurchases announcing firms.

Parameter	All Sample	Div. Initiations vs. Repurchases	Div. Increases vs. Repurchases	Div. vs Small Repurchases	Div. vs Large Repurchases
	Estimate	Estimate	Estimate	Estimate	Estimate
	(1)	(2)	(3)	(4)	(5)
SRP	-0.02515** (-2.59)	-0.06231** (-2.04)	-0.02275 (-2.33)	-0.03139** (-2.95)	-0.01023 (-0.58)
SRP_Year	0.00532 (0.51)	0.05705* (1.68)	0.00215 (0.20)	0.01251 (1.10)	-0.01179 (-0.66)
Y2004	-0.00998 (-1.55)	-0.06234* (-1.89)	-0.00708 (-1.09)	-0.00956 (-1.49)	-0.00954 (-1.47)
SIZE	-0.03876*** (-26.76)	-0.04067*** (-18.14)	-0.03816*** (-25.92)	-0.03868*** (-25.60)	-0.03863** (-22.02)
ROE	0.00205 (0.78)	0.00464 (2.57)	0.00225 (0.53)	0.00219 (0.85)	-0.00132 (-0.64)
ROA	0.01894 (0.30)	-0.01933 (-0.34)	0.01317 (0.21)	0.19989** (2.05)	-0.01656 (-0.33)
DISTRIBUTION	-0.04059** (-2.32)	-0.03998** (-2.29)	-0.04164** (-2.39)	-0.06539 (-1.03)	-0.05059** (-2.33)
LEVERAGE	-0.02978** (-2.21)	0.01844 (0.86)	-0.03500** (-2.55)	-0.03630** (-2.62)	-0.04239** (-2.71)
CUM_RET	0.02352 (1.28)	0.02175 (0.96)	0.02136 (1.14)	0.02275 (1.18)	0.03382 (1.27)
STDEVRET	0.24135 (1.33)	-0.10389 (-0.46)	0.28403 (1.54)	0.40870** (2.08)	0.39385 (1.53)
EA	0.01830** (2.56)	0.01886** (2.01)	0.01703** (2.34)	0.01637** (2.12)	0.02274** (2.45)
# OBS.	2,846	1,266	2,741	2,540	1,991
Adj. R ²	0.27	0.27	0.27	0.28	0.27

Panel B. This panel shows the regression results for the sample with negative changes in analysts' recommendations. Column 1 shows the results for the entire sample; column 2 for a sample of dividend initiations and repurchases announcing firms; column 3 for a sample of dividend increases and repurchases announcing firms; column 4 for a sample of dividend and small repurchases announcing firms; column 5 for a sample of dividend and large repurchases announcing firms.

Parameter	All Sample	Div. Initiations vs. Repurchases	Div. Increases vs. Repurchases	Div. vs Small Repurchases	Div. vs Large Repurchases
	Estimate	Estimate	Estimate	Estimate	Estimate
	(1)	(2)	(3)	(4)	(5)
INTERCEPT	-1.10569*** (-26.38)	-1.11210*** (-17.19)	-1.10054*** (-25.72)	-1.09619*** (-25.01)	-1.13987*** (-21.6)
SRP	0.01338 (1.24)	0.02484 (0.77)	0.01266 (1.16)	0.00793 (0.65)	0.01124 (0.59)
SRP_Year	0.00822 (0.69)	-0.00825 (-0.23)	0.00920 (0.77)	0.00719 (0.56)	0.01321 (0.66)
Y2004	0.00401 (0.53)	0.01977 (0.56)	0.00302 (0.39)	0.00375 (0.49)	0.00270 (0.36)
SIZE	0.04357*** (24.99)	0.04320*** (17.06)	0.04328*** (24.41)	0.04339*** (23.95)	0.04498*** (20.35)
ROE	0.00026 (0.25)	0.00100 (1.05)	-0.00026 (-0.34)	0.00027 (0.28)	0.00476 (1.15)
ROA	-0.15308** (-2.92)	-0.13673** (-2.46)	-0.17710*** (-3.55)	-0.14633** (-2.63)	-0.12352 (-0.89)
DISTRIBUTION	0.01711 (1.13)	0.01610 (1.06)	0.01631 (1.08)	0.15379 (1.52)	0.01327 (0.76)
LEVERAGE	0.01451 (0.92)	-0.02841 (-1.24)	0.01991 (1.23)	0.00984 (0.58)	0.04521** (2.44)
CUM_RET	0.08946*** (3.66)	0.11990*** (3.74)	0.09286*** (3.72)	0.08799*** (3.35)	0.04353 (1.38)
STDEVRET	-0.91960*** (-4.63)	-0.85452*** (-3.54)	-0.92151*** (-4.59)	-1.01802*** (-4.79)	-0.77839** (-2.69)
EA	-0.00302 (-0.36)	0.00712 (0.64)	-0.00119 (-0.14)	-0.00925 (-1.05)	-0.00898 (-0.83)
# OBS.	3,133	1,456	3,003	2,783	2,157
Adj. R ²	0.31	0.31	0.31	0.3	0.28

Table 11. Logistic regression for the year 2004 hypothesis.

This table presents the results of the logistic model : $P(Y=1) = \beta_0 + \beta_1 * SRP + \beta_2 * SRP * YEAR + \beta_3 * Y2004 + \beta_4 * \sum Firm\_Char_{j,t-1} + \varepsilon_{i,j,t}$ with the dependent variable equal to 1, if there was a change in the analysts recommendation and zero otherwise. All variables are defined in the Appendix 2. The t statistics are reported in parentheses. ***, **, and * denote significance level of 1%, 5%, and 10%, respectively.

Panel A. This panel presents the results for the entire sample (column 1), a sample of dividend initiations and repurchases announcing firms (column 2), and a sample of dividend increases and repurchases announcing firms.

Parameter	All Sample		Div. Initiations vs. Repurchases		Div. Increases vs. Repurchases	
	Estimate	Odds Ratio	Estimate	Odds Ratio	Estimate	Odds Ratio
INTERCEPT	-10.3114*** (-34.73)		-10.7060*** (-23.62)		-10.2667*** (-33.50)	
SRP	0.2547*** (3.45)	1.29	0.2258 (1.30)	1.253	0.2506** (3.31)	1.285
SRP_Year	0.0958 (1.13)	1.101	-0.0956 (-0.46)	0.909	0.1123 (1.30)	1.119
Y2004	-0.2757*** (-4.84)	0.759	-0.1342 (-0.68)	0.874	-0.2873*** (-4.85)	0.75
SIZE	0.4513*** (33.26)	1.57	0.4769*** (23.09)	1.611	0.4499*** (32.25)	1.568
ROE	0.0098 (0.25)	1.01	-0.0001 (0)	1	0.0234 (0.50)	1.024
ROA	0.4107 (0.74)	1.508	0.3388 (0.54)	1.403	0.4582 (0.79)	1.581
DISTRIBUTION	0.0446 (0.39)	1.046	0.0807 (0.65)	1.084	0.0452 (0.39)	1.046
LEVERAGE	-0.0850 (-0.75)	0.919	-0.4120** (-2.50)	0.662	-0.0798 (-0.67)	0.923
CUM_RET	-0.3110** (-2.09)	0.733	-0.2931* (-1.63)	0.746	-0.3676** (-2.43)	0.692
STDEVRET	19.3476*** (14.53)	>999.9 99	18.1682*** (11.59)	>999.999	19.3509*** (14.27)	>999.999
EA	0.2740*** (5.02)	1.315	0.2892*** (4.13)	1.335	0.2529*** (4.47)	1.288
# OBS.	12,220		5,598		11,648	

Panel B. This panel presents the regression results for a sample of dividend increases and share repurchases. The dividend increases are classified in tertile according to the percentage increase announced.

Parameter	First Tertile		Second Tertile		Third Tertile	
	Estimate	Odds Ratio	Estimate	Odds Ratio	Estimate	Odds Ratio
INTERCEPT	-10.4934*** (-26.32)		-10.0173*** (-25.79)		-10.7098*** (-27.24)	
SRP	0.3467*** (3.53)	1.414	0.2352** (2.23)	1.265	0.1974* (1.74)	1.218
SRP_Year	0.1284 (1.12)	1.137	0.081 (0.67)	1.084	0.1195 (0.94)	1.127
Y2004	-0.3176*** (-3.33)	0.728	-0.2657** (-2.57)	0.767	-0.3407** (-3.07)	0.711
SIZE	0.4585*** (25.44)	1.582	0.4412*** (25.14)	1.555	0.4784*** (26.59)	1.613
ROE	0.0059 (0.12)	1.006	0.00675 (0.12)	1.007	0.0516 (0.78)	1.053
ROA	0.2982 (0.49)	1.347	0.7843 (1.14)	2.191	0.1298 (0.22)	1.139
DISTRIBUTION	0.0689 (0.57)	1.071	0.0810 (0.66)	1.084	0.0599 (0.51)	1.062
LEVERAGE	-0.1300 (-0.83)	0.878	-0.3027** (-1.92)	0.739	-0.2732* (-1.94)	0.761
CUM_RET	-0.2652 (-1.54)	0.767	-0.4311** (-2.51)	0.65	-0.4175** (-2.47)	0.659
STDEVRET	18.7880*** (12.41)	>999.99	17.9252*** (11.92)	>999.99	18.5542*** (12.50)	>999.99
EA	0.2369** (3.49)	1.267	0.2823*** (4.26)	1.326	0.2468*** (3.78)	1.28
# OBS.	7,248		7,188		7,306	

Panel C. This panel presents the results for a sample of dividend and small repurchases announcing firms, and for a sample of dividend and large repurchases announcing firms. Firms with share repurchases announcements are classified based on the total value authorized for repurchases scaled by the market capitalization. Small repurchases have a value authorized for repurchases below the mean, while large repurchases have a value authorized for repurchases above the mean.

Parameter	Div. Vs Small Repurchases		Div. Vs. Large Repurchases	
	Estimate	Odds Ratio	Estimate	Odds Ratio
INTERCEPT	-10.0897*** (-32.35)		-10.5277*** (-29.21)	
SRP	0.2013** (2.46)	1.223	0.3688** (3.19)	1.446
SRP_Year	0.1234 (1.33)	1.131	0.0649 (0.49)	1.067
Y2004	-0.2643*** (-4.65)	0.768	-0.2865*** (-4.97)	0.751
SIZE	0.4413*** (31.08)	1.555	0.4569*** (27.93)	1.579
ROE	0.00653 (0.17)	1.007	0.0122 (0.23)	1.012
ROA	0.6949 (1.20)	2.004	-0.0846 (-0.11)	0.919
DISTRIBUTION	0.00191 (0.0)	1.002	-0.0756 (-0.62)	0.927
LEVERAGE	-0.0743 (-0.62)	0.928	0.0868 (0.64)	1.091
CUM_RET	-0.2470 (-1.51)	0.781	-0.3299* (-1.61)	0.719
STDEVRET	19.8351*** (13.14)	>999.999	20.5601*** (11.15)	>999.999
EA	0.2393*** (4.07)	1.27	0.3393 (4.76)	1.404
# OBS.	10,904		8,510	

Table 12. Multivariate Analysis for the earnings management hypothesis

This table shows the OLS regression results for the model $Rec\_change_{j,t} = \beta_0 + \beta_1 * SRP\_LowA + \beta_2 * SRP\_HighA + \beta_3 * \sum Firm\_Char_{j,t-1} + \varepsilon_{i,j,t}$. The dependent variable is the change in analysts' recommendation following an earnings announcement. *SRP_LowA* and *SRP_HighA* are indicator variables equal to 1 if the repurchasing firm was classified as a firm with low level of discretionary accruals, and high level of discretionary accruals, respectively, and 0 otherwise. The cutoff point for classification was the mean level of discretionary accruals. All variables are defined in the Appendix 2. The standard errors are clustered by firms. The t statistics are reported in parentheses. ***, **, and * denote significance level of 1%, 5%, and 10%, respectively.

Panel A. The first column represent the entire sample; column 2 represents a sample of firms with dividend initiation announcements and/or share repurchases announcements; column 3 represents a sample of firms with dividends increases and/or share repurchases announcements; column 4 represents a sample of firms with dividends announcements and/or small share repurchases announcements (below the mean); column 5 represents a sample of firms with dividends announcements and/or large share repurchases announcements (above the mean)

Parameter	All Sample	Div. Initiations vs. Repurchases	Div. Increases vs. Repurchases	Div. vs. Small Repurchases	Div. vs. Large Repurchases
	Estimate (1)	Estimate (2)	Estimate (3)	Estimate (4)	Estimate (5)
INTERCEPT	-0.01364 (-0.75)	0.02963 (1.02)	-0.01376 (-0.73)	-0.02150 (-1.12)	-0.02666 (-1.26)
SRP_LowA	0.00353 (0.97)	0.00578 (0.74)	0.00352 (0.96)	0.00121 (0.30)	0.00813 (1.25)
SRP_HighA	-0.00025 (-0.05)	0.00185 (0.21)	0.00013 (0.02)	0.00120 (0.20)	-0.00833 (-0.76)
SIZE	0.00069 (0.88)	-0.00136 (-1.04)	0.00072 (0.89)	0.00112 (1.35)	0.00118 (1.29)
ROE	-0.00169 (-1.20)	-0.00345** (-2.16)	-0.00011 (-0.08)	-0.00176 (-1.23)	-0.00190 (-0.91)
ROA	-0.02131 (-0.39)	0.01066 (0.15)	-0.03837 (-0.73)	-0.00743 (-0.12)	-0.04130 (-0.55)
DISTRIBUTION	-0.01282 (-1.25)	-0.01532 (-1.40)	-0.01281 (-1.25)	-0.01655 (-0.65)	-0.0117 (-1.06)
LEVERAGE	-0.00992 (-1.21)	-0.01761 (-1.19)	-0.00628 (-0.77)	-0.01490* (-1.75)	-0.00448 (-0.49)
CUM_RET	0.11532*** (7.67)	0.14340*** (6.70)	0.11370*** (7.36)	0.11410*** (6.97)	0.08983*** (5.19)
STDEVRET	-0.46337*** (-3.33)	-0.66247*** (-3.49)	-0.48428*** (-3.38)	-0.39950** (-2.65)	-0.31435* (-1.83)
EA	0.00439 (1.08)	0.00986* (1.60)	0.00404 (0.94)	0.00219 (0.51)	0.00363 (0.79)
# Obs.	10,792	4,170	10,220	9,815	8,171
Adj. R ²	0.012	0.03	0.012	0.01	0.006

Panel B: This panel presents the regression results for a sample of dividend increases and share repurchases. The dividend increases are classified in tertile according to the percentage increase in the amount announced.

Parameter	First Tertile	Second Tertile	Third Tertile
	Estimate	Estimate	Estimate
INTERCEPT	0.01137 (0.45)	0.00156 (0.07)	0.00799 (0.31)
SRP_LowA	0.00374 (0.86)	0.00424 (0.95)	0.00531 (1.18)
SRP_HighA	0.00077 (0.12)	0.00140 (0.22)	0.00178 (0.29)
SIZE	-0.00048 (-0.44)	-0.000032 (-0.03)	-0.00021 (-0.19)
ROE	-0.00150* (-1.91)	-0.00039 (-0.26)	0.00026 (0.15)
ROA	-0.01286 (-0.21)	-0.01522 (-0.25)	-0.05598 (-0.91)
DISTRIBUTION	-0.01529 (-1.41)	-0.01474 (-1.36)	-0.01337 (-1.30)
LEVERAGE	-0.00476 (-0.39)	-0.00863 (-0.69)	-0.01381 (-1.34)
CUM_RET	0.13884*** (7.15)	0.13475*** (6.87)	0.11704*** (6.21)
STDEVRET	-0.61193*** (-3.53)	-0.59901*** (-3.40)	-0.60050*** (-3.50)
EA	0.00802 (1.40)	0.00785 (1.39)	0.00543 (0.99)
# Obs.	5,820	5,760	5,878
Adj. R ²	0.02	0.02	0.01

Table 13. Magnitude of the change in analysts' recommendation.

This table shows the OLS regression results for the model $Rec\_change_{j,t} = \beta_0 + \beta_1 * SRP\_LowA + \beta_2 * SRP\_HighA + \beta_3 * \sum Firm\_Char_{j,t-1} + \varepsilon_{i,j,t}$, where the dependent variable reflects actual changes in analysts' recommendation following an earnings announcement. The analysis is conducted separately for changes in recommendations that reflect an upgrade (positive value for the dependent variable), and changes in recommendations that reflect a downgrade (negative value for the dependent variable). *SRP_LowA* and *SRP_HighA* are indicator variables equal to 1 if the repurchasing firm was classified as a firm with low level of discretionary accruals, and high level of discretionary accruals, respectively, and 0 otherwise. All variables are defined in the Appendix 2. The standard errors are clustered by firms. The t statistics are reported in parentheses. ***, **, and * denote significance level of 1%, 5%, and 10%, respectively.

Panel A. This panel shows the regression results for the sample with positive changes in analysts' recommendations. Column 1 shows the results for the entire sample; column 2 for a sample of dividend initiations and repurchases announcing firms; column 3 for a sample of dividend increases and repurchases announcing firms; column 4 for a sample of dividend and small repurchases announcing firms; column 5 for a sample of dividend and large repurchases announcing firms.

Parameter	All Sample	Div. Initiations vs. Repurchases	Div. Increases vs. Repurchases	Div. vs. Small Repurchases	Div. vs. Large Repurchases
	Estimate (1)	Estimate (2)	Estimate (3)	Estimate (4)	Estimate (5)
INTERCEPT	0.99251*** (26.89)	1.04001*** (16.73)	0.97722*** (26.07)	0.99406*** (25.81)	0.98903*** (23.02)
SRP_LowA	-0.02398*** (-4.19)	-0.02269 (-1.54)	-0.02409*** (-4.20)	-0.01685** (-2.60)	-0.03889*** (-3.48)
SRP_HighA	-0.03478*** (-3.85)	-0.02902* (-1.81)	-0.03529*** (-3.88)	-0.03947** (-4.04)	-0.02118 (-0.98)
SIZE	-0.03896*** (-25.31)	-0.04117*** (-15.21)	-0.03821*** (-24.44)	-0.03889*** (-24.43)	-0.03901*** (-22.18)
ROE	-0.00087 (-0.42)	0.00298** (3.14)	-0.00452*** (-3.34)	-0.00096 (-0.49)	-0.00091 (-0.45)
ROA	0.17716* (1.72)	0.1801 (1.47)	0.17669* (1.66)	0.21641** (1.99)	0.11999 (0.85)
DISTRIBUTION	-0.00711 (-0.33)	-0.00382 (-0.17)	-0.00863 (-0.40)	-0.08741 (-1.37)	0.00373 (0.14)
LEVERAGE	-0.03996** (-2.86)	0.00798 (0.32)	-0.04551*** (-3.22)	-0.04857*** (-3.42)	-0.04665** (-2.90)
CUM_RET	0.01924 (0.95)	0.01252 (0.47)	0.01551 (0.75)	0.02385 (1.11)	0.02955 (1.10)
STDEVRET	0.46776** (2.24)	0.04539 (0.16)	0.54357** (2.56)	0.52551** (2.30)	0.66907** (2.53)
EA	0.02045** (2.71)	0.02260** (2.16)	0.01868** (2.43)	0.01870** (2.29)	0.02335** (2.48)
# Obs.	2,567	987	2,462	2,331	1,921
Adj. R ²	0.27	0.26	0.27	0.28	0.27

Panel B This panel shows the regression results for the sample with negative changes in analysts' recommendations. Column 1 shows the results for the entire sample; column 2 for a sample of dividend initiations and repurchases announcing firms; column 3 for a sample of dividend increases and repurchases announcing firms; column 4 for a sample of dividend and small repurchases announcing firms; column 5 for a sample of dividend and large repurchases announcing firms.

	All Sample	Div. Initiations vs. Repurchases	Div. Increases vs. Repurchases	Div. vs. Small Repurchases	Div. vs. Large Repurchases
Parameter	Estimate (1)	Estimate (2)	Estimate (3)	Estimate (4)	Estimate (5)
INTERCEPT	-1.09636*** (-24.73)	-1.07117*** (-15.75)	-1.08919*** (-24.07)	-1.09625*** (-23.96)	-1.12101*** (-20.95)
SRP_LowA	0.01586** (2.54)	0.01616 (1.07)	0.01554** (2.48)	0.00968 (1.21)	0.02676** (2.62)
SRP_HighA	0.02738** (2.71)	0.02556 (1.51)	0.02712** (2.66)	0.02979** (2.49)	0.01650 (0.86)
SIZE	0.04319*** (23.73)	0.04178*** (14.86)	0.04283*** (23.11)	0.04324*** (23.05)	0.04454*** (20.25)
ROE	0.00070 (0.65)	0.00190* (1.67)	0.00028 (0.38)	0.00062 (0.63)	0.00460 (1.11)
ROA	-0.10702 (-0.94)	-0.04859 (-0.27)	-0.18699** (-1.97)	-0.08741 (-0.71)	-0.07176 (-0.47)
DISTRIBUTION	0.01412 (0.92)	0.01193 (0.78)	0.01324 (0.86)	0.08055 (0.76)	0.01222 (0.70)
LEVERAGE	0.02259 (1.36)	-0.02950 (-1.11)	0.02838* (1.70)	0.02242 (1.27)	0.04470** (2.35)
CUM_RET	0.03320 (1.31)	0.04285 (1.17)	0.03595 (1.39)	0.03956 (1.43)	0.00988 (0.33)
STDEVRET	-0.99234*** (-4.15)	-0.99658** (-3.02)	-0.99505*** (-4.10)	-1.03725*** (-4.34)	-0.91653** (-2.86)
EA	-0.00126 (-0.14)	0.01402 (1.09)	0.00086 (0.09)	-0.00377 (-0.40)	-0.01446 (-1.33)
# Obs.	2,757	1,080	2,627	2,496	2,068
Adj. R ²	0.27	0.26	0.27	0.26	0.27

Table 14. Logistic regression for the earnings management hypothesis.

This table presents the results of the logistic model : $P(Y=1) = \beta_0 + \beta_1 * SRP\_LowA + \beta_2 * SRP\_HighA + \beta_3 * \sum Firm\_Char_{j,t-1} + \varepsilon_{i,j,t}$ with the dependent variable equal to 1, if there was a change in the analysts recommendation and zero otherwise. All variables are defined in the Appendix 2. The t statistics are reported in parentheses. ***, **, and * denote significance level of 1%, 5%, and 10%, respectively.

Panel A. This panel presents the results for the entire sample (column 1), a sample of dividend initiations and repurchases announcing firms (column 2), and a sample of dividend increases and repurchases announcing firms.

Parameter	All Sample		Div. Initiations vs. Repurchases		Div. Increases vs. Repurchases	
	Estimate (1)	Odds Ratio	Estimate (2)	Odds Ratio	Estimate (3)	Odds Ratio
INTERCEPT	-10.4534*** (-32.88)		-11.4014*** (-21.86)		-10.4165*** (-31.65)	
SRP_LowA	0.2931*** (5.36)	1.341	0.1040 (1.10)	1.11	0.3015*** (5.44)	1.352
SRP_HighA	0.3679*** (5.18)	1.445	0.2175* (1.93)	1.243	0.3728*** (5.17)	1.452
SIZE	0.4472*** (31.44)	1.564	0.5022*** (20.89)	1.652	0.4459*** (30.37)	1.562
ROE	0.0185 (0.45)	1.019	0.0047 (0.11)	1.005	0.0421 (0.85)	1.043
ROA	0.7383 (0.96)	2.092	0.9420 (0.93)	2.565	0.8845 (1.12)	2.422
DISTRIBUTION	0.0798 (0.54)	1.083	0.1813 (1.14)	1.199	0.0790 (0.53)	1.082
LEVERAGE	0.0124 (0.10)	1.012	-0.2572 (-1.29)	0.773	0.0339 (0.26)	1.034
CUM_RET	-0.0332 (-0.19)	0.967	0.2172 (0.93)	1.243	-0.1045 (-0.59)	0.901
STDEVRET	21.0144*** (12.54)	>999.999	21.0333*** (9.37)	>999.999	21.0982*** (12.24)	>999.999
EA	0.2311*** (3.85)	1.26	0.2298** (2.77)	1.258	0.2020*** (3.22)	1.224
# Obs.	10,792		4,170		10,220	

Panel B. This panel presents the regression results for a sample of dividend increases and share repurchases. The dividend increases are classified in tertile according to the percentage increase announced.

Parameter	First Tertile		Second Tertile		Third Tertile	
	Estimate	Odds	Estimate	Odds	Estimate	Odds
		Ratio		Ratio		Ratio
INTERCEPT	-10.9369*** (-24.33)		-10.3219*** (-23.67)		-11.2474*** (-25.46)	
SRP_LowA	0.3810*** (5.56)	1.464	0.2616*** (3.79)	1.299	0.2742*** (4.10)	1.316
SRP_HighA	0.4734*** (5.54)	1.605	0.3302*** (3.87)	1.391	0.3794*** (4.65)	1.461
SIZE	0.4672*** (23.26)	1.595	0.4435*** (22.91)	1.558	0.4892*** (24.54)	1.631
ROE	0.0184 (0.36)	1.019	0.021 (0.40)	1.021	0.1390** (2.15)	1.149
ROA	0.6606 (0.68)	1.936	2.0607** (2.11)	7.852	0.3731 (0.40)	1.452
DISTRIBUTION	0.1439 (0.92)	1.155	0.1642 (1.05)	1.178	0.1181 (0.78)	1.125
LEVERAGE	0.0858 (0.47)	1.09	-0.1378 (-0.74)	0.871	-0.1388 (-0.86)	0.87
CUM_RET	0.1744 (0.81)	1.19	-0.0644 (-0.30)	0.938	-0.0795 (-0.38)	0.924
STDEVRET	21.2422*** (10.21)	>999.999	20.0365*** (9.60)	>999.999	20.8093*** (10.26)	>999.999
EA	0.1659** (2.09)	1.18	0.2274** (2.95)	1.255	0.1732** (2.31)	1.189
# Obs.	5,820		5,760		5,878	

Panel C. This panel presents the results for a sample of dividend and small repurchases announcing firms, and for a sample of dividend and large repurchases announcing firms. Firms with share repurchases announcements are classified based on the total value authorized for repurchases scaled by the market capitalization. Small repurchases have a value authorized for repurchases below the mean, while large repurchases have a value authorized for repurchases above the mean.

Parameter	Div. vs. Small Repurchases		Div. vs. Large Repurchases	
	Estimate	Odds	Estimate	Odds
		Ratio		Ratio
INTERCEPT	-10.1739*** (-30.73)		-10.3958*** (-28.47)	
SRP_LowA	0.2653*** (4.29)	1.304	0.4360** (4.29)	1.547
SRP_HighA	0.374*** (4.64)	1.453	0.3799** (2.93)	1.462
SIZE	0.4365*** (29.58)	1.547	0.4403*** (27.01)	1.553
ROE	0.0149 (0.38)	1.015	0.0129 (0.25)	1.013
ROA	0.3561 (0.43)	1.428	0.7851 (0.80)	2.193
DISTRIBUTION	-0.4046 (-0.84)	0.667	-0.0589 (-0.33)	0.943
LEVERAGE	-0.0064 (-0.05)	0.994	0.1288 (0.90)	1.137
CUM_RET	0.0469 (0.25)	1.048	-0.2519 (-1.15)	0.777
STDEVRET	21.1228*** (11.51)	>999.999	21.5540*** (10.17)	>999.999
EA	0.2029*** (3.16)	1.225	0.3082*** (4.19)	1.361
# Obs.	9,815		8,171	

Table 15. Multivariate analysis for the dividend premium hypothesis.

This table shows the OLS regression results for the model $Rec\_change_{j,t} = \beta_0 + \beta_1 * SRP + \beta_2 * SRP\_DIV + \beta_3 * DPREMIUM + \beta_4 * \sum Firm\_Char_{j,t-1} + \varepsilon_{i,j,t}$. The dependent variable is the change in analysts' recommendation following an earnings announcement. *SRP* is a indicator variable equal to 1 if the announcement was a repurchase announcement and 0 otherwise, *DPREMIUM* is the dividend premium for the year of the announcement, and *SRP_DIV* is the interaction term between *SRP* and *DPREMIUM* variables. All variables are defined in the Appendix 2. The standard errors are clustered by firms. The t statistics are reported in parentheses. ***, **, and * denote significance level of 1%, 5%, and 10%, respectively.

Panel A. The first column presents the results for the entire sample, column 2 for a sample of firms with dividend initiation and share repurchases announcements, column 3 for a sample of firms with dividend increases and share repurchases announcements, column 4 for a sample of firms with dividend and small share repurchases announcements, and column 5 for presents the results for a sample of firms with dividend and large share repurchases announcements.

Parameter	All Sample Estimate (1)	Div. initiations vs. repurchases Estimate (2)	Div. increases vs. repurchases Estimate (3)	Div. vs small repurchases Estimate (4)	Div. vs large repurchases Estimate (5)
INTERCEPT	0.00502 (0.28)	0.04792* (1.77)	0.00472 (0.25)	0.00334 (0.18)	-0.02967 (-1.38)
SRP	-0.00006 (-0.02)	0.00049 (0.06)	0.00029 (0.08)	-0.00075 (-0.19)	-0.00151 (-0.21)
SRP_DIV	0.00716 (1.48)	0.00807* (1.66)	0.00734 (1.52)	0.00672 (1.19)	0.00563 (0.60)
DPREMIUM	-0.00012 (-0.70)	0.00019 (0.78)	-0.00014 (-0.79)	-0.00018 (-1.00)	-0.00033 (-1.56)
SIZE	0.00031 (0.40)	-0.00136 (-1.12)	0.00034 (0.44)	0.00046 (0.57)	0.00140 (1.52)
ROE	0.00013 (0.06)	-0.00028 (-0.10)	0.00170 (0.78)	-0.00003 (-0.02)	-0.00185 (-0.87)
ROA	-0.07668* (-1.68)	-0.08514* (-1.63)	-0.08979* (-1.98)	-0.03258 (-0.75)	-0.10869* (-1.61)
DISTRIBUTION	-0.009621 (-1.31)	-0.0105 (-1.37)	-0.00959 (-1.31)	-0.01770 (-0.68)	-0.01007 (-1.26)
LEVERAGE	-0.00922 (-1.15)	-0.01326 (-1.03)	-0.00630 (-0.78)	-0.01348* (-1.61)	-0.00515 (-0.57)
CUM_RET	0.14402*** (10.97)	0.16938*** (10.26)	0.14446*** (10.77)	0.14043*** (9.83)	0.10965*** (6.41)
STDEVRET	-0.92422** (-7.74)	-1.15820*** (-8.13)	-0.95279*** (-7.85)	-0.88487*** (-6.68)	-0.53973*** (-3.35)
EA	0.00273 (0.69)	0.00440 (0.80)	0.00231 (0.56)	-0.00023 (-0.06)	0.00574 (1.23)
# OBS.	12,220	5,598	11,648	7,248	8,510
Adj. R ²	0.03	0.06	0.03	0.05	0.01

Panel B: This panel presents the regressions results for a sample of dividend increases and share repurchases. The dividend increases are classified in tertile according to the percentage increase in the amount announced.

Parameter	First tertile Estimate	Second Tertile Estimate	Third Tertile Estimate
INTERCEPT	0.031451 (1.29)	0.02399 (1.03)	0.027486 (1.13)
SRP	0.000862 (0.20)	0.00138 (0.31)	0.001627 (0.36)
SRP_DIV	0.008214* (1.69)	0.00816* (1.68)	0.007557 (1.55)
DPREMIUM	0.000036 (0.17)	0.00006 (0.03)	0.000057 (0.26)
SIZE	-0.00073 (-0.69)	-0.00040 (-0.41)	-0.00049 (-0.47)
ROE	0.00125 (0.46)	0.00233 (0.72)	0.00233 (0.87)
ROA	-0.09484* (-1.90)	-0.09603* (-1.93)	-0.10539** (-2.15)
DISTRIBUTION	-0.01063 (-1.40)	-0.01037 (-1.37)	-0.00978 (-1.32)
LEVERAGE	-0.00492 (-0.43)	-0.00789 (-0.69)	-0.01186 (-1.19)
CUM_RET	0.16659*** (10.69)	0.16363*** (10.44)	0.15108*** (9.87)
STDEVRET	-1.10850*** (-8.17)	-1.10096*** (-8.07)	-1.08968*** (-8.09)
EA	0.00333 (0.63)	0.00360 (0.70)	0.00244 (0.48)
# OBS.	7,248	7,188	7,306
Adj. R ²	0.05	0.05	0.04

Panel C This panel presents the results of the regression when the dependent variable includes only positive changes in the analysts' recommendations. The first column presents the results for the entire sample, column 2 for a sample of firms with dividend initiation and share repurchases announcements, column 3 for a sample of firms with dividend increases and share repurchases announcements, column 4 for a sample of firms with dividend and small share repurchases announcements, and column 5 for presents the results for a sample of firms with dividend and large share repurchases announcements.

Parameter	All Sample Estimate (1)	Div. initiations vs. repurchases Estimate (2)	Div. increases vs. repurchases Estimate (3)	Div. vs small repurchases Estimate (4)	Div. vs large repurchases Estimate (5)
INTERCEPT	1.00815*** (29.03)	1.05719*** (20.07)	0.99374*** (28.21)	0.99712*** (27.48)	1.00944*** (23.63)
SRP	-0.01894*** (-3.23)	-0.01658 (-1.14)	-0.01891*** (-3.22)	-0.02107** (-3.19)	-0.01079 (-0.87)
SRP_DIV	-0.00540 (-0.76)	-0.00537 (-0.75)	-0.00531 (-0.75)	-0.00230 (-0.29)	-0.01676 (-1.13)
DPREMIUM	0.00013 (0.50)	0.00028 (0.71)	8.25E-05 (0.31)	1.01E-05 (0.04)	0.00023 (0.74)
SIZE	-0.03921*** (-27.15)	-0.04145*** (-18.37)	-0.03852*** (-26.29)	-0.03893*** (-25.85)	-0.03942*** (-22.69)
ROE	0.00211 (0.79)	0.00501** (3.08)	0.00226 (0.52)	0.00226 (0.86)	-0.00127 (-0.59)
ROA	0.01996 (0.31)	-0.01807 (-0.31)	0.01322 (0.21)	0.20528** (2.12)	-0.02278 (-0.45)
DISTRIBUTION	-0.03987** (-2.32)	-0.03833** (-2.23)	-0.04083** (-2.38)	-0.07024 (-1.11)	-0.04633** (-2.27)
LEVERAGE	-0.03049** (-2.27)	0.01672 (0.78)	-0.03539** (-2.58)	-0.03717** (-2.69)	-0.04316** (-2.78)
CUM_RET	0.02474 (1.36)	0.02311 (1.04)	0.02234 (1.20)	0.02346 (1.22)	0.03626 (1.37)
STDEVRET	0.23929 (1.33)	-0.10638 (-0.48)	0.28812 (1.58)	0.3901** (2.02)	0.40102 (1.56)
EA	0.01809** (2.54)	0.01897** (2.02)	0.01678** (2.31)	0.01664** (2.16)	0.02269** (2.44)
# OBS.	2,846	1,266	2,741	2,540	1,991
Adj. R ²	0.27	0.26	0.27	0.28	0.27

Panel D: This panel presents the results of the regression when the dependent variable includes only negative changes in the analysts' recommendations. The first column presents the results for the entire sample, column 2 for a sample of firms with dividend initiation and share repurchases announcements, column 3 for a sample of firms with dividend increases and share repurchases announcements, column 4 for a sample of firms with dividend and small share repurchases announcements, and column 5 for presents the results for a sample of firms with dividend and large share repurchases announcements.

Parameter	All Sample Estimate (1)	Div. initiations vs. repurchases Estimate (2)	Div. increases vs. repurchases Estimate (3)	Div. vs small repurchases Estimate (4)	Div. vs large repurchases Estimate (5)
INTERCEPT	-1.12240*** (-26.80)	-1.12075*** (-18.79)	-1.11897*** (-26.17)	-1.10846*** (-25.32)	-1.16196*** (-21.91)
SRP	0.01461** (2.16)	0.01310 (0.85)	0.01450** (2.13)	0.00641 (0.75)	0.02020* (1.61)
SRP_DIV	0.00809 (0.97)	0.00802 (0.96)	0.00841 (1.01)	0.01130 (1.17)	-0.00330 (-0.20)
DPREMIUM	-0.00066** (-2.12)	-0.00047 (-1.16)	-0.00075** (-2.40)	-0.00053 (-1.57)	-0.00102** (-2.44)
SIZE	0.04423*** (25.70)	0.04417*** (17.77)	0.04397*** (25.07)	0.04388*** (24.56)	0.04574*** (20.98)
ROE	0.00058 (0.57)	0.00128 (1.33)	0.00011 (0.15)	0.00064 (0.67)	0.00503 (1.22)
ROA	-0.15832** (-3.03)	-0.14401** (-2.61)	-0.18296*** (-3.67)	-0.15174** (-2.75)	-0.12121 (-0.87)
DISTRIBUTION	0.01780 (1.18)	0.01669 (1.10)	0.01708 (1.13)	0.16426* (1.63)	0.01426 (0.83)
LEVERAGE	0.01380 (0.88)	-0.03030 (-1.32)	0.01901 (1.18)	0.00954 (0.56)	0.04533** (2.44)
CUM_RET	0.0911*** (3.73)	0.12145*** (3.79)	0.09488*** (3.80)	0.08955*** (3.41)	0.04367 (1.39)
STDEVRET	-0.94459*** (-4.81)	-0.88791*** (-3.71)	-0.94589*** (-4.76)	-1.03729*** (-4.95)	-0.7932** (-2.74)
EA	-0.00134 (-0.16)	0.00873 (0.79)	0.00051 (0.06)	-0.00774 (-0.87)	-0.00758 (-0.70)
# OBS.	3,133	1,456	3,003	2,783	2,157
Adj. R ²	0.31	0.31	0.31	0.31	0.28

Table 16. Multivariate analysis for the dividend premium hypothesis: positive dividend premium

This table shows the OLS regression results for the model $Rec\_change_{j,t} = \beta_0 + \beta_1 * SRP + \beta_2 * SRP\_DIV + \beta_3 * DPREMIUM + \beta_4 * \sum Firm\_Char_{j,t-1} + \varepsilon_{i,j,t}$. The dependent variable is the change in analysts' recommendation following an earnings announcement. *SRP* is a indicator variable equal to 1 if the announcement was a repurchase announcement and 0 otherwise, *DPREMIUM* is the dividend premium for the year of the announcement, and *SRP_DIV* is the interaction term between *SRP* and *DPREMIUM* variables. The samples include only periods with positive dividend premium. All variables are defined in the Appendix 2. The standard errors are clustered by firms. The t statistics are reported in parentheses. ***, **, and * denote significance level of 1%, 5%, and 10%, respectively.

Panel A. The first column presents the results for the entire sample, column 2 for a sample of firms with dividend initiation and share repurchases announcements, column 3 for a sample of firms with dividend increases and share repurchases announcements, column 4 for a sample of firms with dividend and small share repurchases announcements, and column 5 for presents the results for a sample of firms with dividend and large share repurchases announcements.

Parameter	All Sample Estimate	Div. initiations vs. repurchases Estimate	Div. increases vs. repurchases Estimate	Div. vs small repurchases Estimate	Div. vs large repurchases Estimate
INTERCEPT	0.00740 (0.17)	0.11926** (1.99)	-0.00660 (-0.14)	0.00173 (0.04)	-0.06708 (-1.21)
SRP	0.0144 (1.25)	-0.01312 (-0.58)	0.01792 (1.52)	0.01950 (1.38)	-0.00041 (-0.02)
SRP_DIV	-0.00991 (-0.83)	-0.00891 (-0.74)	-0.00995 (-0.83)	-0.02602* (-1.82)	0.02933 (1.38)
DPREMIUM	-0.00063 (-0.75)	-0.00039 (-0.35)	-0.00056 (-0.65)	-0.00131 (-1.45)	3.38E-05 (0.03)
SIZE	0.00061 (0.32)	-0.00346 (-1.26)	0.00118 (0.60)	0.00154 (0.77)	0.00304 (1.25)
ROE	-0.00813 (-0.62)	-0.00787 (-0.13)	-0.00123 (-0.14)	-0.01002 (-0.76)	-0.01462 (-0.81)
ROA	-0.09934 (-1.34)	-0.06893 (-0.45)	-0.11911* (-1.65)	-0.11863 (-1.58)	-0.09670 (-0.45)
DISTRIBUTION	0.00783 (0.45)	0.00572 (0.31)	0.00813 (0.46)	0.03769 (0.25)	-0.00086 (-0.04)
LEVERAGE	-0.01303 (-0.60)	-0.00937 (-0.25)	-0.01374 (-0.63)	-0.02106 (-0.91)	-0.00296 (-0.13)
CUM_RET	0.13195*** (5.15)	0.14393*** (4.97)	0.13482*** (5.20)	0.14057*** (5.23)	0.08001* (1.83)
STDEVRET	-0.94538*** (-4.16)	-1.17640*** (-4.62)	-0.96404*** (-4.20)	-0.93428*** (-3.72)	-0.52062* (-1.62)
EA	-0.01514 (-1.42)	-0.00843 (-0.64)	-0.01578 (-1.42)	-0.02706** (-2.31)	-0.00609 (-0.46)
# OBS.	1,982	1,083	1,915	1,694	1,249
Adj. R ²	0.04	0.06	0.04	0.04	0.01

Panel B: This panel presents the regressions results for a sample of dividend increases and share repurchases. The dividend increases are classified in tertile according to the percentage increase in the amount announced.

Parameter	First tertile Estimate	Second Tertile Estimate	Third Tertile Estimate
INTERCEPT	0.05174 (0.99)	0.03265 (0.57)	0.05570 (0.91)
SRP	0.00725 (0.58)	0.01995 (1.40)	0.02831* (1.76)
SRP_DIV	-0.00950 (-0.79)	-0.00935 (-0.78)	-0.00927 (-0.77)
DPREMIUM	-0.00069 (-0.71)	-0.00019 (-0.19)	-0.00067 (-0.62)
SIZE	-0.00113 (-0.48)	-0.00067 (-0.28)	-0.00222 (-0.85)
ROE	-0.01009 (-0.21)	0.00936 (1.13)	0.03235 (0.64)
ROA	-0.08046 (-0.63)	-0.13914* (-1.81)	-0.14939 (-1.08)
DISTRIBUTION	0.00634 (0.35)	0.00612 (0.34)	0.00717 (0.40)
LEVERAGE	-0.00578 (-0.19)	-0.01789 (-0.52)	-0.01900 (-0.70)
CUM_RET	0.14309*** (5.18)	0.14446*** (5.11)	0.13853*** (4.88)
STDEVRET	-1.07614*** (-4.44)	-1.15105*** (-4.63)	-1.08484*** (-4.30)
EA	-0.01143 (-0.91)	-0.01213 (-0.94)	-0.01357 (-1.07)
# OBS.	1,412	1,294	1,244
Adj. R ²	0.05	0.05	0.05

Panel C. This panel presents the results of the regression when the dependent variable includes only positive changes in the analysts' recommendations. The first column presents the results for the entire sample, column 2 for a sample of firms with dividend initiation and share repurchases announcements, column 3 for a sample of firms with dividend increases and share repurchases announcements, column 4 for a sample of firms with dividend and small share repurchases announcements, and column 5 for presents the results for a sample of firms with dividend and large share repurchases announcements.

Parameter	All Sample Estimate (1)	Div. initiations vs. repurchases Estimate (2)	Div. increases vs. repurchases Estimate (3)	Div. vs small repurchases Estimate (4)	Div. vs large repurchases Estimate (5)
INTERCEPT	0.91207*** (9.71)	1.15676*** (8.56)	0.89059*** (9.27)	0.92650*** (9.33)	0.72067*** (5.71)
SRP	0.00115 (0.06)	-0.06442 (-1.45)	0.00818 (0.44)	-0.01658 (-0.75)	0.05493 (1.42)
SRP_DIV	-0.02651 (-1.39)	-0.02880 (-1.48)	-0.02755 (-1.44)	-0.01477 (-0.69)	-0.05890 (-1.51)
DPREMIUM	-0.00006 (-0.05)	-0.00102 (-0.48)	9.34E-05 (0.07)	-0.00094 (-0.66)	0.00142 (0.78)
SIZE	-0.03521*** (-9.03)	-0.04375*** (-7.70)	-0.03423*** (-8.55)	-0.03537*** (-8.46)	-0.02739*** (-5.42)
ROE	0.034825 (0.54)	0.08457 (1.36)	0.13022 (1.44)	0.04341 (0.62)	-0.04803 (-1.20)
ROA	0.23908 (1.33)	0.16842 (0.89)	0.10173 (0.50)	0.21267 (1.26)	0.26946 (0.71)
DISTRIBUTION	-0.00832 (-0.33)	-0.00580 (-0.21)	-0.01188 (-0.46)	0.06058 (0.24)	-0.05711* (-1.76)
LEVERAGE	-0.00917 (-0.26)	0.01805 (0.40)	-0.03242 (-0.90)	-0.03265 (-0.85)	0.02398 (0.49)
CUM_RET	0.06327* (1.89)	0.05518 (1.44)	0.06040* (1.80)	0.04895 (1.44)	0.13210** (2.03)
STDEVRET	0.35131 (0.99)	0.04776 (0.10)	0.30500 (0.85)	0.49249 (1.42)	0.63758 (1.20)
EA	0.00025 (0.01)	0.01630 (0.71)	-0.00108 (-0.06)	-0.00764 (-0.36)	-0.00229 (-0.08)
# OBS.	428	217	416	373	278
Adj. R ²	0.25	0.25	0.25	0.26	0.21

Panel D: This panel presents the results of the regression when the dependent variable includes only negative changes in the analysts' recommendations. The first column presents the results for the entire sample, column 2 for a sample of firms with dividend initiation and share repurchases announcements, column 3 for a sample of firms with dividend increases and share repurchases announcements, column 4 for a sample of firms with dividend and small share repurchases announcements, and column 5 for presents the results for a sample of firms with dividend and large share repurchases announcements.

Parameter	All Sample Estimate (1)	Div. initiations vs. repurchases Estimate (2)	Div. increases vs. repurchases Estimate (3)	Div. vs small repurchases Estimate (4)	Div. vs large repurchases Estimate
INTERCEPT	-1.04916*** (-10.86)	-0.99060*** (-7.65)	-1.06255*** (-10.78)	-1.00361*** (-10.02)	-1.12975*** (-8.76)
SRP	-0.02068 (-0.99)	-0.07147* (-1.95)	-0.01565 (-0.73)	-0.01738 (-0.66)	-0.02435 (-0.79)
SRP_DIV	0.05037** (2.43)	0.05195** (2.45)	0.04965** (2.39)	0.04968* (1.98)	0.04295 (1.18)
DPREMIUM	0.00151 (1.13)	0.00339* (1.92)	0.00124 (0.91)	0.00049 (0.35)	0.00117 (0.67)
SIZE	0.04151*** (10.69)	0.04063*** (7.59)	0.04178*** (10.56)	0.04038*** (10.10)	0.04449*** (8.66)
ROE	-0.14477** (-2.67)	0.16903 (0.91)	-0.16677*** (-3.27)	-0.13110** (-2.24)	-0.21574*** (-5.09)
ROA	0.13236 (0.77)	-0.42619 (-1.14)	0.15966 (0.92)	0.12581 (0.72)	0.22883 (0.67)
DISTRIBUTION	0.06009** (2.08)	0.06123* (1.97)	0.05844** (2.03)	-0.01002 (-0.03)	0.09003** (2.57)
LEVERAGE	0.02182 (0.52)	-0.04457 (-0.76)	0.02221 (0.52)	0.00314 (0.07)	0.11037** (2.28)
CUM_RET	0.03419 (0.65)	0.03802 (0.59)	0.04263 (0.80)	0.05690 (1.01)	-0.04920 (-0.78)
STDEVRET	-1.01065** (-2.42)	-1.01171** (-2.12)	-0.99320** (-2.35)	-1.00201** (-2.25)	-1.06989* (-2.03)
EA	-0.03322* (-1.60)	-0.02573 (-0.99)	-0.02662 (-1.25)	-0.04551* (-2.04)	-0.03128 (-1.17)
# OBS.	563	291	546	492	360
Adj. R ²	0.28	0.25	0.29	0.28	0.27

Table 17. Multivariate analysis for the confirmation bias hypothesis.

This table shows the OLS regression results for the model $Rec\_change_{j,t} = \beta_0 + \beta_1 * DSRP + \beta_2 * NDSRP + \beta_3 * \sum Firm\_Char_{j,t-1} + \varepsilon_{i,j,t}$. The dependent variable is the change in analysts' recommendation following an earnings announcement. *DSRP* is a indicator variable equal to 1 if the firm announcing a share repurchase has been downgraded in the month prior to the announcement and 0 otherwise. *NDSRP* is a indicator variable equal to 1 if the firm announcing a share repurchase has not been downgraded in the month prior to the announcement and 0 otherwise.. All variables are defined in the Appendix 2. The standard errors are clustered by firms. The t statistics are reported in parentheses. ***, **, and * denote significance level of 1%, 5%, and 10%, respectively.

Panel A. The first column presents the results for the entire sample, column 2 for a sample of firms with dividend initiation and share repurchases announcements, column 3 for a sample of firms with dividend increases and share repurchases announcements, column 4 for a sample of firms with dividend and small share repurchases announcements, and column 5 for presents the results for a sample of firms with dividend and large share repurchases announcements.

Parameter	All Sample Estimate (1)	Div. initiations vs. repurchases Estimate (2)	Div. increases vs. repurchases Estimate (3)	Div. vs small repurchases Estimate (4)	Div. vs large repurchases Estimate (5)
INTERCEPT	-0.00041 (-0.02)	0.04105 (1.49)	-0.00086 (-0.05)	-0.00207 (-0.11)	-0.03109 (-1.42)
DSRP	0.00572 (1.12)	0.00594 (0.70)	0.00640 (1.25)	0.00316 (0.53)	0.00917 (1.06)
NDSRP	0.00005 (0.01)	-0.00068 (-0.09)	0.00079 (0.22)	-0.00122 (-0.32)	0.00107 (0.16)
SIZE	0.00067 (0.84)	-0.00106 (-0.86)	0.00069 (0.85)	0.00092 (1.11)	0.00163 (1.73)
ROE	0.00028 (0.12)	-0.00013 (-0.04)	0.00203 (0.85)	7.94E-05 (0.03)	-0.00205 (-0.86)
ROA	-0.09447* (-1.92)	-0.10964* (-1.94)	-0.09516* (-1.88)	-0.04599 (-0.95)	-0.13026** (-2.01)
DISTRIBUTION	-0.00843 (-1.18)	-0.00953 (-1.30)	-0.00837 (-1.18)	-0.02007 (-0.77)	-0.01254 (-1.57)
LEVERAGE	-0.01592* (-1.93)	-0.01517 (-1.13)	-0.01434* (-1.70)	-0.02125** (-2.44)	-0.01283 (-1.40)
CUM_RET	0.14531*** (10.78)	0.16916*** (10.08)	0.14708*** (10.68)	0.14585*** (9.95)	0.10301*** (5.84)
STDEVRET	-0.90325*** (-7.23)	-1.12272*** (-7.51)	-0.93384*** (-7.32)	-0.89368*** (-6.41)	-0.48920** (-3.02)
EA	0.00265 (0.65)	0.00570 (0.98)	0.00251 (0.58)	-0.00160 (-0.37)	0.00554 (1.16)
# OBS.	11,234	5,154	10,704	10,020	7,814
Adj. R ²	0.03	0.06	0.035	0.03	0.01

Panel B. This panel presents the results of the regression when the dependent variable includes only positive changes in the analysts' recommendations. The first column presents the results for the entire sample, column 2 for a sample of firms with dividend initiation and share repurchases announcements, column 3 for a sample of firms with dividend increases and share repurchases announcements, column 4 for a sample of firms with dividend and small share repurchases announcements, and column 5 for presents the results for a sample of firms with dividend and large share repurchases announcements.

Parameter	All Sample Estimate (1)	Div. initiations vs. repurchases Estimate (2)	Div. increases vs. repurchases Estimate (3)	Div. vs small repurchases Estimate (4)	Div. vs large repurchases Estimate (5)
INTERCEPT	0.99258*** (27.75)	1.02290*** (19.12)	0.98094*** (27.01)	0.98350*** (26.38)	0.99699*** (22.41)
DSRP	-0.03613*** (-4.91)	-0.03152** (-2.03)	-0.03639*** (-4.93)	-0.03293*** (-3.86)	-0.04498*** (-3.09)
NDSRP	-0.01815*** (-3.23)	-0.01484 (-1.00)	-0.01812*** (-3.21)	-0.02169*** (-3.41)	-0.00783 (-0.68)
SIZE	-0.03850*** (-25.85)	-0.03991*** (-17.56)	-0.03787*** (-25.06)	-0.03829*** (-24.71)	-0.03900*** (-21.45)
ROE	0.00200 (0.76)	0.00469*** (3.08)	0.00224 (0.53)	0.00222 (0.86)	-0.00123 (-0.62)
ROA	0.01870 (0.29)	-0.01493 (-0.26)	0.01249 (0.20)	0.21403** (2.12)	-0.02442 (-0.51)
DISTRIBUTION	-0.04430** (-2.65)	-0.04212** (-2.54)	-0.04528** (-2.72)	-0.06104 (-0.94)	-0.05495** (-2.79)
LEVERAGE	-0.03611** (-2.59)	0.01828 (0.83)	-0.04316*** (-3.04)	-0.04479*** (-3.10)	-0.04934*** (-3.07)
CUM_RET	0.03173* (1.70)	0.03007 (1.33)	0.02933 (1.55)	0.03352* (1.70)	0.04137 (1.51)
STDEVRET	0.25192 (1.36)	-0.03955 (-0.17)	0.28456 (1.52)	0.38861* (1.93)	0.42054* (1.60)
EA	0.01743** (2.31)	0.01341 (1.35)	0.01595** (2.07)	0.01673** (2.05)	0.02518** (2.55)
# OBS.	2,608	1,164	2,510	2,322	1,828
Adj. R ²	0.27	0.27	0.27	0.28	0.27

Panel C: This panel presents the results of the regression when the dependent variable includes only negative changes in the analysts' recommendations. The first column presents the results for the entire sample, column 2 for a sample of firms with dividend initiation and share repurchases announcements, column 3 for a sample of firms with dividend increases and share repurchases announcements, column 4 for a sample of firms with dividend and small share repurchases announcements, and column 5 for presents the results for a sample of firms with dividend and large share repurchases announcements.

Parameter	All Sample Estimate (1)	Div. initiations vs. repurchases Estimate (2)	Div. increases vs. repurchases Estimate (3)	Div. vs small repurchases Estimate (4)	Div. vs large repurchases Estimate (5)
INTERCEPT	-1.08708*** (-25.36)	-1.07559*** (-17.67)	-1.08737*** (-24.80)	-1.07404*** (-24.13)	-1.12010*** (-20.56)
DSRP	0.04209*** (4.79)	0.03243** (2.03)	0.04343*** (4.91)	0.02962** (2.66)	0.06459*** (4.57)
NDSRP	0.00898 (1.40)	-0.00077 (-0.05)	0.01013 (1.56)	0.00601 (0.76)	0.00709 (0.59)
SIZE	0.04321*** (24.34)	0.04287*** (16.75)	0.04305*** (23.77)	0.04301*** (23.47)	0.04459*** (19.80)
ROE	0.00062 (0.68)	0.00154* (1.79)	0.00015 (0.21)	0.00045 (0.51)	0.00384 (0.86)
ROA	-0.18075** (-1.98)	-0.20063* (-1.73)	-0.18645** (-2.03)	-0.16394* (-1.65)	-0.16167 (-1.37)
DISTRIBUTION	0.02159 (1.40)	0.02097 (1.36)	0.02110 (1.37)	0.11245 (1.10)	0.01199 (0.65)
LEVERAGE	0.00883 (0.54)	-0.02844 (-1.20)	0.01260 (0.73)	0.00490 (0.27)	0.03553* (1.91)
CUM_RET	0.07427*** (3.17)	0.09454*** (3.12)	0.08058*** (3.36)	0.07123** (2.89)	0.03545 (1.13)
STDEVRET	-1.15258*** (-6.17)	-1.13057*** (-4.99)	-1.15001*** (-6.06)	-1.27687*** (-6.76)	-0.88815** (-2.98)
EA	-0.00360 (-0.42)	0.01060 (0.93)	-0.00087 (-0.10)	-0.01197 (-1.31)	-0.01258 (-1.16)
# OBS.	2,860	1,340	2,740	2,542	1,958
Adj. R ²	0.32	0.33	0.32	0.32	0.28

Table 18. Multivariate analysis for the catering hypothesis.

This table presents the results of the following regression model: $Rec\_change_{j,t} = \beta_0 + \beta_1 * SRP + \beta_2 * Institutional\_Preference + \beta_3 * \sum Firm\_Char_{j,t-1} + \varepsilon_{i,j,t}$ (9 The dependent variable is the change in analysts' recommendation following an earnings announcement. All variables are defined in the Appendix 2. The standard errors are clustered by firms. The t statistics are reported in parentheses. ***, **, and * denote significance level of 1%, 5%, and 10%, respectively.

	All Sample	Dividend Sample	Repurchases Sample
Parameter	Estimate (1)	Estimate (2)	Estimate (3)
INTERCEPT	0.00727 (0.40)	-0.03719* (-1.63)	0.04912* (1.69)
SRP	0.00266 (0.85)		
Institutional_Preference	-1.24019 (-0.85)	-3.84703** (-2.09)	2.85671 (0.95)
SIZE	0.00044 (0.56)	0.00229** (2.32)	-0.00167 (-1.28)
ROE	0.00017 (0.08)	-0.00199 (-0.96)	0.00214 (0.62)
ROA	-0.06967 (-1.50)	-0.02117 (-0.24)	-0.09557* (-1.81)
DISTRIBUTION	-0.00998 (-1.36)	0.02290 (0.94)	-0.01032 (-1.36)
LEVERAGE	-0.00929 (-1.16)	-0.01062 (-1.11)	-0.00880 (-0.63)
CUM_RET	0.14271*** (10.85)	0.07921*** (4.09)	0.16886*** (9.94)
STDEVRET	-0.92785*** (-7.68)	-0.13783 (-0.71)	-1.16624*** (-7.72)
EA	0.00278 (0.70)	-0.00045 (-0.09)	0.00364 (0.60)
# OBS.	12,165	7,173	4,992
Adj. R ²	0.03	0.03	0.06

VITA

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