The Impact of the 2003 Dividend Tax Cut and Share Repurchases on the Information Content of Dividend Changes

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Abstract

We examine the information content of dividend changes during the period 1985 – 2012 by partitioning our sample into those firms which announced repurchase programs (REP) and those that did not (NREP) during the pre and post-tax cut periods. We find strong evidence of information content for dividend increases and dividend decreases for both firms with and without repurchases. Further, we find strong evidence that the information content of dividend increases is more pronounced for NREP firms in the pre-tax cut period but not for REP firms, indicating that information content is stronger when the signalling cost is higher, and the signalling power is reduced where other signals (share repurchases) in this context are available. We find some evidence that the information content of dividend decreases is more pronounced during the post-tax cut period for both NREP and REP firms. Further, we find that the information content of dividend changes regarding future earnings is reflected in the long-term reaction.

1 Introduction

The extant literature provides conflicting evidence on the nature and extent of the earnings information contained in dividend announcements (see for example, Benartzi, Michaely, and Thaler (1997), DeAngelo, DeAngelo, and Skinner (2009) and Ham, Kaplan, and Leary (2019)). Benartzi, Michaely, and Thaler (1997) report that firms that increase (decrease) dividends experience increases (decreases) in earnings during the same year, but no further changes thereafter. Recently, Ham et al. (2019) show that dividend changes contain information about highly persistent changes in future economic income after controlling for the nonlinear relation between dividend changes and market reactions using an event window approach.

The emergence of share repurchases as an alternative payout form has changed the dividend payout policy dramatically since 1980s (e.g., Brav, Graham, Harvey, & Michaely, 2005; Grullon & Michaely, 2002; Skinner, 2008). Recent studies document a dividend reappearance phenomenon subsequent to the 2003 tax cut on dividends (e.g., Andres, Betzer, Da Silva, & Goergen, 2009; Brown, Liang, & Weisbenner, 2007; Chetty & Saez, 2005; Floyd, Li, & Skinner, 2015; Julio & Ikenberry, 2004).[1] Brown et al. (2007) find that the increase in the number of dividend initiations in 2003 is funded by reductions in share repurchases. In this paper, we extend the work of Ham et al. (2019) by examining the information content of dividend changes by controlling for the announcement of a share repurchase program of dividend payers and partitioning the sample into pre- and post-tax cut periods to provide new insights on the debate of information content of dividends.

CFOs in Brav et al. (2005)'s survey state that repurchases increase with permanent earnings but also with temporary earnings while dividend increases tied to permanent, stable earnings. Skinner (2008) examines how the relation between earnings and payout policy has

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[1] The dividend tax cut introduced in the Jobs and Growth Tax Reconciliation Act of 2003 (JGTRA) removed the tax disadvantages to dividend payments with a 23.6 percentage point reduction in the tax on dividends and the equalization of the top tax rate on capital gains and dividends at 15%.

evolved over the period 1980-2004 and find that three principal groups of payers have emerged: firms that pay dividends and make regular repurchases, firms that make regular repurchases, and firms that make occasional repurchases. Further, Skinner (2008) finds that repurchases adjust quickly to earnings changes while the relation between earnings and dividends becomes weak. He asserts that earnings drive the *level* of repurchases over 2–3-year windows but that managers *time* repurchases within those windows in a manner that depends on factors such as repurchasing when the stock price is low (Brav, Graham, Harvey, and Michaely, 2005; Peyer and Vermaelen, 2006), to offset dilution associated with employee stock options (Kahle, 2002), to boost reported EPS (Bens, Nagar, Skinner, and Wong, 2003), or to distribute excess cash (Jensen, 1986). Given that dividend is reappearing subsequent to the 2003 tax cut and the findings of Brav et al. (2005) and Skinner (2008) on the link between earnings and repurchases, it is crucial to understand how repurchase announcements and dividend tax cut affect the information content of dividend changes.[2]

Ham et al. (2019) argue that computing earnings changes using an event window approach over fiscal years has a dramatic influence on whether a study confirms or rejects the information content hypothesis.[3] Given that we examine the information content dividend changes conditioning on whether announcers of dividend changes have announced a repurchase program prior to or during the announcement of dividend changes, we use a modified fiscal year approach. To overcome the drawback of the fiscal year approach suggested by Ham et al. (2019), we use modified fiscal year approach, by focusing on fiscal year dividend changes by conditioning the direction of annual dividend changes aligned with the direction of quarterly dividend changes in examining the information content of dividend changes.[4]

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[2] Ham et al. (2019) do not consider the effect of share repurchases and the 2003 dividend tax cut in their analysis on the information content of dividend changes.

[3] They show that when they apply the fiscal year approach to their sample, they find no evidence of dividend information content.

[4] For example, if there is an increase in the quarterly dividend, then there should be an increase in the annual dividend during the current fiscal year for the year the quarterly dividend is declared. Thus, the potential

Following Barber and Lyon (1996), Grullon and Michaely (2004), and Lie's (2005), we identify control firms which do not announce dividend changes to use diff in diff analysis, we examine the information content of dividend changes during the period 1985 – 2012, by partitioning our sample into those firms which announce repurchase programs (REP, hereafter) and those that do not (NREP, hereafter). Further, we partition REP and NREP into the pre- and post-2003 tax cut period. We find strong (weak) evidence of information content for dividend increases (decreases) for both firms with and without repurchases and that the information content is statistically stronger for those firms without repurchases. Further, find that the information content of dividend increases is statistically weaker during the post-tax cut period for NREP firms, indicating that information content is stronger when the signalling cost is higher. We do not find any significant difference in the abnormal operating performance between pre and post-tax cut periods for REP firms, where other signals are available - in this context share repurchases.

In examining the long-term returns subsequent to dividend change announcements, we follow Daniel, Grinblatt, Titman, and Wermers (1997) and Lyon, Barber, and Tsai (1999) and use their reference portfolio methods to calculate long-term abnormal returns. In the case of dividend increases, we find significantly positive long-term returns for the one-year, two-year and three-year periods for the full sample, NREP firms in both the pre- and post-tax cut period with and without the inclusion of the crisis period and the dividend increase announcements in the year of 2003, and REP firms in the post-tax cut period with and without the inclusion of the crisis period and the dividend increase announcements in the year of 2003. However, in the case of REP firms prior to the 2003 tax cut, we do not find any support for the one-year, two-year and three-year periods based on Lyon et al. (1999)'s and Daniel et al. (1997)'s method

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information content of a dividend increase/decrease can be clearly examined using the fiscal year approach. Given that we focus only on annual dividend changes, when there are multiple dividend increases or decreases during the same fiscal year, we consider them as one fiscal year event in examining the information content of dividend changes.

and the results still hold after excluding the crisis period. For dividend-decreasing firms, we find significantly positive post-announcement returns for the full sample. But significantly, positive post-announcement returns become insignificant for NREP firms when we patination NREP firms into pre- and post-tax cuts after excluding the crisis period and the dividend decrease announcement in the year of 2003, indicating that market reaction is noisy during the down market. We do not perform subsample analysis for REP firms as the sample size is very small (68 announcements). As a robustness check, we also use the calendar time methodology (following Peyer and Vermaelen (2009)),[5] and find qualitatively similar results. Overall, we find significantly positive post-announcement drift for dividend increases and not for dividend decreases after removing the crisis periods, consistent with the existing literature. In addition, we also document that there is a strong (weak) positive relation between abnormal operating performance and the post-announcement long-term abnormal returns for dividend increases (decreases). The results indicate that the information content of dividend changes regarding future earnings is reflected in the long-term reaction.

We contribute to the prior literature in several ways. First, we add new evidence to the literature on the information content of dividend changes regarding future earnings by showing strong support for the information content hypothesis using the modified fiscal year approach. We complement the findings in Ham et al. (2019). Different from Ham et al. (2019), we also examine the information content of dividend changes by partitioning the sample into firms with share repurchases and without repurchases subsequent (prior) to the 2003 dividend tax cut. Given the substitution effect between dividends and share repurchases and the tax disadvantage of dividends removed by the 2003 tax reform, it is important to control for these impacts when

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[5] Boehme and Sorescu (2002) show that stocks initiating or resuming dividends experience a significantly positive price drift only when the Fama–French calendar time portfolios are equally weighted, whereas the price drift becomes generally insignificant when the portfolios are value weighted. However, Peyer and Vermaelen (2009) argue that value weighting decreases the power to identify long-term abnormal returns and using the calendar time methodology, with equally weighted portfolios and Ibbotson's (1975) returns across time and security (IRATS) method, they find significantly positive long-term abnormal returns subsequent to repurchase announcements.

examining the information of dividend increases/decreases. In the case of dividend increases, we find that information content is more pronounced for NREP firms during the pretax cut periods in the case of dividend increases. In the case of dividend decreases, we find weak evidence of more pronounced information content for REP firms during the post-tax cut periods. Our findings also highlight the importance of incorporating changes in the tax system and the impact of an alternative payout policy into the analysis of the information content of dividend changes.

Second, we contribute to the ongoing debate regarding long-run abnormal returns following corporate events (see, for example, IPOs (Lowry, Michaely, & Volkova, 2017); seasoned equity offerings (Eckbo, Masulis, & Norli, 2007); repurchases (Peyer & Vermaelen, 2009); mergers (Loughran & Vijh, 1997; Malmendier, Moretti, & Peters, 2018; Rau & Vermaelen, 1998), and dividend initiations (Boehme & Sorescu, 2002; DeAngelo, DeAngelo, & Skinner, 2009; Michaely, Thaler, & Womack, 1995)). Using various methodologies to identify long-run abnormal returns, we find consistent evidence of positive post-dividend-increase abnormal returns. Further, we find that abnormal operating performances are positively related to post-announcement long-run abnormal returns for both NREP and REP firms, indicating that the information content of dividend increases/decreases regarding future earnings is reflected in the long-term reactions.

The rest of the paper is organized as follows. Section 2 briefly discusses the hypotheses development. Section 3 presents and discusses sample selection procedures and research design. Section 4 presents and discusses the empirical results related to the information content hypothesis and the long-term returns for dividend increases, while Section 5 presents and discusses the corresponding empirical results for dividend decreases. Section 6 concludes the paper.

2 Hypotheses Development

2.1 Information content

A firm that has high expected future earnings prospects has several ways of communicating this information to the market. Dividends provide one source of this information. Empirically, there is little support for this notion (Allen & Michaely, 2003). However, the CFOs in Brav et al. (2005)'s survey argue that dividends convey information and dividend increases are tied to permanent, stable earnings. As discussed earlier, the methodology used to estimate earnings changes is crucial in examining the information content of dividend announcements. Using an event window approach, Ham et al. (2019) show that dividend changes contain information about highly persistent changes in future economic income, supporting the information content hypothesis. However, Ham et al. (2019) do not find support for the information content hypothesis when using a fiscal year approach. They argue that almost all of the studies employing the fiscal year approach do not support the information content hypothesis. But Balachandran et al. (2012), Barber and Lyon (1996), Grullon and Michaely (2004), Lie (2001 and 2005), and Nohel and Tarhan (1998) suggest that studies examining future earnings performance subsequent to corporate events must use control samples with similar characteristics. Therefore, one plausible reason for little empirical support using the fiscal year approach for the information content of dividend changes regarding future earnings could be a result of an inappropriate measure for dividend and earning changes. We focus on a modified fiscal year approach by conditioning the direction of annual dividend changes aligning with the direction of quarterly dividend changes in examining the information content of dividend changes. For example, if there is an increase in the quarterly dividend, then there should be an increase in the annual dividend during the current fiscal year for the year the quarterly dividend is declared. Given that we focus only on annual dividend changes, when there are multiple

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dividend increases or decreases during the same fiscal year, we consider them as one fiscal year event in examining the information content of dividend changes. Thus, the potential information content of dividend increases/decreases can be clearly examined using the modified fiscal year approach. Further, in the spirit of Barber and Lyon (1996), Brav et al. (2005), and Lie (2001), we argue that dividend increases/decreases do convey information based on the modified fiscal year approach and develop the following hypothesis.

H1   *Dividend increases/decreases have information content regarding future earnings prospects based on a modified fiscal year approach.*

The emergence of stock repurchases induces the disappearance of dividends as a form of payout due to the flexibility of repurchases (e.g., Brav et al., 2005; Grullon & Michaely, 2002; Skinner, 2008). The CFOs in Brav et al. (2005)'s survey state that repurchases also convey information and repurchases increase with permanent earnings but also with temporary earnings. Given that the tax disadvantage to dividend payment substantially disappeared subsequent to the 2003 Act, the "ideal markets" scenario of the classic Miller and Modigliani (1961) paper where dividends have information content becomes more applicable. However, Brav, Graham, Harvey, and Michaely (2008) survey financial executives to examine managers' responses to the 2003 dividend tax cut and find that the historic level of the dividend and the stability of future cash flow are the most important explanations of dividend decisions for public firms that were already paying dividends. Surprisingly, tax consideration is taken as having second-order importance. Only a minority of executives in Brav et al. (2005) state that reduced dividend taxation leads to dividend increases in their firm.

Drawing on these arguments, we propose the following two alternative hypotheses:

H2(a)   *The information content of dividend increases regarding future earnings streams will be more pronounced for firms without repurchase programs prior to the 2003 Dividend Tax Cut.*

H2(b)   *The information content of dividend decreases regarding future earnings streams will*
             be more pronounced for firms with repurchase programs subsequent to the 2003
             Dividend Tax Cut.

2.2 Long-term reaction

By comparing the CRSP market-capitalization decile benchmark, Benartzi et al. (1997) find
that the three-year buy-and-hold return is 8.3% and is statistically significant for dividend
increases although they do not find a significant drift following dividend decreases. Benartzi
et al. argue that the findings indicate that the market underreacts to the information contained
in corporate actions such as dividend change announcements and repurchase announcements.
Using the Fama-French three-factor model, Grullon et al. (2002) report a statistically
significant positive drift over a three-year period post-dividend increase announcements and a
statistically insignificant negative drift over a three-year period post-dividend decrease
announcements. Using the calendar time approach, Liu, Szewczyk, and Zantout (2008) find
significant one-year negative post-announcement long-term abnormal returns and argue that
there is no compelling or convincing evidence of a post-dividend-reduction price drift after
controlling for the earnings performance of the dividend event firms and the skewness of the
distribution of buy-and-hold abnormal returns. Thus, they argue that investors do not exhibit
cognitive biases in interpreting or assessing the information conveyed at announcements of
dividend reductions. One plausible reason for insignificant post-announcement drift could be
non-symmetric initial market reaction for dividend increases and decreases. Allen and
Michaely (2003) conclude that announcements of reductions per se have a larger price impact
than announcements of increases, suggesting that the market overreacts to bad news. As such,
we develop the following hypotheses:

H3(a)   Post-announcement long-term abnormal returns will be significantly positive for dividend increases.

H3(b)   Post-announcement long-term abnormal returns will be insignificantly negative for dividend decreases.

A market underreaction to dividend increase announcements documented in the literature could arise, for example, via a "conservativism" bias (Daniel, Hirshleifer, & Subrahmanyam, 1998), wherein investors overweight their priors and underweight new information as it arrives into the market. In the case of dividend increases which communicate a significant chunk of information, this conservatism bias could induce a large price underreaction. The market tends to more fully incorporate this initial information when future firm performances which were indicated in the dividend increases and other firm specific information are disclosed to the market which corroborate and confirm this initial dividend increases information. Therefore, we predict that long-term return performance will be concentrated among those firms with higher, corroborative, future earnings streams as such streams would have stronger likelihoods of alleviating the cognitive biases that lead to the initially higher underreactions. This prediction is also pertinent for dividend decreases although the market is less likely to underreact to initial dividend decrease information for the reasons discussed above. As such, we develop the following hypothesis:

H4   Post-announcement long-term abnormal returns will be positively related with long-term abnormal operating performance.

3 Research Design and Data Requirements

3.1 Sample selection

We collect a sample of large quarterly dividend changes from the Center for Research in Security Prices (CRSP) database during the period 1985 – 2012. Following Yoon and Starks

(1995), we define a large quarterly dividend change as a quarterly dividend increase or decrease that is more than 10% from the last quarter to ensure that any potential information content is significant. Following Benartzi et al. (1997), we do not consider dividend initiation and dividend omission in this paper. We require dividends to be ordinary, taxable cash dividends payable at a quarterly frequency (dividend distribution codes 1232) to holders of ordinary common stock (share codes 10 and 11) listed on the New York Stock Exchange, NASDAQ, or the American Stock Exchange. Following Benartzi et al. (1997), we require that the company should have paid at least eight consecutive quarterly common dividends before the current dividend. Following Grullon et al. (2005), we also require that other distribution events, such as stock splits, stock dividends and mergers, are not announced between the declaration of the previous quarterly dividend and four days after the declaration of the current quarterly dividend, and that there are no ex-distribution dates between the ex-distribution dates of previous and current quarterly dividends. We exclude financial and regulated utility firms from the sample. We also exclude firms which do not have accounting data in the Compustat database for the relevant sample frame and those firms changing their fiscal-year end during the year of dividend change announcement.

We obtain an initial sample of 4,580 dividend change announcements after these filtering procedures: 4,166 dividend increases and 414 dividend decreases. We allocate each observation to a fiscal year to match the earnings performance in that year. We only consider the firm-year observation where the direction of various quarterly dividend change announcements are the same within the year. In addition, we only consider the direction of quarterly dividend change when it is the same as the direction of annual dividend change which is measured as the difference between annual dividend during the year of the quarterly dividend change announcement and the year before. Moreover, if there are multiple dividend change announcements during the same fiscal year, we only consider the first dividend change

announcement during the year. We include all cash dividends for the calculation of the annual dividend such as special dividends, end-of-year dividends and one-off dividends. Finally, the sample selection criteria result in a sample of 4,156 firm-year observations, 3,820 firm-year observations for dividend increases and 336 firm-year observations for dividend decreases (the lower decrease observations are to be expected due to reluctance to cut dividends, first identified in Lintner (1956)).

Table 1 provides information on the year-wise and industry-wise classification of dividend increase and dividend decrease announcements. As can be seen in Panel A of Table 1, the number of firms that increase dividends gradually increases after the 2003 tax cut while the number of announcements is low during the periods 2000 – 2001 and 2008 – 2009, and then they steadily increase thereafter. However, there is a significant reduction in firms that decrease dividends post the 2003 tax cut, while, as expected, the number of dividend decrease announcements grows significantly during the period 2008 – 2009, which is around the global financial crisis period. Panel B of Table 1 provides industry classification data for dividend increase and dividend decrease announcements. Firms that announce dividend increases are predominantly from the manufacturing (20%), wholesale and retail (17%), consumer non-durables (12%), and business equipment (10%) industries, while firms that announce dividend reductions are predominantly from the manufacturing (30%), consumer non-durables (13%) and wholesale and retail (11%) sectors.

[INSERT TABLE 1 HERE]

3.2 Summary statistics

In this section, we present and discuss the mean, median and standard deviations of the main financial variables used in this paper.[6] The variables used are TA_{t-1}, total assets in year t-1,

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[6] We provide the detailed definitions of the variables in Appendix.

where t is the dividend change announcement year; MV_{t-1}, market capitalization at the financial year end in year t-1; $SIZE_{t-1}$, measured as the percentile at the end of the financial year t-1 in which the firm falls based on the full cross-sectional distribution of total assets for firms listed on the NYSE; $ILLIQ_{t-1}$, Amihud illiquidity (calculated as the average of the daily Amihud (2002) illiquidity measures over the financial year t-1; $LNILLIQ_{t-1}$, the natural logarithm of one plus Amihud illiquidity; $LDTA_{t-1}$, long-term debt to total assets in year t-1; $EBITDA/TA_{t-1}$, the ratio of earnings before interest, taxes, depreciation and amortization to total assets in year t-1; $RETA_{t-1}$, retained earnings divided by total assets in year t-1; $RUNUP_{t-1}$, the buy and hold raw return during the year t-1; β_{t-1}, systematic risk, estimated by regressing daily individual stock returns over the financial year on the contemporaneous CRSP value-weighted market returns, correcting for nonsynchronous trading following Scholes and Williams (1977); $IDIO_{t-1}$, idiosyncratic risk, measured as the annualized standard deviation of the residuals from regressing daily individual stock returns over the fiscal year t-1 on the CRSP value-weighted market returns, correcting for nonsynchronous trading; $ANAL_{t-1}$, the monthly average of the number of analysts following in year t-1; $LNANAL_{t-1}$, the natural logarithm of one plus the monthly average of the number of analysts following in year t-1; IO_{t-1}, the quarterly average institutional ownership as a percentage of shares outstanding during the fiscal year t-1; MB_{t-1}, total assets plus the financial year-end market value of equity minus the book value of equity, all scaled by total assets in year t-1; FCF_{t-1}, free cash flow in year t-1, measured as operating income before depreciation minus interest expense, taxes, preferred dividends, common dividends and share repurchases, all scaled by total assets in year t-1; $CAPEX_{t-1}$, capital expenditure scaled by total assets in year t-1; and $LNAGE_{t-1}$, the natural logarithm of firm age at the balance sheet date immediately prior to the announcement of dividend changes. Firm age is measured in years as the difference between the fiscal year end in t-1 and the first day the firm appears in the Compustat or CRSP, whichever is earlier.

The dividend-increasing firms in our sample have a median market capitalization of $1,721.64 million, a median long-term debt to total assets ratio of 13.86%, median EBITDA/TA of 17.82%, median institutional investors' holdings of 59.19%, median MB of 1.75, median free cash flow of 7.92%, median capital expenditure ratio of 4.98%, median analysts' following of 5.67, median systematic risk of 0.95, median idiosyncratic risk of 0.27 and their price runup during the financial year t-1 is 18.93%. Dividend-decreasing firms' median market capitalization is $514.56 million, the median long-term debt to total assets ratio is 23.40%, median EBITDA/TA is 10.61%, median institutional investors' holdings is 54.28%, median MB is 1.12, median free cash flow is 3.13%, median capital expenditure ratio is 4.36%, median analysts' following is 3.46, median systematic risk is 0.74, median idiosyncratic risk is 0.38 and the price runup during the financial year t-1 is -19.41%.

We also partition the full sample into two groups, that is, firms that do not announce repurchase programmes from one year before the dividend change announcements (year -1) to the year of dividend change announcements (year 0) and firms that announce repurchase programmes either in year -1 or in year 0 or in both years. We present the statistics on key variables for NREP and REP firms separately in Panel A2 and B2 of Table 2, respectively. For dividend-increasing firms, we find that firms with repurchases compared to firms without repurchases have the following characteristics: larger in size, older in age, higher operating performance, lower retained earnings ratio, higher growth opportunities, less free cash flow, less capital expenditure, more liquid, lower systematic risk, lower idiosyncratic risk, more analysts' following and more institutional investor holdings. But we do not find any significant difference in debt ratios between NREP and REP firms for the dividend increasers. For dividend-decreasing firms, we find that REP firms tend to have higher operating performance, experience large negative stock returns during the year before dividend decrease

announcements, and have more analysts' followings in comparison with NREP firms. We do not find any significant difference in other firm characteristics between the two groups in the case of dividend decreases.

3.3 Matching methodology to identify control firms

Barber and Lyon (1996) show that test statistics are misspecified when comparing sample firms with control firms based on industry or industry and size variables, whereas test statistics are well specified when sample firms are matched to control firms based on pre-event performance. Benartzi et al. (1997) examine the information contained in dividend change announcements regarding future profitability and they find limited support for the notion that dividend changes convey information about future earnings changes by examining the changes in raw earnings after the dividend change announcements. Lie (2001) further develops this feature of the research design by demonstrating that the method that generates control firms with similar pre-event performances, changes in pre-event performances and market-to-book ratios produces the most reliable test statistics. Lie (2001) further finds that it is more important to control for levels of performance rather than changes in performance and market-to-book ratios. Grullon and Michaely (2004) examine the information content of open market repurchases using the matching method that controls for pre-event performances, changes in pre-event performances, market-to-book ratios and industry impacts and do not find support for any information content in open market repurchase programs.

The findings in Barber and Lyon (1996), Benartzi et al. (1997), Grullon and Michaely (2004), and Lie (2001), then, indicate that the appropriate selection of control firms is critical to the investigation of the information content of dividend changes. We examine the information content of dividend increases and dividend decreases by calculating abnormal operating performance based on the matched pair difference between a firm that increases its

dividend (the treatment firm) and its suitably identified control firm. Following Barber and Lyon (1996), Grullon and Michaely (2004), and Lie (2001 and 2005), we identify control firms for each firm change in dividends based on the following matching methods, stated in order of importance: pre-event performance (±10% EBITDA/TA), market to book ratio (±20% MB), changes in pre-event performance (±30% ΔEBITDA/TA), and standard industrial classification code (SIC).

3.4 Long-term abnormal returns

To examine long-term price reactions to all dividend-changings firms, we use buy and hold abnormal returns based on the reference portfolio approaches of Lyon et al. (1999) – LBT (1999) and Daniel et al. (1997) – DGTW (1997), and the calendar time methodology following Peyer and Vermaelen (2009), respectively. We discuss the detailed methodology in the Section A of the Internet Appendix.

4 Empirical Results – Dividend Increases

In this section, we present and discuss the empirical results for dividend increases. We discuss the matching procedure for dividend increase sample in the section 4.1. We discuss the empirical results on information content of dividend increases by partioning the dividend increase sample into repurchase versus non-repurchase firms in section 4.2 while partioning the dividend increase sample into four-way sort (repurchase versus non-repurchase and pre and post-tax cut periods in section 4.3. Section 4.4 discusses the results on the determinants of abnormal operating performance. Section 4.5 discusses the results on the long term reaction.

4.1 Matching methodology – Dividend Increases

We use the matching methods discussed in Section 3.3 to identify control firms for dividend increasing firms. First, we identify all firms with the same two-digit SIC, with operating

performance within ±10% of the sample firm, with MB ratios within ±20% of the sample firm, and with changes in pre-event operating performance within ±30% of the sample firm. Then, we eliminate the control firms that had dividend increases during the period from one year prior to one year after the announcement date of the corresponding sample firm's dividend increase. When we find more than one control firm, we choose the firm with the pre-event performance closest to the sample firm. If any sample firms do not meet the criteria above, we relax the industry classification using one-digit SICs. We find control firms for 45% of our sample firms using criteria (a) and (b). Then, we disregard the industry classification and find control firms for a further 37% of sample firms at this stage. Details of the procedures employed to select control firms are given in Table 3. We find that the mean and median of the operating performance (EBITDA/TA$_{t-1}$) variable are 18.54% and 17.82% for our sample firms, 18.43% and 17.65% for the control firms, respectively.

[INSERT TABLE 3 HERE]

4.2 Information content – Repurchase versus non-repurchase firms

We examine the information content of dividend increases by examining the abnormal operating performance and present the results in Table 4. Table 4 provides the mean and median abnormal operating performance for the full sample during the year of the dividend increase and each year for the subsequent three-year period. This table also presents the mean and median of the average abnormal operating performance during the three-year period after the dividend increase announcement. The Wilcoxon signed rank (WSR) test is conducted to test whether the median abnormal operating performances for the various time periods are significantly different from zero. Panels A present the results for the full sample while Panels B1 and B2 present the results for the dividend increasing firms with and without repurchase announcements. For the full sample, we observe positive abnormal operating performance during the year of the dividend increase announcement and in each year of the subsequent

three-year period which are both statistically significant at the 1% level. The median of the three-year average abnormal operating performance is also significantly positive.

We further examine the information content of the dividend increase for firms with and without repurchase announcements. We find that the abnormal operating performance is significantly positive during the year of dividend increase announcements, in each year of the subsequent three-year period and for the average three-year period both for both NREP and REP firms. Further, we find that abnormal operating performance is statistically significantly stronger for NREP than for REP firms during the year of the dividend increase announcement and in each year of the subsequent two-year period starting from year 2. We also find that NREP firms experience significantly higher average abnormal operating performance during the three-year period after the dividend increase announcements, compared to REP firms. The findings suggest that the information content is stronger for firms without share repurchase announcements. That is, when the potential information is concentrated in a single source, the strength of the information content is increased.

[INSERT TABLE 4 HERE]

4.3 Information Content – REP versus NREP firms and pre- versus post-tax cut periods

We examine the impact of the 2003 tax cut by partitioning REP and NREP firms into pre- and post-tax cut periods and present the results in Table 5. As can be seen in Panels A and B of Table 5, we find strong empirical support for information content in dividend increases with significantly positive abnormal operating performance during the year of dividend increase announcements, in each year of the subsequent three-year period and for the average three-year period for both the pretax and post-tax periods for both REP and NREP firms. Given that several firms increased dividends in 2003 and the dividend tax cut was introduced in May 2003 with a retrospective effect from Jan 2003, we also exclude firms that increased dividends during the year of 2003 and examine the information content in the post-tax cut period for both NREP

and REP firms[7]. We present the results in panel A3 and B3 of Table 5. Our results are qualitatively similar to the case of not excluding announcing firms in 2003. Further, in the case of NREP firms, we find that abnormal operating performance is statistically stronger during the pre-tax cut periods than that during the post-tax cut periods for each year from the year of announcement to three years after. These results indicate that the information content is stronger when the signalling cost associated with taxes is higher, thereby providing empirical support consistent with the implications of dividend signalling models. However, in the case of REP firms, we do not find evidence that information content is stronger in the pre-tax cut periods – consistent with *H2(a)*, indicating that the tax cost impact on signalling power is reduced where other signals in this context are available and which have lower associated signalling (tax) costs.

[INSERT TABLE 5 HERE]

The crisis period would be expected to induce more noise into the future earnings process and, potentially, a reduction in the drift of the earnings process (i.e. lower performances) due, for example, to the lower availability of profitable investment opportunities to the firm. The lower drift/mean change in the earnings process would lead to future earnings being lower than in the non-crisis period. We exclude the announcement of dividend increases during the financial crisis period (calendar years: 2006–2008) from the after-tax cut period, and, for similar reasons, the 1987 crash period and dot com crash of 2000–2001 from the pretax cut period. We present this result in Table A1 in the internet appendix. We find that our results hold, excluding the various crisis periods.

As a robustness check, we also examine the information content for firms with operating performance data available for each year of the post-announcement three-year

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[7] The tax cut reform was first proposed by the Bush Administration on January 7, 2003. Auerbach and Hassett (2007) discuss the timing of the tax reform legislation and suggest that there was no anticipation that such a tax change would take place before the very end of 2002. We find that 38 (4) firms increase (decrease) dividends in 2003 before May and 13 (1) in May and 94 (5) between June - December 2003

period. We present the results in Table A2 of the internet appendix. Our results are qualitatively similar to our findings in Table 5. Overall, our findings indicate strong support for the information content of dividend increase announcements.

4.4 Determinants of information content

In this section, we examine the determinants of abnormal operating performance over the post announcement three-year period using the matching method as in Table 3. The independent variables are $LNMB_{t-1}$, LMV_{t-1}, $LDTA_{t-1}$, FCF_{t-1}, PRE, $DREPUR$, $DREPUR \ X \ PRE$, $LFCFHMB$, $LFCFHMB \ X \ PRE$, $DCHY$, $RUNUP_{t-1}$, IO_{t-1}, $LNANAL_{t-1}$, $D2003$, $DPRECRISIS$ and $DPOSTCRISIS$, as defined previously. We use industry fixed effects in the estimation procedures conducted in the regressions and since our variable of interest is PRE, we do not control for year effects. We present the results in Table 6. We find that the estimated coefficient of PRE is significantly positive at the 1% level in all models, confirming our earlier results that the information content of dividend increases is more pronounced during the pretax cut period and suggesting that the information content of dividend increases is stronger when the signaling cost is higher as implied by the underlying rationale for signaling equilibria. We also find that firms with higher growth opportunities (i.e.: higher, $LNMB$) have higher information content and firms with lower free cash flow (i.e.: lower, FCF) have higher information content. Further, we find the estimated coefficient of $LFCFHMB$ is significantly positive, indicating that the information content of dividend increases is larger when the likelihood of dysfunctional overinvestment associated with agency related issues is lower.[8] We also find that firms with lower leverage, lower institutional holdings and more analysts following have higher information content. In addition, the dividend-increasing firms with higher dividend yield

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[8] This supports Jensen (1986) prediction that managers of firms with excess free cash flows can commit to minimizing wasteful expenditures by adopting a policy of paying out excess free cash flows through dividends. Firms with higher cash flows and lower growth opportunities experience higher agency costs deriving from free cash flows.

changes have higher information content. Overall, we find strong support for the information content of dividend increases for firms during the pretax cut period.

[INSERT TABLE 6 HERE]

4.5 Long-term abnormal returns

We examine long-term price reactions to dividend-increasing firms using buy and hold abnormal returns using the reference portfolio approaches of LBT (1999) and DGTW (1997) and the calendar time methodology following Peyer and Vermaelen (2009) as discussed in the Section A of the Internet Appendix. Section 4.5.1 presents and discusses the univariate results based on the references portfolio methods. Section 4.5.2 presents and discusses the results using the calendar time methodology and section 4.5.3 discusses the results on the determinants of long-term reactions using the reference portfolio approaches.

4.5.1 Univariate results – Reference portfolio approach

In this section, we present and discuss the long-term reaction using the reference portfolio approaches of LBT (1999) and DGTW (1997). We present the results in Table 8. For the full sample, we find significantly positive BHARs for all periods using both the LBT (1999) and DGTW (1997) methods, consistent with *H3(a)*. When we partition the sample into NREP and REP firms in the pre- and post-tax cut periods, we find significantly positive BHARs for NREP firms in both the pre- and post-tax cut periods at least at the 5% significance level. However, in the case of REP firms, we find significantly positive BHARs only in the post-tax cut period. For REP firms in the pre-tax cut periods, we find significantly positive BHARs only for the one-year and two-year periods using LBT (1999). When we exclude the announcement of dividend increases in 2003, our results still hold for the post- tax-cut period. We also examine the long-term reaction excluding the crisis periods as defined previously and find consistent results. We present the results in Table A3 of the internet appendix. Overall, the results reported using buy and hold abnormal returns based on the reference portfolio approaches

indicate that post-announcement long- term returns are stronger for NREP firms compared to REP firms, indicating that market underreaction is lower where other signals are available.

[INSERT TABLE 7 HERE]

4.5.2 Calendar time approach

In this section, we present and discuss the long-term stock return performances following dividend increases using the calendar time method for both NREP and REP firms in pre- and post-tax cut periods. We present the results in Table 8. As can be seen in Panel A of Table 8, we find evidence of significantly positive post-announcement abnormal returns for the full sample for one-year, two-year and three-year periods using both ordinary and weighted least squares-based regressions based on three-factor model but insignificant positive post-announcement abnormal returns for one-year period using ordinary least squares-based regressions based on four-factor and five-factor models, supporting our hypothesis that firms increasing dividends experience positive long-term returns. We further classify the sample into REP firms and NREP firms in the pre- and post-tax cut periods and present the results in Panel B and C of Table 8. In the case of NREP firms in the pretax cut periods, we find evidence of positive post-announcement abnormal returns for the one-year, two-year, three-year periods using both ordinary and weighted least squares regressions only for the three-factor models. In the case of NREP firms in the post-tax cut periods, we find evidence of positive post-announcement abnormal returns for the one-year, two-year, three-year periods using weighted least squares regressions for all factor models. In the case of REP firms in the pretax cut periods, we do not find any evidence of positive post-announcement abnormal returns for all periods. In the case of REP firms in the post-tax cut periods, we find similar results to the NREP firms in the post-tax cut periods. When we exclude the dividend increase announcements in the year 2003, our results for NREP and REP firms in the post-tax cut period become stronger. We also examine the long-term reaction excluding the crisis periods as

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defined previously and find consistent results. We present the results in Table A4 of the internet appendix. Overall, these findings support and are consistent with the results reported using the reference portfolio approaches.

[INSERT TABLE 8 HERE]

4.5.3 Determinants of post-announcement abnormal returns

We further examine the determinants of the post-announcement abnormal returns for the full sample, NREP firms and REP firms and present the results in Table 9. Panels A and B present the analyses using three-year and one-year periods buy-and-hold abnormal returns, respectively, as the dependent variable. We use both LBT (1999) and DGTW (1997) reference portfolio methods' BHARs. The independent variables are $LNMB_{t-1}$, $LNMV_{t-1}$, $LDTA_{t-1}$, $AABEAR$ ($ABEAR_{t+1}$), $CAPEX_{t-1}$, FCF_{t-1}, $DCHY$, $RUNUP_{t-1}$, IO_{t-1}, $LNANAL_{t-1}$, $LNILLIQ_{t-1}$, $LNAGE_{t-1}$, $DREPUR$, PRE, $D2003$, $DPRECRISIS$, and $DPOSTCRISIS$ in Panel A (B).

[INSERT TABLE 9 HERE]

As can be seen in Panel A of Table 9, the estimated coefficient of $AABEAR$ is significant and positive for both NREP and REP firms, indicating that the market gradually incorporates the information conveyed by the dividend increase announcements when a firm's earnings is released during the three-year period after the announcement. In addition, we find that the post-announcement abnormal returns are negatively related to growth opportunities. As can be seen in Panel B of Table 9, the estimated coefficient of $ABEAR_{t+1}$ is significant and positive for both NREP and REP firms, indicating that the market gradually incorporates the information conveyed by the dividend increase announcements when a firm's earnings is released to the market during the year after the announcement for both NREP and REP firms. Overall, then, we find that the dividend increase conveys information regarding future prospects and this information is reflected in long-term price reactions for both NREP and REP firms, consistent with *H4*.

5 Empirical Results – Dividend Decreases

In this section, we present and discuss the empirical results for dividend decreases. We discuss the matching procedure for dividend decrease sample in the section 5.1. We discuss the empirical results on information content of dividend increases by partioning the dividend decrease sample into repurchase versus non-repurchase firms in section 5.2 while partioning the dividend decrease sample into four-way sort (repurchase versus non-repurchase and pre and post-tax cut periods in section 5.3. Section 5.4 discusses the results on the determinants of abnormal operating performance. Section 5.5 discusses the results on the long-term reaction.

5.1 Matching methodology to identify control firms

Using the same matching methodology documented in Section 3.3, we find control firms for 51% of our sample firms using criteria (a) and (b). Then, we disregard the industry classification and find control firms for a further 33% of sample firms at this stage. Details of the procedures employed to select control firms are given in Table 10. We find that the mean and median of the operating performance (EBITDA/TA$_{t-1)}$ variables are 11.41% and 10.61% for our sample firms, and 11.43% and 10.69% for the control firms, respectively.

[INSERT TABLE 10 HERE]

5.3 Information content – Repurchase versus non-repurchase firms

We examine the information content of dividend decreases by examining the abnormal operating performance and present the results in Table 11. Panel A presents the results for the full sample while Panel B presents the results for the dividend decreasing firms with and without repurchase announcements. For the full sample, we observe significantly negative

abnormal operating performance during the year of announcement and in each year of the subsequent three-year period based on the modified fiscal year approach, consistent with *H1*.

We further examine the information content of dividend decreases for firms with and without repurchase announcements. We find that the abnormal operating performance is significantly negative during the year of dividend decrease announcements and in each year of the subsequent three-year period for both NREP and REP firms apart from year 3 for NREP firms. Further, we do not find any significant difference between NREP and REP firms. The findings once again indicate that, when suitably defined control procedures are employed, a dividend decrease announcement does convey information to an extent.

[INSERT TABLE 11 HERE]

5.4 Information content – REP versus NREP firms, and pre- versus post-tax cut periods

We examine the impact of the 2003 tax cut by partitioning REP and NREP firms into pre- and post-tax cut periods and present the results in Table 12. In the case of NREP firms, we find that abnormal operating performance is only significantly negative during the year of the dividend decrease announcement and one year after the announcement for the pretax cut period, while abnormal operating performance is significantly negative in year 0, year 1, year 2 and year 3 for the post-tax cut period. Further, the abnormal operating performance is statistically more negative for two and three years after the dividend decrease announcement for the post-tax cut period. In the case of REP firms, we find that abnormal operating performance is only statistically significant during the year of dividend decrease announcements and becomes insignificant in each year of the subsequent three-year period and for the average three-year period during the pretax cut period. However, we find that abnormal operating performance is significantly negative during the year of the announcements, in each year of the subsequent three-year period except year 1 during the post-tax cut period and the average three-year

abnormal operating performance is also significantly negative. When we exclude the dividend decrease announcements in the year of 2003, our findings still hold for both NREP and REP firms in the post-tax cut periods. Further, we exclude the crisis periods and present the results in Table A5 in the internet appendix. We find even more negative abnormal operating performances for both NREP and REP firms in the post-tax cut periods. We also find that REP firms in post-tax cut periods experience more negative abnormal operating performance three years after the dividend decrease announcements, compared to NREP firms in the same period. Overall, our findings are partially consistent with *H2(b)*. The results indicate that information content is stronger for dividend decreasing firms when the tax cost associated with dividends is less (that is, when the tax cost to paying is lower and hence a positive dividend more likely, cet. Par., stronger information content is contained in a dividend cut) and when other contradictory signals in this context are available.

As a robustness check, we also examine the information content for firms with operating performance data available for each year of the post-announcement three-year period. We present the results in Table A6 in the internet appendix. Our results are qualitatively similar to our main findings in Table 12. Overall, our findings indicate strong support for the information content of dividend decrease announcements.

5.5 Determinants of information content of dividend decreases

In this section, we examine the determinants of abnormal operating performance over the post announcement three-year period using the matching method in Table 13. The independent variables are $LNMB_{t-1}$, LMV_{t-1}, $LDTA_{t-1}$, FCF_{t-1}, *PRE, DREPUR, DREPUR X PRE, DCHY, RUNUP*$_{t-1}$, IO_{t-1}, $LNANAL_{t-1,}$ *D2003, DPRECRISIS* and *DPOSTCRISIS.* As before, we use industry fixed effects in our regressions and since our variable of interest is *PRE,* we do not control for year effects. We present the results in Table 13. We find that the estimated

coefficient of *PRE* is significantly positive at the 1% level in all models, confirming our earlier results that the information content of dividend decreases is more pronounced during the post-tax cut period with and without the inclusion of the crisis period and the year of 2003, suggesting that the information content of dividend decreases is stronger when the tax disadvantage of dividend payments is reduced significantly. We also find that firms with lower debt ratios have higher information content. In the case of average abnormal operating performance, we also find that small firms with higher growth opportunities have higher information content. Further, the estimated coefficient of *DREPUR* is significantly negative at the 10% level, indicating that dividend-decreasing firms with repurchases have higher information content which confirms our findings. We also find that firms with larger reductions in dividends have higher information content. Overall, we find strong support for the information content of dividend decreases for firms during the post-tax cut period.

[INSERT TABLE 13 HERE]

5.6 Long-term abnormal returns

We examine long-term price reactions to dividend-decreasing firms using buy and hold abnormal returns using the reference portfolio approaches and the calendar time methodology discussed in the Internet Appendix. Section 5.6.1 presents and discusses the univariate results based on the reference portfolio methods. Section 5.6.2 presents and discusses the results using the calendar time methodology and Section 5.6.3 discusses the results of the determinants of long-term reactions using the reference portfolio approaches.

5.6.1 Univariate results – Reference portfolio approach

In this section, we present and discuss the long-term price reactions using the reference portfolio approaches of LBT (1999) and DGTW (1997) and present the results in Table 14. For

the full sample, we find significantly positive BHARs for all periods using both LBT (1999) and DGTW (1997) methods, suggesting that the market incorporates expectations that a potential earnings recovery of dividend-decreasing firms will occur during the post-announcement periods. The finding is inconsistent with our expectation regarding long-term reaction after the dividend decrease announcements. As the sample of dividend decrease announcements for REP firms is very small (68 announcements), we only partition the NREP firms into the pre- and post-tax cut periods. While we find significantly positive BHARs for NREP firms in the post-tax cut period at least at the 5% significance level, we do not find any evidence of positive BHARs for such firms in the pretax cut period. When we further exclude the announcement of dividend decreases in 2003, our results still hold for the post-tax-cut period. We also examine the long-term returns excluding crises period and present the results in Table A7 of the internet appendix. When we exclude the crisis periods, the significant and positive BHARs disappear in most cases for NREP firms in the post-tax cut period. The findings highlight that the importance of excluding the noisy down-market periods when examining post-announcement long-term drift.

[INSERT TABLE 14 HERE]

5.6.2 Calendar time approach

In this section, we present and discuss the long-term stock return performances following dividend decreases using the calendar time method for the full sample and NREP firms in pre- and post-tax cut periods. We present the results in Table 15. As can be seen in Panel A of Table 15, we find that post-announcement abnormal returns are insignificantly negative for the full sample using the three-factor models, and the results are similar when using the four or five-factor models, consistent with *H3(b)*. We further classify the NREP firms in the pre- and post-tax cut periods and present the results in Panel B of Table 15. In the case of the NREP firms in

the pretax cut periods, we do not find evidence of positive post-announcement abnormal returns for one-year, two-year, three-year periods using both ordinary and weighted least squares regressions, consistent with the findings using the reference portfolio approach. In the case of NREP firms in the post-tax cut periods, we find evidence of negative post-announcement abnormal returns for the two-year and three-year periods using ordinary least squares regressions for all factor models, opposite to the findings using the reference portfolio approach. We also find similar results after excluding the announcements of dividend decreases in 2003. It is puzzling that the results are in contrast to the reference portfolio and calendar time approaches for dividend-decreasing firms without a repurchase program in the post-tax period. When we exclude the crisis periods, significantly negative post-announcement abnormal returns disappear for NREP firms in the post-tax cut period. The result is consistent with the findings using the reference portfolio approach, suggesting that market reactions are noisy during crisis periods.

[INSERT TABLE 15 HERE]

5.6.3 Determinants of post-announcement abnormal returns

We further examine the determinants of the post-announcement abnormal returns for the full sample and NREP firms and present the results in Table 16. Panels A and B present the analyses using the three-year and one-year period buy-and-hold abnormal returns, respectively, as the dependent variable. We use both LBT (1999) and DGTW (1997) reference portfolio methods BHARs. The independent variables are $LNMB_{t-1}$, $LNMV_{t-1}$, $LDTA_{t-1}$, $AABEAR$ $(ABEAR_{t+1})$, $CAPEX_{t-1}$, FCF_{t-1}, $DCHY$, $RUNUP_{t-1}$, IO_{t-1}, $LNANAL_{t-1}$, $LNILLIQ_{t-1}$, $LNAGE_{t-1}$, $DREPUR$, PRE, $D2003$, $DPRECRISIS$, and $DPOSTCRISIS$ in Panel A (B).

[INSERT TABLE 16 HERE]

As can be seen in Panel A of Table 16, the estimated coefficient of *AABEAR* is significant and positive for both the full sample and NREP firms, indicating that the market gradually incorporates the information conveyed by the dividend decrease announcements when a firm's earnings is released during the three-year period after the announcement. The result is consistent with *H4*. In addition, we find that the post-announcement abnormal returns are positively related to the institutional holdings. We also find that firms in the pretax cut period tend to have higher post-announcement abnormal returns. As can be seen in Panel B of Table 16, the estimated coefficient of $ABEAR_{t+1}$ is insignificant and positive for both the full sample and NREP firms, except for NREP firms using DGTW (1997), indicating that the market takes a longer time to incorporate the information conveyed by the dividend decrease announcements. Further, we find that firms in the 1987 crash period and the dot com crash of 2000–2001 tend to have higher post-announcement abnormal returns, suggesting that the market overreacts to bad news during crisis periods.

6 Conclusions

We examine the information content of dividend increases and decreases during the period 1985 – 2012 by partitioning our sample into those firms which announce repurchase programs (REP) and those that do not (NREP). Using the modified fiscal year approach to calculate dividend changes and following a variation of Barber and Lyon (1996)'s, Grullon and Michaely (2004)'s, and Lie's (2005) methodologies to measure abnormal operating performance over the fiscal year, we find strong evidence of information content for dividend increases for both firms with and without repurchases and that the information content is stronger for those firms without repurchases. That is, the information provided is stronger when concentrated into a single signal. Further, we partition REP and NREP firms across the pre and post-tax cut periods and find the information content of dividend increases is only weaker during the post-tax cut

period for NREP firms, indicating that information content is stronger when the signalling cost is higher. We do not find any difference for REP firms between the pre- and post-tax cut periods. Further, we find strong evidence of long term positive abnormal returns subsequent to the post-tax cut period for both NREP and REP firms. Post-announcement abnormal returns are positively related to post-announcement abnormal operating performance, irrespective of whether firms announce repurchase programs or not, indicating that earnings increases conveyed by dividend increases are reflected in post-announcement returns drift.

We only find strong (weak) evidence of information content for dividend decreases for NREP (REP) firms in the post-tax cut periods, indicating that such firm types tend to recover from the shorter-term declines in profitability during the pretax cut periods but not the post-tax cut period. In addition, we find significantly positive BHARs using reference portfolio returns but significantly negative post-announcement abnormal returns using the calendar time approach for NREP in the post-tax cut period. When we exclude the crisis period in examining the post-announcement abnormal returns for such firms, we find that post-announcement long-term returns become insignificant when using both approaches, suggesting that the market reactions are noisy during crisis periods. Post-announcement three-year period abnormal returns are positively related to post-announcement abnormal operating performance, indicating that earnings decreases conveyed by dividend decreases are reflected in the post-announcement returns drift.

Table 1 Sample Selection

Panel A (B) shows the year-wise (industry-wise) classification for dividend increase and decrease announcements. We define the classification "others" as mines, construction, construction materials, transportation, hotels, business services, and entertainment.

Panel A Year-Wise Classification			Panel B Industry-Wise Classification		
Year	Dividend Increase Firms	Dividend Decrease Firms	Industry Classification	Dividend Increase Firms	Dividend Decrease Firms
1985	91	1	Consumer Non-Durables	473	44
1986	28	4	Consumer Durables	194	28
1987	129	3	Manufacturing	783	101
1988	173	2	Energy	188	12
1989	156	2	Chemicals and Allied Products	291	21
1990	126	2	Business Equipment	388	17
1991	88	15	Telephone and Television Transmission	58	13
1992	97	10	Wholesale and Retail	668	37
1993	109	11	Healthcare, Medical Equipment, and Drugs	299	12
1994	140	4	Others	478	51
1995	168	9			
1996	168	4			
1997	150	11			
1998	119	11			
1999	103	18			
2000	68	19			
2001	61	44			
2002	67	14			
2003	147	10			
2004	157	7			
2005	206	5			
2006	217	6			
2007	232	1			
2008	158	37			
2009	67	66			
2010	157	7			
2011	214	4			
2012	224	9			
Total	3,820	336		3,820	336

Table 2 Descriptive Statistics

Panel A (B) of this table presents the mean, median, Quartile 1, Quartile 3 and standard deviation for the variables used in this paper for dividend increases (dividend decrease). Panel A1 and B1 presents the results for the full sample. Panel A2 and B2 present the results for firms which do not announce a repurchase program in both year 0 and year 1 (NREP) and firms which announce a repurchase program either in year 0 or year 1 or both years (REP), separately. The Mann-Whitney (MW) test presents the test statistics for the difference in the median of each variable between NREP and REP firms for dividend increases and decreases. The variables used are: TA_{t-1}, MV_{t-1}, $SIZE_{t-1}$, $ILLIQ_{t-1}$, $LNILLIQ_{t-1}$, $LDTA_{t-1}$, $EBITDA/TA_{t-1}$, $RETA_{t-1}$, $RUNUP_{t-1}$, β_{t-1}, $IDIO_{t-1}$, $ANAL_{t-1}$, $LNANAL_{t-1}$, IO_{t-1}, MB_{t-1}, FCF_{t-1}, $CAPEX_{t-1}$, and $LNAGE_{t-1}$. The superscripts ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Panel A – Dividend Increases					
Panel A1: Full Sample					
	Mean	Median	Quartile 1	Quartile 3	Std Deviation
TA_{t-1} (in \$M)	7,094.10	1,331.01	379.84	5,189.52	16,678.32
MV_{t-1} (in \$M)	10,274.95	1,721.64	487.64	6,828.81	26,060.16
$SIZE_{t-1}$	0.4868	0.4900	0.2200	0.7500	0.3005
$ILLIQ_{t-1}$	0.0150	0.0003	0.0000	0.0028	0.0557
$LNILLIQ_{t-1}$	0.0136	0.0003	0.0000	0.0028	0.0482
$LDTA_{t-1}$	0.1518	0.1386	0.0431	0.2292	0.1248
$EBITDA/TA_{t-1}$	0.1854	0.1782	0.1382	0.2259	0.0713
$RETA_{t-1}$	0.4122	0.4005	0.2559	0.5631	0.2322
$RUNUP_{t-1}$	0.2331	0.1893	0.0123	0.3890	0.3444
β_{t-1}	0.9758	0.9529	0.6167	1.2758	0.5012
$IDIO_{t-1}$	0.2942	0.2713	0.2133	0.3499	0.1122
$ANAL_{t-1}$	7.2562	5.6667	2.0833	11.1667	6.3244
$LNANAL_{t-1}$	1.7660	1.8971	1.1260	2.4987	0.9005
IO_{t-1}	0.5693	0.5919	0.4858	0.6814	0.1638
MB_{t-1}	2.0653	1.7462	1.3595	2.3780	1.0836
FCF_{t-1}	0.0761	0.0792	0.0463	0.1086	0.0562
$CAPEX_{t-1}$	0.0621	0.0498	0.0285	0.0794	0.0500
$LNAGE_{t-1}$	3.3033	3.4018	2.8910	3.8073	0.6768

Panel A2: Repurchase VS Non-Repurchase Firm					
	Firms without Repurchase (NRP)		**Firms with Repurchase (RP)**		**NRP VS RP**
	Mean	Median	Mean	Median	MW Test
TA_{t-1} (in \$M)	5370.33	1014.91	11166.81	2737.05	13.10***
MV_{t-1} (in \$M)	7524.28	1291.56	16773.88	3488.15	14.06***
$SIZE_{t-1}$	0.4574	0.4500	0.5562	0.5800	9.37***
$ILLIQ_{t-1}$	0.0184	0.0005	0.0069	0.0001	16.82***
$LNILLIQ_{t-1}$	0.0167	0.0005	0.0064	0.0001	16.82***
$LDTA_{t-1}$	0.1505	0.1378	0.1550	0.1396	1.27
$EBITDA/TA_{t-1}$	0.1836	0.1768	0.1896	0.1807	2.13**
$RETA_{t-1}$	0.4152	0.4062	0.4052	0.3828	1.82*
$RUNUP_{t-1}$	0.2469	0.2028	0.2006	0.1568	4.00***
β_{t-1}	0.9824	0.9767	0.9600	0.9167	2.24**
$IDIO_{t-1}$	0.2993	0.2775	0.2821	0.2560	5.44***
$ANAL_{t-1}$	6.8284	5.0833	8.2672	7.1667	7.54***
$LNANAL_{t-1}$	1.6931	1.8056	1.9383	2.1001	7.54***
IO_{t-1}	0.5576	0.5816	0.5968	0.6124	6.30***
MB_{t-1}	2.0239	1.7184	2.1633	1.8317	4.83***

FCF_{t-1}	0.0800	0.0836	0.0669	0.0707	7.18***
$CAPEX_{t-1}$	0.0639	0.0510	0.0580	0.0462	3.29***
$LNAGE_{t-1}$	3.2625	3.3329	3.3996	3.5271	6.34***

Panel B – Dividend Decreases

Panel B1: Full Sample

	Mean	Median	Quartile 1	Quartile 3	Std Deviation
TA_{t-1} (in $M)	7,095.93	902.50	223.38	3,500.15	23,445.45
MV_{t-1} (in $M)	3,379.08	514.56	145.14	1,884.97	11,426.31
$SIZE_{t-1}$	0.4020	0.3750	0.9000	0.6700	0.3148
$ILLIQ_{t-1}$	0.0903	0.0010	0.0001	0.0093	0.3721
$LNILLIQ_{t-1}$	0.0584	0.0010	0.0001	0.0092	0.1992
$LDTA_{t-1}$	0.2272	0.2340	0.0795	0.3372	0.1706
$EBITDA/TA_{t-1}$	0.1141	0.1061	0.0732	0.1496	0.0828
$RETA_{t-1}$	0.2922	0.2631	0.1444	0.4341	0.2652
$RUNUP_{t-1}$	-0.1705	-0.1941	-0.3861	0.0183	0.3102
β_{t-1}	0.8025	0.7427	0.4015	1.1240	0.5409
$IDIO_{t-1}$	0.4017	0.3803	0.2985	0.4878	0.1464
$ANAL_{t-1}$	5.0767	3.4583	1.0000	8.2159	5.0784
$LNANAL_{t-1}$	1.4157	1.4947	0.6931	2.2209	0.9356
IO_{t-1}	0.5161	0.5428	0.3926	0.6809	0.2091
MB_{t-1}	1.3219	1.1227	0.9626	1.4257	0.6268
FCF_{t-1}	0.0245	0.0313	0.0024	0.0631	0.0686
$CAPEX_{t-1}$	0.0529	0.0436	0.0255	0.0686	0.0397
$LNAGE_{t-1}$	3.3032	3.4347	2.7410	3.8401	0.6975

Panel B2: Repurchase VS Non-Repurchase Firm

	Firms without Repurchase (NRP)		Firms with Repurchase (RP)		NRP VS RP
	Mean	Median	Mean	Median	MW Test
TA_{t-1} (in $M)	6732.73	818.48	8581.78	1257.23	1.29
MV_{t-1} (in $M)	3259.04	505.35	3870.17	599.30	1.15
$SIZE_{t-1}$	0.3957	0.3650	0.4277	0.4000	0.74
$ILLIQ_{t-1}$	0.0992	0.0012	0.0539	0.0006	1.63
$LNILLIQ_{t-1}$	0.0648	0.0012	0.0322	0.0006	1.63
$LDTA_{t-1}$	0.2224	0.2252	0.2470	0.2614	1.12
$EBITDA/TA_{t-1}$	0.1104	0.1014	0.1292	0.1182	2.12**
$RETA_{t-1}$	0.2960	0.2768	0.2768	0.2027	1.37
$RUNUP_{t-1}$	-0.1562	-0.1686	-0.2290	-0.2452	1.96**
β_{t-1}	0.8144	0.7382	0.7548	0.7697	0.42
$IDIO_{t-1}$	0.4024	0.3827	0.3991	0.3713	0.02
$ANAL_{t-1}$	4.9509	3.2159	5.5916	5.1667	1.66*
$LNANAL_{t-1}$	1.3737	1.4388	1.5876	1.8192	1.66*
IO_{t-1}	0.5081	0.5360	0.5486	0.5737	1.43
MB_{t-1}	1.3169	1.1102	1.3424	1.1558	0.54
FCF_{t-1}	0.0274	0.0339	0.0123	0.0272	1.00
$CAPEX_{t-1}$	0.0544	0.0445	0.0470	0.0399	1.13
$LNAGE_{t-1}$	3.3347	3.4828	3.1743	3.2401	1.37

Table 3 Matching Procedure – Dividend Increases

We identify control firms based on pre-event operating performance (EBITDA/TA$_{t-1}$), book to market ratio, changes in pre-event performance, and industry classification. We select control firms based on the following criteria, stated in order of importance: pre-event performance, market to book ratio, changes in pre-event performance and standard industrial classification code. Our control firms do not increase dividends during the period one year prior to and one year post the announcement date of the corresponding sample firm's dividend increases. We select control firms based on the following criteria, stated in order of importance: pre-event performance (EBITDATA $\pm$ 10%), market to book ratio (MB $\pm$ 20%), changes in pre-event performance (ΔEBITDATA $\pm$ 30%) and standard industrial classification code. We also present the pre-event operating performance for the sample firms and control firms matched in Panel B.

Panel A – Matching Procedure		N	%
(a)	Pre-event performance, MB, ΔEBITDATA, same two-digit SIC.	574	15.03
(b)	Pre-event performance, MB, ΔEBITDATA, same one-digit SIC.	1,163	30.45
(c)	Pre-event performance, MB, ΔEBITDATA	1,431	37.46
(d)	Pre-event performance, MB, same two-digit SIC.	340	8.90
(e)	Pre-event performance, MB, same one-digit SIC.	202	5.29
(f)	Pre-event performance, MB	91	2.38
(g)	Pre-event performance, same two-digit SIC.	7	0.18
(h)	Pre-event performance, same one-digit SIC.	8	0.21
(i)	Pre-event performance,	4	0.10
(j)	No Matching	0	0.00
	Total	3,820	100.00
Panel B – Sample Firms and Control Firms - EBITDA/TA$_{t-1}$			
		Sample Firms	Control Firms
Mean (%)		18.54	18.43
Median (%)		17.82	17.65

Table 4 Abnormal Operating Performance of Dividend Increases – Repurchase versus Non-repurchase Firms

This table provides the mean and median abnormal operating performance (difference in EBITDA/TA between sample and control firms - ABEAR) for each year from the year of the increased dividend to three years after for the full sample, firms with share repurchases (REP) and firms without share repurchases (NREP), using the matching method discussed in Table 3. This table also presents the average abnormal operating performance for the three-year period. We report the Wilcoxon signed rank (WSR) test to identify whether the median abnormal operating performance is different from zero. We also report the Mann-Whitney (MW) test to identify whether the median abnormal operating performance is different between the NREP and REP subgroups. Panel A presents the results for the full sample. Panel B presents the results partitioning the full sample into NREP and REP subgroups. The superscripts ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	Year 0 $ABEAR_t$	Year 1 $ABEAR_{t+1}$	Year 2 $ABEAR_{t+2}$	Year 3 $ABEAR_{t+3}$	Ave3yrs AABEAR
Panel A: Full Sample					
Mean (%)	2.41	3.24	3.33	3.28	3.30
Median (%)	1.45	2.13	2.13	2.20	2.35
WSR	19.21***	20.05***	17.03***	16.30***	20.19***
Sample size	3,820	3,771	3,707	3,645	3,645
Panel B – Sub-classification based on with and without repurchase					
Panel B1: Firms which do not announce repurchase program from year -1 to year 0					
Mean (%)	2.51	3.33	3.54	3.55	3.48
Median (%)	1.50	2.34	2.32	2.40	2.57
WSR	16.87***	17.47***	15.15***	14.61***	17.89***
Sample size	2,684	2,656	2,615	2,577	2,577
Panel B2: Firms which announce repurchase program either in year -1 or year 0 or both years					
Mean (%)	2.15	3.04	2.82	2.63	2.86
Median (%)	1.25	1.64	1.81	1.81	1.87
WSR	9.27***	9.90***	7.90***	7.39***	9.52***
Sample size	1,136	1,115	1,092	1,068	1,068
(B1) VS (B2)	1.69*	1.38	1.85*	2.09**	2.15**

Table 5 Abnormal Operating Performance of Dividend Increases – REP versus NREP Firms, and Pre- versus Post-Tax Cut

This table provides the mean and median abnormal operating performance (difference in EBITDA/TA between sample and control firms - ABEAR) for each year from the year of increasing dividends to three years after for the full sample and the dividend increasers of the pre- and post-tax cut period, using the matching method discussed in Table 3. This table also presents the average abnormal operating performance for the three-year period. We report the Wilcoxon signed rank (WSR) test to identify whether the median abnormal operating performance is different from zero. We also report the Mann-Whitney (MW) test to identify whether the median abnormal operating performance is different between different subgroups. Panel A presents the results for NREP, partitioning the sample into pretax and post-tax subgroups. Panel B presents the results for REP, partitioning the sample into pretax and post-tax subgroups. The superscripts ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	Year 0 $ABEAR_t$	Year 1 $ABEAR_{t+1}$	Year 2 $ABEAR_{t+2}$	Year 3 $ABEAR_{t+3}$	Ave3yrs AABEAR
Firms which do not announce a repurchase program from year -1 to year 0					
Panel A – Sub classification based on Tax cut					
Panel A1: Pretax Cut					
Mean (%)	2.77	3.71	4.03	4.12	3.99
Median (%)	1.83	2.65	2.67	2.92	3.03
WSR	14.05***	14.92***	13.44***	13.30***	16.20***
Sample size	1,615	1,606	1,591	1,577	1,577
Panel A2: Post-Tax Cut					
Mean (%)	2.13	2.75	2.78	2.65	2.67
Median (%)	1.14	1.87	1.56	1.59	1.83
WSR	9.36***	9.28***	7.38***	6.70***	8.27***
Sample size	1,069	1,050	1,024	1,000	1,000
(A1) VS (A2)	2.55**	2.88***	3.14***	3.39***	4.13***
Panel A3: Post-Tax Cut – Excluding 2003					
Mean (%)	2.17	2.80	2.91	2.71	2.76
Median (%)	1.12	1.87	1.58	1.62	1.79
WSR	8.90***	8.93***	7.28***	6.55***	8.08***
Sample size	972	954	933	911	911
(A1) VS (A3)	2.42**	2.74***	2.82***	3.19***	3.83***
Firms which announce a repurchase program either in year -1 or year 0 or both years					
Panel B – Sub classification based on Tax cut					
Panel B1: Pretax Cut					
Mean (%)	2.15	3.68	3.66	3.24	3.58
Median (%)	1.52	1.97	2.04	2.31	2.37
WSR	5.65***	6.79***	5.52***	5.11***	6.64***
Sample size	425	418	406	393	393
Panel B2: Post-Tax Cut					
Mean (%)	2.14	2.65	2.33	2.28	2.44
Median (%)	1.21	1.56	1.74	1.38	1.70
WSR	7.36***	7.21***	5.73***	5.43***	6.87***
Sample size	711	697	686	675	675
(B1) VS (B2)	0.26	1.41	1.35	1.30	1.62
Panel B3: Post-Tax Cut – Excluding 2003					
Mean (%)	2.22	2.71	2.39	2.27	2.49
Median (%)	1.24	1.60	1.75	1.40	1.70
WSR	7.28***	7.03***	5.54***	5.20***	6.70***
Sample size	663	650	639	630	630

Table 6: Determinants of Abnormal Earnings of Dividend Increases for the post announcement three-year period

This table provides the regression results on the factors that determine the average abnormal operating performance for the three-year period (AABEAR). The independent variables are *LNMB$_{t-1}$*, *LMV$_{t-1}$*, *LDTA$_{t-1}$*, *PRE, LFCFHMB, LFCFHMB X PRE, DIY, RUNUP$_{t-1}$*, *IO$_{t-1}$*, *LNANAL$_{t-1}$*, *D2003, DPRECRISIS and DPOSTCRISIS.* We use industry fixed effects in our regressions. All the models are estimated using *OLS* estimators with White heteroscedasticity-consistent standard errors. *N* is the number of observations and *t*-statistics are given in parentheses. The superscripts ***, **, and * indicate significant difference from zero at the 1%, 5%, and 10% levels, respectively.

	1	2	3	4
LNMB$_{t-1}$	0.0342***			
	(6.47)			
LMV$_{t-1}$	-0.0026*	-0.0006	-0.0006	-0.0006
	(-1.87)	(-0.43)	(-0.45)	(-0.44)
LDTA$_{t-1}$	-0.0256*	-0.0511***	-0.0508***	-0.0512***
	(-1.88)	(-3.86)	(-3.83)	(-3.87)
FCF$_{t-1}$	-0.0751**			
	(-2.16)			
PRE	0.0148***	0.0129***	0.0122***	0.0124***
	(3.86)	(3.20)	(2.96)	(2.89)
DREPUR	-0.0016	-0.0015	-0.0017	-0.0015
	(-0.34)	(-0.33)	(-0.37)	(-0.33)
DREPUR X PRE	-0.0029	-0.0021	-0.0020	-0.0022
	(-0.42)	(-0.30)	(-0.28)	(-0.31)
LFCFHMB		0.0106*	0.0107*	0.0106*
		(1.83)	(1.84)	(1.83)
LFCFHMB X PRE		0.0073	0.0073	0.0072
		(0.92)	(0.92)	(0.90)
DCHY	0.1230***	0.0894***	0.0895***	0.0896***
	(4.49)	(3.43)	(3.44)	(3.43)
RUNUP$_{t-1}$	-0.0020	0.0041	0.0037	0.0039
	(-0.41)	(0.83)	(0.75)	(0.80)
IO$_{t-1}$	-0.0199*	-0.0234**	-0.0233**	-0.0233**
	(-1.82)	(-2.12)	(-2.11)	(-2.11)
LNANAL$_{t-1}$	0.0052**	0.0058**	0.0057**	0.0058**
	(1.98)	(2.17)	(2.14)	(2.16)
D2003			-0.0074	
			(-0.93)	
DPRECRISIS				0.0042
				(0.64)
DPOSTCRISIS				0.0000
				(0.01)
Constant	0.0258**	0.0301***	0.0312***	0.0303***
	(2.46)	(3.04)	(3.11)	(3.02)
Industry Effects	Yes	Yes	Yes	Yes
R^2	0.0356	0.0222	0.0221	0.0218
F	9.52	7.42	6.92	6.38
Prob>F	0.0000	0.0000	0.0000	0.0000
N	3,635	3,635	3,635	3,635

Table 7 Long-term Buy and Hold Abnormal Returns to Dividend Increases – Reference Portfolio Approach

This table reports the mean and median buy-and-hold abnormal returns for one-year, two-year and three-year periods for various samples using the matching reference portfolio approaches of Daniel, Grinblatt, Titman, and Wermers (1997) and Lyon, Barber, and Tsai (1999). We provide the bootstrap test statistics to test the significance level of buy and hold abnormal returns. The superscripts ***, **, and * indicate significance at the 1%, 5%, and 10%, respectively.

	LBT (1999) Method			DGTW (1997) Method		
	1 year	2 years	3 years	1 year	2 years	3 years
Panel A – Full Sample						
Mean (%)	2.44	3.91	4.69	2.24	4.09	5.16
Median (%)	2.22	3.76	4.94	2.33	4.09	5.47
Bootstrap test	(6.15)***	(6.57)***	(6.68)***	(5.52)***	(7.19)***	(7.09)***
Sample Size	3,810	3,795	3,730	3,820	3,803	3,734
Panel B – Firms which do not announce a repurchase program from year -1 to year 0						
Panel B1: Pretax Cut						
Mean (%)	2.00	3.30	4.30	1.47	2.88	3.85
Median (%)	2.28	3.27	3.92	2.05	2.32	3.09
Bootstrap test	(3.21)***	(3.79)***	(3.91)***	(2.45)**	(3.38)***	(3.58)***
Sample Size	1,616	1,614	1,599	1,616	1,614	1,599
Panel B2: Post-tax Cut						
Mean (%)	3.06	4.87	5.00	3.41	5.86	7.29
Median (%)	2.02	4.63	5.85	2.52	4.94	8.86
Bootstrap test	(4.20)***	(4.30)***	(3.68)***	(4.47)***	(5.30)***	(5.26)***
Sample Size	1,060	1,056	1,030	1,068	1,061	1,033
Panel B3: Post-tax Cut exc 2003						
Mean (%)	2.92	4.43	4.51	3.18	5.30	7.02
Median (%)	1.89	4.18	5.85	2.71	4.94	8.95
Bootstrap test	(3.73)***	(3.85)***	(2.98)***	(4.10)***	(4.47)***	(4.87)***
Sample Size	963	958	935	970	963	938
Panel C – Firms which announce a repurchase program either in year -1 or year 0 or both years						
Panel C1: Pretax Cut						
Mean (%)	2.67	4.32	3.48	1.46	2.58	0.34
Median (%)	2.72	4.93	2.76	1.00	3.69	0.54
Bootstrap test	(2.02)**	(2.20)**	(1.35)	(1.14)	(1.36)	(0.14)
Sample Size	425	422	411	425	422	411
Panel C2: Post-tax Cut						
Mean (%)	2.35	3.60	5.88	2.71	5.10	7.89
Median (%)	1.80	3.62	6.48	2.92	5.37	8.16
Bootstrap test	(2.70)***	(2.81)***	(3.85)***	(3.24)***	(4.00)***	(5.18)***
Sample Size	709	703	690	711	706	691
Panel C3: Post-tax Cut exc 2003						
Mean (%)	2.57	3.92	6.57	2.68	5.15	8.40
Median (%)	2.61	4.17	6.91	2.99	5.43	8.57
Bootstrap test	(2.96)***	(3.03)***	(4.11)***	(2.88)***	(3.87)***	(5.23)***
Sample Size	660	655	642	662	658	643

Table 8 Long-term Returns to Dividend Increases – Calendar Time Methodology

This table presents the average monthly abnormal returns (α_p) for one-year, two-year and three-year periods from the month after the announcement of a dividend initiation using the calendar time methodology. We present the results using the three-factor, four-factor and five-factor models. t-statistics are also reported in the table. The superscripts ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

		Three-factor model		Four-factor model		Five-factor model	
		α_p (%)	t-statistic	α_p (%)	t-statistic	α_p (%)	t-statistic
Panel A – Full Sample							
12 Months	OLS	0.38	2.78***	0.24	1.55	0.24	1.57
	WLS	0.37	2.90***	0.25	1.77*	0.25	1.75*
24 Months	OLS	0.34	2.69***	0.25	1.68*	0.25	1.71*
	WLS	0.32	2.65***	0.24	1.77*	0.24	1.77*
36 Months	OLS	0.33	2.73***	0.25	1.79*	0.24	1.79*
	WLS	0.31	2.61***	0.25	1.84*	0.24	1.82*
Panel B – Firms which do not announce a repurchase program from year -1 to year 0							
Panel B1: Pretax Cut							
12 Months	OLS	0.37	1.85*	0.19	0.76	0.21	0.88
	WLS	0.35	1.82*	0.21	0.88	0.23	0.99
24 Months	OLS	0.35	1.91*	0.21	0.92	0.22	1.02
	WLS	0.32	1.79*	0.21	0.94	0.22	1.03
36 Months	OLS	0.33	1.92*	0.20	0.98	0.20	0.97
	WLS	0.31	1.77*	0.22	0.99	0.22	1.03
Panel B2: Post-Tax Cut							
12 Months	OLS	0.27	1.60	0.23	1.40	0.21	1.28
	WLS	0.34	2.04**	0.29	1.79*	0.27	1.66*
24 Months	OLS	0.30	2.06**	0.27	1.87*	0.26	1.76*
	WLS	0.35	2.42**	0.32	2.22**	0.31	2.13**
36 Months	OLS	0.33	2.51**	0.29	2.21**	0.29	2.13**
	WLS	0.36	2.78***	0.33	2.54**	0.32	2.49**
Panel B3: Post-Tax Cut – Excluding 2003							
12 Months	OLS	0.36	2.18**	0.32	2.01**	0.31	1.94*
	WLS	0.39	2.40**	0.34	2.18**	0.33	2.12**
24 Months	OLS	0.40	2.78***	0.37	2.59**	0.37	2.56**
	WLS	0.39	2.67***	0.35	2.49**	0.35	2.46**
36 Months	OLS	0.43	3.42***	0.40	3.10***	0.40	3.11***
	WLS	0.41	3.09***	0.37	2.88***	0.37	2.87***
Panel C – Firms which announce a repurchase program either in year -1 or year 0 or both years							
Panel C1: Pretax Cut							
12 Months	OLS	0.31	1.08	0.19	0.56	0.18	0.53
	WLS	0.42	1.46	0.28	0.83	0.29	0.86
24 Months	OLS	0.38	1.64	0.32	1.22	0.28	1.07
	WLS	0.33	1.42	0.28	1.00	0.26	0.93
36 Months	OLS	0.33	1.48	0.27	1.16	0.22	0.94
	WLS	0.24	1.14	0.24	0.92	0.19	0.74
Panel C2: Post-Tax Cut							
12 Months	OLS	0.26	1.82*	0.22	1.57	0.22	1.52
	WLS	0.30	2.18**	0.27	1.91*	0.26	1.86*
24 Months	OLS	0.28	2.07**	0.26	1.91*	0.26	1.87*

	WLS	0.28	2.05**	0.26	1.91*	0.26	1.89*
36 Months	OLS	0.28	2.21**	0.26	1.97*	0.26	1.97*
	WLS	0.31	2.41**	0.30	2.24**	0.30	2.24**
Panel C3: Post-Tax Cut – Excluding 2003							
12 Months	OLS	0.39	2.45**	0.36	2.20**	0.36	2.20**
	WLS	0.38	2.69***	0.35	2.42**	0.34	2.44**
24 Months	OLS	0.44	2.95***	0.42	2.73***	0.42	2.74***
	WLS	0.35	2.57**	0.34	2.43**	0.33	2.43**
36 Months	OLS	0.44	3.20***	0.42	2.85***	0.42	2.88***
	WLS	0.39	2.94***	0.38	2.76***	0.38	2.77***

Table 9 Long-term Abnormal Returns and Abnormal Operating Performance of Dividend Increases

This table provides the regression results on the factors that determine the positive post-announcement abnormal returns for dividend-increasing firms. Panels A and B present the results based on one-year and three-year periods, respectively, using buy-and-hold abnormal returns based on the referencing portfolio approach as the dependent variable. The independent variables are $LNMB_{t-1}$, $LNMV_{t-1}$, $LDTA_{t-1}$, $AABEAR$ $(ABEAR_{t+1})$, $CAPEX_{t-1}$, FCF_{t-1}, $DCHY$, $RUNUP_{t-1}$, IO_{t-1}, $LNANAL_{t-1}$, $LNILLIQ_{t-1}$, $LNAGE_{t-1}$, $DREPUR$, PRE, $D2003$, $DPRECRISIS$, and $DPOSTCRISIS$ in Panel A (B). We use year and industry fixed effects in our regressions. All the models are estimated using OLS estimators with White heteroscedasticity-consistent standard errors. N is the number of observations and t-statistics are given in parentheses. The superscripts ***, **, and * indicate a significant difference from zero at the 1%, 5%, and 10% levels, respectively.

	Panel A – Determinants of BAHAR3Y					
	LBT (1999) Method			DGTW (1997) Method		
	Full	NREP	RP	Full	NREP	RP
$LNMB_{t-1}$	-0.1161***	-0.1258***	-0.0806*	-0.1165***	-0.1119***	-0.1172***
	(-4.87)	(-4.33)	(-1.83)	(-4.80)	(-3.72)	(-2.68)
$LNMV_{t-1}$	-0.0027	0.0019	-0.0159	-0.0024	-0.0002	-0.0116
	(-0.36)	(0.21)	(-1.22)	(-0.32)	(-0.02)	(-0.90)
$LDTA_{t-1}$	0.0510	0.0851	0.0069	0.0435	0.0818	-0.0270
	(0.73)	(1.01)	(0.06)	(0.63)	(0.96)	(-0.21)
$AABEAR$	1.1175***	0.9996***	1.4341***	1.0826***	0.9765***	1.3697***
	(12.43)	(9.35)	(8.49)	(12.04)	(9.11)	(8.13)
$CAPEX_{t-1}$	-0.1451	-0.0756	-0.4338	-0.1456	-0.0880	-0.3236
	(-0.79)	(-0.35)	(-1.27)	(-0.82)	(-0.42)	(-0.93)
FCF_{t-1}	0.1954	0.2442	0.0768	0.2446	0.2660	0.1610
	(1.21)	(1.24)	(0.26)	(1.51)	(1.33)	(0.55)
$DCHY$	0.2050	0.2221	0.2333	0.1447	0.1924	0.0631
	(1.49)	(1.39)	(0.85)	(1.06)	(1.23)	(0.23)
$RUNUP_{t-1}$	0.0764***	0.0722**	0.0893*	0.0353	0.0340	0.0356
	(2.93)	(2.32)	(1.73)	(1.37)	(1.12)	(0.68)
IO_{t-1}	0.0170	-0.0413	0.1767	0.0372	0.0351	0.0210
	(0.29)	(-0.59)	(1.56)	(0.63)	(0.50)	(0.19)
$LNANAL_{t-1}$	0.0115	0.0095	0.0214	-0.0010	-0.0024	0.0025
	(0.78)	(0.56)	(0.68)	(-0.07)	(-0.14)	(0.08)
$LNILLIQ_{t-1}$	-0.0457	-0.1015	0.1157	-0.1904	-0.1267	-0.7549
	(-0.21)	(-0.41)	(0.20)	(-0.93)	(-0.55)	(-1.32)
$LNAGE_{t-1}$	-0.0133	-0.0225	0.0090	-0.0075	-0.0092	-0.0014
	(-0.99)	(-1.35)	(0.38)	(-0.56)	(-0.56)	(-0.06)
$DREPUR$	0.0168			0.0064		
	(0.97)			(0.37)		
PRE	0.3278**	0.2752*	0.0778	0.2903*	0.2266	0.0983
	(2.15)	(1.81)	(0.32)	(1.90)	(1.44)	(0.38)
$D2003$	0.1256		-0.0130	0.1094		-0.0226
	(1.52)		(-0.15)	(1.36)		(-0.21)
$DPRECRISIS$	0.0466	0.0430		0.0608	0.0615	
	(0.95)	(0.82)		(1.24)	(1.19)	
$DPOSTCRISIS$	0.0389		0.0329	0.0139		-0.0596
	(0.59)		(0.32)	(0.19)		(-0.53)
Constant	-0.1665	-0.1048	-0.1272	-0.1251	-0.1228	0.1050
	(-1.49)	(-0.83)	(-0.80)	(-1.12)	(-0.97)	(0.63)
Year Effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry Effects	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.0968	0.0831	0.1467	0.0948	0.0782	0.1219
F	9.38	6.50	5.43	9.03	6.23	4.50
Prob>F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
N	3,533	2,489	1,044	3,535	2,490	1,045

	Panel B – Determinants of BAHAR1Y					
	LBT (1999) Method			**DGTW (1997) Method**		
	Full	**NREP**	**REP**	**Full**	**NREP**	**REP**
$LNMB_{t-1}$	-0.0305**	-0.0421**	-0.0095	-0.0333**	-0.0364**	-0.0274
	(-2.25)	(-2.55)	(-0.38)	(-2.53)	(-2.26)	(-1.15)
$LNMV_{t-1}$	-0.0055	-0.0070	-0.0013	-0.0046	-0.0075	0.0026
	(-1.27)	(-1.29)	(-0.18)	(-1.11)	(-1.40)	(0.37)
$LDTA_{t-1}$	0.0541	0.0544	0.0445	0.0376	0.0458	0.0210
	(1.35)	(1.10)	(0.63)	(0.97)	(0.96)	(0.30)
$ABEAR_{t+1}$	0.4148***	0.4169***	0.4059***	0.4064***	0.4073***	0.3856***
	(8.27)	(6.79)	(4.56)	(8.17)	(6.74)	(4.31)
$CAPEX_{t-1}$	-0.1855*	-0.2641**	-0.0397	-0.1766	-0.2362*	-0.0676
	(-1.69)	(-2.08)	(-0.19)	(-1.61)	(-1.88)	(-0.31)
FCF_{t-1}	0.0582	0.1255	-0.0984	0.1149	0.1868*	-0.0580
	(0.63)	(1.13)	(-0.55)	(1.23)	(1.70)	(-0.33)
DIY	0.0780	0.0523	0.1537	0.0594	0.0572	0.0620
	(0.98)	(0.55)	(1.02)	(0.76)	(0.62)	(0.42)
$RUNUP_{t-1}$	0.0425***	0.0467***	0.0386	0.0270*	0.0299*	0.0230
	(2.77)	(2.58)	(1.28)	(1.84)	(1.73)	(0.80)
IO_{t-1}	-0.0509	-0.0500	-0.0332	-0.0417	-0.0184	-0.0885
	(-1.58)	(-1.32)	(-0.51)	(-1.33)	(-0.50)	(-1.39)
$LNANAL_{t-1}$	0.0067	0.0096	0.0015	0.0039	0.0073	-0.0066
	(0.80)	(0.98)	(0.08)	(0.48)	(0.74)	(-0.43)
$LNILLIQ_{t-1}$	-0.1861	-0.2490*	0.3257	-0.2056*	-0.2133*	0.0405
	(-1.44)	(-1.80)	(0.80)	(-1.77)	(-1.69)	(0.11)
$LNAGE_{t-1}$	-0.0024	-0.0025	-0.0041	0.0022	0.0096	-0.0150
	(-0.32)	(-0.27)	(-0.30)	(0.30)	(1.08)	(-1.12)
$DREPUR$	0.0018			0.0041		
	(0.18)			(0.43)		
PRE	0.0623	0.0171	0.0410	0.0627	0.0374	-0.0186
	(0.96)	(0.27)	(0.49)	(1.04)	(0.69)	(-0.20)
$D2003$	0.0170		-0.0591	0.0225		-0.0693
	(0.38)		(-1.30)	(0.54)		(-1.39)
$DPRECRISIS$	0.0609**	0.0715**		0.0571**	0.0752**	
	(2.11)	(2.23)		(1.97)	(2.43)	
$DPOSTCRISIS$	-0.0013		0.0126	-0.0265		0.0072
	(-0.05)		(0.33)	(-0.94)		(0.15)
Constant	0.0198	0.0622	-0.0166	0.0036	-0.0087	0.0824
	(0.37)	(1.02)	(-0.21)	(0.07)	(-0.16)	(1.01)
Year Effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry Effects	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.0590	0.0585	0.0538	0.0514	0.0496	0.0498
F	5.12	4.02	2.48	5.16	3.89	2.77
Prob>F	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000
N	3,648	2,559	1,089	3,656	2,565	1,091

Table 10 Matching Procedure – Dividend Decreases

We identify control firms based on pre-event operating performance (EBITDA/TA$_{t-1}$), book to market ratio, changes in pre-event performance, and industry classification. We select control firms based on the following criteria, stated in order of importance: pre-event performance, market to book ratio, changes in pre-event performance and standard industrial classification code. Our control firms do not reduce dividends during the period of one year prior to one year post the announcement date of a corresponding sample firm's dividend decreases. We select control firms based on the following criteria, stated in order of importance: pre-event performance (EBITDATA ± 10%), market to book ratio (MB ± 20%), changes in pre-event performance (ΔEBITDATA ± 30%) and standard industrial classification code. We also present the pre-event operating performance for sample firms and control firms matched in Panel B.

	Panel A – Matching Procedure	**N**	**%**
(a)	Pre-event performance, MB, ΔEBITDATA, same two-digit SIC.	48	14.29
(b)	Pre-event performance, MB, ΔEBITDATA, same one-digit SIC.	124	36.90
(c)	Pre-event performance, MB, ΔEBITDATA	112	33.33
(d)	Pre-event performance, MB, same two-digit SIC.	16	4.76
(e)	Pre-event performance, MB, same one-digit SIC.	17	5.06
(f)	Pre-event performance, MB	17	5.06
(g)	Pre-event performance, same two-digit SIC.	0	0.00
(h)	Pre-event performance, same one-digit SIC.	1	0.30
(i)	Pre-event performance,	0	0.00
(j)	No Matching	1	0.30
	Total	336	100

Panel B – Sample Firms and Control Firms - EBITDA/TA$_{t-1}$		
	Sample Firms	Control Firms
Mean (%)	11.41	11.43
Median (%)	10.61	10.69

Table 11 Abnormal Operating Performance of Dividend Decreases – Repurchase versus Non-repurchase Firms

This table provides the mean and median abnormal operating performance (difference in EBITDA/TA between sample and control firms - ABEAR) for each year from the year of a decreasing dividend to three years after for the full sample, firms with share repurchases (REP) and firms without share repurchases (NREP), using the matching method discussed in Table 13. This table also presents the average abnormal operating performance for the three-year period. We report the Wilcoxon signed rank (WSR) test to identify whether the median abnormal operating performance is different from zero. We also report the Mann-Whitney (MW) test to identify whether the median abnormal operating performance is different between the NREP and REP subgroups. Panels A presents the results for the full sample. Panels B presents the results partitioning the full sample into NREP and REP subgroups. The superscripts ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	Year 0 $ABEAR_t$	Year 1 $ABEAR_{t+1}$	Year 2 $ABEAR_{t+2}$	Year 3 $ABEAR_{t+3}$	Ave3yrs AABEAR
Panel A – Full Sample					
Mean (%)	-3.19	-2.25	-1.10	-1.05	-1.48
Median (%)	-3.35	-2.19	-1.23	-1.10	-1.42
WSR	-7.22***	-4.41***	-2.61***	-2.08**	-2.80***
Sample size	335	323	314	303	303
Panel B – Sub classification based on with and without repurchase					
Panel B1: Firms which do not announce a repurchase program from year -1 to year 0					
Mean (%)	-3.09	-2.17	-0.63	-0.62	-1.12
Median (%)	-3.32	-2.40	-1.22	-0.89	-1.18
WSR	-6.13***	-4.06**	-1.88*	-1.13	-2.00**
Sample size	269	261	253	244	244
Panel B2: Firms which announce a repurchase program either in year -1 or year 0 or both years					
Mean (%)	-3.58	-2.60	-3.06	-2.86	-3.00
Median (%)	-3.71	-1.89	-1.23	-2.96	-1.63
WSR	-3.88***	-1.78*	-2.09**	-2.39**	-2.33**
Sample size	66	62	61	59	59
(B1) VS (B2)	0.61	0.31	1.01	1.66*	1.14

Table 12 Abnormal Operating Performance of Dividend Decreases – Repurchase versus Non-repurchase Firms, and Pre- versus Post-Tax Cut

This table provides the mean and median abnormal operating performance (difference in EBITDA/TA between sample and control firms - ABEAR) for each year from the year of a decreasing dividend to three years after for the full sample, the dividend reduction of the pre- and post-tax cut period, using the matching method discussed in Table 13. This table also presents the average abnormal operating performance for the three-year period. We report the Wilcoxon signed rank (WSR) test to identify whether the median abnormal operating performance is different from zero. We also report the Mann-Whitney (MW) test to identify whether the median abnormal operating performance is different between different subgroups. Panel A presents the results for NREP, partitioning the sample into pretax and post-tax subgroups. Panel B presents the results for REP, partitioning the sample into pretax and post-tax subgroups. The superscripts ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	Year 0 $ABEAR_t$	Year 1 $ABEAR_{t+1}$	Year 2 $ABEAR_{t+2}$	Year 3 $ABEAR_{t+3}$	Ave3yrs AABEAR
Firms which do not announce a repurchase program from year -1 to year 0					
Panel A – Sub classification based on Tax cut					
Panel A1: Pretax Cut					
Mean (%)	-2.91	-1.53	0.43	0.58	-0.19
Median (%)	-3.04	-2.01	-0.05	0.18	0.48
WSR	-4.10**	-2.26**	-0.02	0.57	-0.12
Sample size	153	147	141	136	136
Panel A2: Post-Tax Cut					
Mean (%)	-3.33	-3.00	-1.97	-2.12	-2.28
Median (%)	-3.75	-2.91	-2.61	-2.72	-2.33
WSR	-4.61***	-3.63***	-2.91***	-2.37**	-2.99***
Sample size	116	114	112	108	108
(A1) VS (A2)	0.79	0.97	1.87*	2.17**	2.02**
Panel A3: Post-Tax Cut – Excluding 2003					
Mean (%)	-3.21	-2.83	-1.95	-2.24	-2.26
Median (%)	-3.68	-2.60	-2.45	-2.20	-2.12
WSR	-4.21***	-3.28***	-2.72***	-2.23**	-2.80***
Sample size	108	106	104	100	100
(A1) VS (A3)	0.67	0.75	1.74*	2.08**	1.90*
Firms which announce a repurchase program either in year -1 or year 0 or both years					
Panel B – Sub classification based on Tax cut					
Panel B1: Pretax Cut					
Mean (%)	-1.73	-1.91	-1.97	-0.34	-1.58
Median (%)	-3.18	-2.23	0.72	-0.87	-0.31
WSR	-2.04**	-1.61	-0.47	-0.05	-0.71
Sample size	31	29	29	28	28
Panel B2: Post Tax Cut					
Mean (%)	-5.21	-3.20	-4.05	-5.13	-4.27
Median (%)	-5.36	-1.62	-2.38	-4.88	-2.28
WSR	-3.41***	-1.19	-2.28**	-3.25***	-2.43**
Sample size	35	33	32	31	31
(B1) VS (B2)	1.86*	0.02	1.42	2.03**	1.31
Panel B3: Post-Tax Cut – Excluding 2003					
Mean (%)	-5.32	-3.22	-4.09	-5.13	-4.27
Median (%)	-5.41	-0.79	-2.07	-4.88	-2.28
WSR	-3.36***	-1.12	-2.20**	-3.25***	-2.43**
Sample size	34	32	31	31	31

Table 13: Determinants of Abnormal Earnings of Dividend Decreases for the post announcement one-year and three-year period

This table provides the regression results on the factors that determine the average abnormal operating performance for the three-year period (AABEAR). The independent variables are $LNMB_{t-1}$, LMV_{t-1}, $LDTA_{t-1}$, POST, LFCFHMB, LFCFHMB X PRE, DIY, $RUNUP_{t-1}$, IO_{t-1}, $LNANAL_{t-1}$, D2003, DPRECRISIS and DPOSTCRISIS. We use industry fixed effects in our regressions. All the models are estimated using *OLS* estimators with White heteroscedasticity-consistent standard errors. *N* is the number of observations and *t*-statistics are given in parentheses. The superscripts ***, **, and * indicate significant difference from zero at the 1%, 5%, and 10% levels, respectively.

	1	2	3
$LNMB_{t-1}$	-0.0427**	-0.0431**	-0.0423**
	(-2.11)	(-2.13)	(-2.12)
LMV_{t-1}	0.0070*	0.0070*	0.0081*
	(1.75)	(1.76)	(1.95)
$LDTA_{t-1}$	0.0636**	0.0641**	0.0619**
	(2.19)	(2.20)	(2.14)
FCF_{t-1}	-0.1467	-0.1480	-0.1320
	(-1.49)	(-1.51)	(-1.34)
PRE	0.0330***	0.0344***	0.0440***
	(2.60)	(2.82)	(3.07)
DREPUR	-0.0301*	-0.0290*	-0.0313*
	(-1.78)	(-1.73)	(-1.85)
DREPUR X PRE	0.0038	0.0026	0.0134
	(0.15)	(0.10)	(0.51)
DCHY	-0.0345**	-0.0343**	-0.0342**
	(-2.48)	(-2.45)	(-2.43)
$RUNUP_{t-1}$	-0.0287	-0.0294	-0.0329
	(-1.38)	(-1.44)	(-1.62)
IO_{t-1}	0.0003	0.0005	0.0031
	(0.01)	(0.02)	(0.10)
$LNANAL_{t-1}$	-0.0002	-0.0002	-0.0020
	(-0.02)	(-0.02)	(-0.24)
D2003		0.0140	
		(0.28)	
DPRECRISIS			-0.0227
			(-1.32)
DPOSTCRISIS			0.0149
			(0.91)
Constant	-0.0578**	-0.0595**	-0.0689**
	(-2.25)	(-2.32)	(-2.58)
Industry Effects	Yes	Yes	Yes
R^2	0.0678	0.0651	0.0708
F	3.47	3.29	3.04
Prob>F	0.0001	0.0002	0.0003
N	302	302	302

Table 14 Long-term Buy and Hold Abnormal Returns to Dividend Decreases – Reference Portfolio Approach

This table reports the mean and median buy-and-hold abnormal returns for the one-year, two-year and three-year periods for various samples using the matching reference portfolio approaches of Daniel et al. (1997) and Lyon et al. (1999). We provide bootstrap test statistics to test the significance level of buy and hold abnormal returns. The superscripts ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	LBT (1999) Method			DGTW (1997) Method		
	1 year	**2 years**	**3 years**	**1 year**	**2 years**	**3 years**
	Panel A – Full Sample					
Mean (%)	8.70	10.61	11.84	10.93	11.62	12.44
Median (%)	5.43	7.89	13.71	6.23	9.12	7.20
Bootstrap test	(3.25)***	(2.75)***	(2.67)***	(4.11)***	(3.03)***	(2.83)***
Sample Size	330	327	312	336	331	314
	Panel B – Firms which do not announce a repurchase program from year -1 to year 0					
	Panel B1: Pretax Cut					
Mean (%)	0.34	-1.13	4.33	-0.74	-1.43	4.63
Median (%)	0.87	1.86	1.99	-0.07	3.88	-0.07
Bootstrap test	(0.10)	(-0.21)	(0.75)	(-0.21)	(-0.28)	(0.80)
Sample Size	151	149	140	153	151	141
	Panel B2: Post-tax Cut					
Mean (%)	16.82	19.73	19.66	22.14	22.83	21.22
Median (%)	11.22	17.55	19.65	12.96	16.88	19.97
Bootstrap test	(3.41)***	(2.69)***	(2.23)**	(4.49)***	(3.12)***	(2.33)**
Sample Size	113	113	111	117	115	112
	Panel B3: Post-tax Cut exc 2003					
Mean (%)	19.53	22.91	24.83	24.90	25.60	26.05
Median (%)	13.43	22.44	28.52	16.38	23.02	26.18
Bootstrap test	(3.70)***	(2.92)***	(2.74)***	(4.64)***	(3.18)***	(2.64)***
Sample Size	104	104	102	108	106	103

Table 15 Long-term Returns to Dividend Decreases – Calendar Time Methodology

This table presents the average monthly abnormal returns (α_p) for the one-year, two-year and three- year periods from the month after the announcement of dividend decreases using the calendar time methodology. We present the results using the three-factor, four-factor, and five-factor models. t-statistics are also reported in the table. The superscripts ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

		Three-factor model		Four-factor model		Five-factor model	
		α_p (%)	t-statistic	α_p (%)	t-statistic	α_p (%)	t-statistic
		Panel A – Full Sample					
12 Months	OLS	-0.27	-0.89	-0.01	-0.02	-0.02	-0.08
	WLS	-0.16	-0.51	0.09	0.29	0.08	0.26
24 Months	OLS	-0.34	-1.37	-0.24	-0.93	-0.25	-0.95
	WLS	-0.19	-0.86	-0.07	-0.29	-0.09	-0.35
36 Months	OLS	-0.04	-0.17	0.11	0.43	0.13	0.49
	WLS	-0.06	-0.33	0.06	0.28	0.07	0.29
		Panel B – Firms which do not announce a repurchase program from year -1 to year 0					
		Panel B1: Pretax Cut					
12 Months	OLS	-0.15	-0.33	0.15	0.32	0.17	0.38
	WLS	-0.27	-0.64	0.03	0.07	0.04	0.10
24 Months	OLS	0.01	0.01	0.06	0.18	0.06	0.18
	WLS	-0.16	-0.55	-0.07	-0.22	-0.09	-0.29
36 Months	OLS	0.23	0.81	0.36	1.05	0.43	1.13
	WLS	-0.01	-0.03	0.11	0.40	0.14	0.45
		Panel B2: Post-Tax Cut					
12 Months	OLS	-0.56	-1.14	-0.42	-0.90	-0.45	-0.96
	WLS	-0.12	-0.25	-0.12	-0.24	-0.11	-0.22
24 Months	OLS	-0.98	-2.64***	-0.86	-2.39**	-0.87	-2.44**
	WLS	-0.44	-1.25	-0.38	-1.09	-0.38	-1.08
36 Months	OLS	-0.66	-2.10**	-0.53	-1.71*	-0.52	-1.71*
	WLS	-0.24	-0.85	-0.18	-0.63	-0.18	-0.62
		Panel B3: Post-Tax Cut – Excluding 2003					
12 Months	OLS	-0.60	-1.15	-0.49	-0.98	-0.52	-1.03
	WLS	-0.09	-0.16	-0.10	-0.19	-0.10	-0.17
24 Months	OLS	-1.05	-2.58**	-0.94	-2.42**	-0.95	-2.45**
	WLS	-0.43	-1.17	-0.40	-1.08	-0.40	-1.06
36 Months	OLS	-0.69	-1.98**	-0.57	-1.71*	-0.56	-1.69*
	WLS	-0.16	-0.54	-0.12	-0.41	-0.13	-0.42

Table 16 Long-term Abnormal Return and Abnormal Operating Performance of Dividend Decreases

This table provides the regression results of the factors that determine the positive post-announcement abnormal return for dividend-decreasing firms. Panels A and B present the results based on the one-year and three-year periods, respectively, using buy-and-hold abnormal returns based on the referencing portfolio approach as the dependent variable. The independent variables are $LNMB_{t-1}$, $LNMV_{t-1}$, $LDTA_{t-1}$, $AABEAR$ ($ABEAR_{t+1}$), $CAPEX_{t-1}$, FCF_{t-1}, $DCHY$, $RUNUP_{t-1}$, IO_{t-1}, $LNANAL_{t-1}$, $LNILLIQ_{t-1}$, $LNAGE_{t-1}$, $DREPUR$, PRE, $D2003$, $DPRECRISIS$, and $DPOSTCRISIS$ in Panel A (B). We use year and industry fixed effects in our regressions. All the models are estimated using OLS estimators with White heteroscedasticity-consistent standard errors. N is the number of observations and t-statistics are given in parentheses. The superscripts ***, **, and * indicate a significant difference from zero at the 1%, 5%, and 10% levels, respectively.

	Panel A – Determinants of BAHAR3Y				Panel B – Determinants of BAHAR1Y			
	LBT (1999) Method		DGTW (1997) Method		LBT (1999) Method		DGTW (1997) Method	
	Full	NREP	Full	NREP	Full	NREP	Full	NREP
$LNMB_{t-1}$	-0.1233	-0.1682	-0.1140	-0.1271	0.0798	0.0668	0.0784	0.0902
	(-0.68)	(-0.82)	(-0.62)	(-0.59)	(0.78)	(0.56)	(0.74)	(0.74)
$LNMV_{t-1}$	-0.0045	-0.0025	0.0183	0.0093	-0.0266	-0.0225	-0.0256	-0.0305
	(-0.10)	(-0.05)	(0.42)	(0.19)	(-1.02)	(-0.84)	(-0.97)	(-1.13)
$LDTA_{t-1}$	0.2943	0.3399	0.1556	0.2489	0.2238	0.2969	0.1023	0.2571
	(0.88)	(0.99)	(0.51)	(0.72)	(1.03)	(1.45)	(0.55)	(1.40)
$AABEAR$	1.4633**	1.4556**	1.3600**	1.1739*				
	(2.52)	(2.17)	(2.36)	(1.73)				
$ABEAR_{t+1}$					0.2991	0.2411	0.0820	-0.0692
					(0.89)	(0.63)	(0.23)	(-0.17)
$CAPEX_{t-1}$	-1.5600	-1.3387	-1.2002	-1.4415	-0.8099	-0.6655	-0.4748	-0.4089
	(-1.18)	(-0.99)	(-0.96)	(-1.09)	(-1.09)	(-0.91)	(-0.61)	(-0.53)
FCF_{t-1}	0.0127	1.3003	0.3907	1.6038	0.1698	1.2465**	0.5834	1.7413***
	(0.01)	(1.23)	(0.48)	(1.50)	(0.32)	(2.08)	(1.09)	(2.83)
$DCHY$	0.1503	0.1835	0.1041	0.1302	0.0487	0.0809	0.0320	0.0760
	(0.94)	(1.01)	(0.62)	(0.66)	(0.53)	(0.84)	(0.37)	(0.82)
$RUNUP_{t-1}$	-0.2811	-0.2729	-0.3349*	-0.3943*	-0.1494	-0.2089*	-0.1549	-0.2749**
	(-1.41)	(-1.33)	(-1.68)	(-1.85)	(-1.20)	(-1.68)	(-1.32)	(-2.28)
IO_{t-1}	0.9347***	1.0288***	1.0205***	1.0562***	0.2625	0.4140**	0.3484**	0.5035***
	(3.09)	(3.06)	(3.52)	(3.17)	(1.49)	(2.41)	(2.04)	(3.00)
$LNANAL_{t-1}$	-0.0309	0.0066	-0.0584	-0.0054	0.0310	0.0174	0.0311	0.0204
	(-0.40)	(0.08)	(-0.77)	(-0.07)	(0.61)	(0.34)	(0.62)	(0.38)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$LNILLIQ_{t-1}$	-0.1168	0.0050	0.2253	0.2778	-0.0702	0.0597	0.1302	0.2293
	(-0.49)	(0.02)	(0.89)	(0.92)	(-0.49)	(0.41)	(0.93)	(1.60)
$LNAGE_{t-1}$	0.0177	0.0105	0.0444	0.0207	0.0346	0.0503	0.0773*	0.0934*
	(0.22)	(0.11)	(0.56)	(0.21)	(0.73)	(1.01)	(1.75)	(1.96)
DREPUR	-0.1141		-0.1296		-0.0307		-0.0126	
	(-0.90)		(-1.12)		(-0.38)		(-0.16)	
PRE	1.1340*	0.8393**	1.1302*	0.7773**	0.0989	0.3549**	0.0843	0.4075***
	(1.89)	(2.36)	(1.78)	(2.09)	(0.46)	(2.31)	(0.39)	(2.93)
D2003	0.3669		0.3923		-0.1701		-0.1761	
	(0.68)		(0.68)		(-0.98)		(-1.03)	
DPRECRISIS	0.5780*	0.5191	0.6553**	0.6528*	0.4068**	0.2916**	0.4767***	0.3848***
	(1.92)	(1.49)	(2.16)	(1.79)	(2.52)	(2.55)	(2.65)	(2.99)
DPOSTCRISIS	0.0256		0.1239		0.0880		0.2062	
	(0.10)		(0.51)		(0.48)		(1.07)	
Constant	-1.1741**	-1.1491***	-1.3591***	-1.1538***	-0.2739	-0.6274***	-0.3939	-0.7625***
	(-2.38)	(-2.71)	(-2.73)	(-2.66)	(-1.11)	(-2.87)	(-1.62)	(-3.58)
Year Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.1714	0.2338	0.1896	0.2205	0.1467	0.2364	0.2055	0.2809
F	3.34	3.69	2.96	2.81	2.06	3.26	1.74	3.34
Prob>F	0.0000	0.0000	0.0000	0.0001	0.0025	0.0000	0.0169	0.0000
N	289	231	291	233	307	246	312	251

Appendix – Definition of Variables

Variables	Definitions
β_{t-1}	Systematic risk, estimated by regressing daily individual stock returns over the financial year on the contemporaneous CRSP value-weighted market returns, correcting for nonsynchronous trading.
AABEAR	Average abnormal operating performance over the three-year period subsequent to the dividend increase/decrease announcements.
$ABEAR_t$	Abnormal operating performance in year t, the year of DI, calculated as the difference in EBITDA/TA between the sample firm and control firm in year t.
$ABEAR_{t+1}$	Abnormal operating performance in year t+1, calculated as the difference in EBITDA/TA between the sample firm and control firm in year t+1.
$ABEAR_{t+2}$	Abnormal operating performance in year t+2, calculated as the difference in EBITDA/TA between the sample firm and control firm in year t+2.
$ABEAR_{t+3}$	Abnormal operating performance in year t+3, calculated as the difference in EBITDA/TA between the sample firm and control firm in year t+3.
$ANAL_{t-1}$	The monthly average of the number of analysts with valid estimates in the financial year prior to the dividend increase/decrease announcement.
BAHAR3Y	We compute buy and hold abnormal returns (BAHAR3Y) for three-year periods after the dividend increase/decrease announcements as the sum of the differences between a firm's monthly raw return and the monthly return for the corresponding benchmark portfolio to which it belongs, using both LBT (1999) and DGTW (1997) reference portfolio methods.
BAHAR1Y	We compute buy and hold abnormal returns (BAHAR1Y) for the one-year period after the dividend increase/decrease announcements as the sum of the differences between a firm's monthly raw return and the monthly return for the corresponding benchmark portfolio to which it belongs, using both LBT (1999) and DGTW (1997) reference portfolio methods.
$CAPEX_{t-1}$	Capital expenditure (Compustat item #128) to total assets (Compustat item #6) in year t-1.
D2003	A dummy variable equal to one if the announcement of a dividend increase/decrease is made in calendar year 2003, and zero otherwise.
DCHY	The ratio of the magnitude of dividend change by the share price at the end of the previous fiscal year (Compustat item #199).
DPOSTCRISIS	A dummy variable equal to one if the announcement of a dividend increase/decrease is made during the financial crisis period (calendar years: 2006–2008), and zero otherwise.
DPRECRISIS	A dummy variable equal to one if the announcement of a dividend increase/decrease is made during the pretax crisis period (calendar years: 1987, 2000–2001), and zero otherwise.
DREPUR	A dummy variable equal to one if the firm announced a repurchase program either one year prior to or during the year of the announcement of a dividend increase/decrease or in both years, and zero otherwise.
$EBITDA/TA_{t-1}$	Earnings before interest, tax and depreciation (Compustat item #13) divided by total assets (Compustat item #6) in year t-1.
FCF_{t-1}	Free cash flow in year t-1, calculated as operating income before depreciation (Compustat item #13) minus interest expense (Compustat item #15), taxes (Compustat item #16 – change in Compustat item #35), preferred dividends (Compustat item #19), common dividends (Compustat item #21) and share repurchase expenses (Compustat item #115), all scaled by total assets (Compustat item #6) in year t-1 (see Lie (2000)).
$ILLIQ_{t-1}$	A proxy for illiquidity, calculated as the average of the daily Amihud (2002) illiquidity measures over the financial year prior to the announcement date with the daily illiquidity measure defined as the ratio of the daily absolute return to the dollar trading volume on that day, multiplied by 100000

$IDIO_{t-1}$	Idiosyncratic risk, measured as annualized standard deviation of the residuals from regressing daily individual stock returns over the fiscal year t-1 on the contemporaneous CRSP value-weighted market returns, correcting for nonsynchronous trading.
IO_{t-1}	The institutional ownership as a percentage of shares outstanding at the last quarter before the dividend increase/decrease announcement date.
$LDTA_{t-1}$	Long-term debt to total assets (Compustat item #6) in year t-1.
$LFCF$	A dummy variable equal to one for firms with lower free cash flows in year t-1, measured based on yearly medians of free cash flows in year t-1, and zero otherwise.
$LFCFHMB$	A dummy variable equal to one for firms with lower free cash flows and higher market to book ratios in year t-1, measured based on yearly medians of free cash flows and market to book ratio in year t-1, and zero otherwise.
$LFCFLMB$	A dummy variable equal to one for firms with lower free cash flows and lower market to book ratios in year t-1, measured based on yearly medians of free cash flows and market to book ratio in year t-1, and zero otherwise.
$LNAGE_{t-1}$	The natural logarithm of the company age. Firm age is measured in years as the difference between fiscal year end in t-1 and the first day the firm appears in the Compustat or CRSP, whichever is earlier.
$LNANAL_{t-1}$	The natural logarithm of one plus the monthly average of the number of analysts with valid estimates in the last year prior to the dividend increase/decrease announcement.
$LNILLIQ_{t-1}$	The natural logarithm of one plus $ILLIQ$
$LNMV_{t-1}$	The natural logarithm of the market capitalization in year t-1 for the dividend-increasing/dividend-decreasing firm.
$LNMB_{t-1}$	The natural logarithm of the market-to-book ratio
MB_{t-1}	Total assets (Compustat item #6) plus the financial year-end market value of equity (the product of Compustat item #199 and Compustat item #25) minus the book value of equity (Compustat item #60), all scaled by total assets in year t-1.
MV_{t-1}	The market capitalization (the product of Compustat item #199 and Compustat item #25) at the balance sheet date immediately prior to the dividend increase/decrease announcements
PRE	A dummy variable equal to one if the announcement of a dividend increase/decrease is made before the calendar year 2003, and zero otherwise.
$RETA_{t-1}$	Retained earnings (Compustat item #36) divided by total assets (Compustat item #6) in year t-1.
$RUNUP_{t-1}$	The buy and hold raw return during the fiscal year.
$SIZE_{t-1}$	The percentiles at the end of the financial year t-1 in which the firm falls based on the full cross-sectional distribution of total assets for firms listed on the NYSE.
TA_{t-1}	Total assets (Compustat item #6) for the dividend-increasing/dividend decreasing firms at the balance sheet date immediately prior to the dividend increase/decrease announcements.

Internet Appendix

A   Long-Term Return Methodology

Lyon, Barber, and Tsai (1999)'s reference portfolio approach

We follow Lyon et al. (1999) and construct 140 size and book-to-market reference portfolios. To be included in the sample, we require that the market value data from CRSP are available at the end of December and the end of June preceding the formation date for the calculation of size and the BM ratio, respectively.

The 140 portfolios are based on a double-sort on each firm's size (market capitalization) and BM ratio. The formation of portfolios is implemented every July of the sample year (calendar year t). On each formation date (every July of the sample year), all NYSE firms are ranked and formed into 10 decile size ranking portfolios based on the firm's market value at the end of June before the formation date. AMEX and NASDAQ firms are then placed in the appropriate-sized portfolios based on NYSE firms' breakpoints. The smallest-sized decile is further partitioned into 5 groups on the basis of the size ranking of all firms. In total, 14 size ranking portfolios are constructed. The firms are then further sorted into 10 groups according to their BM ratio, measured as the book-value of the equity reported on the firm's balance sheet in calendar year t-1 divided by the market-value of equity at the end of December in calendar year t-1. Consistent with Lyon et al. (1999), only NYSE firms are used to determine the breakpoints in this sort. Finally, we compute buy and hold abnormal returns (BHAR) for one-year, two-year and three-year periods after the dividend increase/decrease announcements as the sum of the differences between a firm's monthly raw return and the monthly return for the corresponding benchmark portfolio to which it belongs.

Daniel, Grinblatt, Titman, and Wermers' (1997) reference portfolio approach

We follow Daniel et al. (1997) and construct 125 size, book-to-market, and momentum benchmark portfolios. The 125 portfolios are based on a triple-sort on each firm's size (market capitalization), BM (Book-to-Market) ratio, and momentum (previous 12-month stock return). The formation of portfolios is implemented every July of the sample year. On each formation date (every July of the sample year), the universe of common stocks listed on NYSE, AMEX and Nasdaq are sorted into 5 groups based on each firm's market value at the end of June before the formation date.

To be included in the sample, we require that Compustat book equity data is available for at least two years, and that the market value data from CRSP is available at the end of December and the end of June preceding the formation date for the calculation of size and BM ratio, respectively. We also require that at least 6 monthly returns are available on CRSP in the 12 months prior to the formation date for the calculation of momentum. Consistent with Daniel et al. (1997), only NYSE firms are used to determine the breakpoints in this sort. The firms within each size group are then further sorted into 5 groups according to their BM ratio, measured as the book-value of the equity at the end of the firm's fiscal year during the calendar year before the formation date divided by the market-value of equity at the end of December before the formation date. Finally, the firms in each of the 25 size and BM portfolios are further sorted into 5 groups based on their previous 12-month stock return. Consistent with Daniel et al. (1997), the momentum is measured through to the end of May to avoid problems associated with the bid-ask bounce and monthly return reversals. We compute buy and hold abnormal returns (BHAR) for one-year, two-year and three-year periods after the dividend increase/decrease announcements as the sum of the differences between a firm's monthly raw return and the monthly return for the corresponding benchmark portfolio to which it belongs.

Calendar time approach

Following Peyer and Vermaelen (2009), we construct calendar time equally-weighted portfolios to calculate the monthly abnormal performance of firms that have announced dividend increases/decreases.

Three-factor model $(R_{p,t} - R_{f,t}) = \alpha_p + a_p(R_{m,t} - R_{f,t}) + b_p SMB_t + c_p HML_t + \varepsilon_{p,t}$

Four-factor model $(R_{p,t} - R_{f,t}) = \alpha_p + a_p(R_{m,t} - R_{f,t}) + b_p SMB_t + c_p HML_t$

$$+d_p UMD_t + \varepsilon_{p,t}$$

Five-factor model $(R_{p,t} - R_{f,t}) = \alpha_p + a_p(R_{m,t} - R_{f,t}) + b_p SMB_t + c_p HML_t$

$$+d_p UMD_t + e_p LIQ_t + \varepsilon_{p,t}$$

where $R_{p,t} - R_{f,t}$ is the monthly excess return of the portfolios, $R_{m,t} - R_{f,t}$ is the excess return using the equally weighted CRSP index as the proxy for market portfolio, SMB_t is the difference in returns between small- and large-cap stock portfolios, HML_t is the difference in returns between a portfolio of high book to market and low book to market stocks, UMD_t is the momentum factor, LIQ_t is the liquidity factor, α_p is the average monthly abnormal long-term performance.

Firms that have announced dividend increases/decreases in the last 12, 24, and 36 calendar months form the basis of the calendar month portfolio for the one-year, two-year and three-year post-announcement periods. Firms are added to the portfolio at the beginning of the month following their dividend change announcements and retained for the next one- year, two-year and three-year post-announcement period or until the stock no longer trades. At the beginning of each month, the portfolio is rebalanced to reflect changes in portfolio composition. Over time, new companies enter the portfolio and old companies leave, causing

the number of stocks in the portfolio to vary.[9] A single time-series regression is run with the equally weighted excess return of the calendar portfolio as the dependent variable and the return on the three/four/five factors as the independent variables. We use both ordinary least squares (*OLS*) and weighted least squares (*WLS*) estimators to calculate the monthly abnormal performance, with the square root of the number of firms in each month as that month's weight in the weighted least squares (*WLS*) regressions.

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[9] To reduce the impact of idiosyncratic noise, months in which a portfolio contains fewer than four stocks are dropped from our analysis. In the untabulated results, we find similar results when we repeat this for the five or above stocks case.

Table A1: Abnormal Operating Performance of Dividend Increases – REP versus NREP Firms, and Pre- versus Post-Tax Cut – Excluding crises periods

This table provides the mean and median abnormal operating performance (difference in EBITDA/TA between sample and control firms - ABEAR) for each year from the year of increasing dividends to three years after for the full sample and the dividend increasers of the pre- and post-tax cut period, using the matching method discussed in Table 3. This table also presents the average abnormal operating performance for the three-year period. We report the Wilcoxon signed rank (WSR) test to identify whether the median abnormal operating performance is different from zero. We also report the Mann-Whitney (MW) test to identify whether the median abnormal operating performance is different between different subgroups. Panels A presents the results for NREP excluding crisis periods, partitioning the sample into pretax and post-tax subgroups. Panel B presents the results for REP, partitioning the sample into pretax and post-tax subgroups excluding crisis periods. The superscripts ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	Year 0 $AAEAR_t$	Year 1 $AAEAR_{t+1}$	Year 2 $AAEAR_{t+2}$	Year 3 $AAEAR_{t+3}$	Ave3yrs $AAAEAR$
Firms which do not announce a repurchase program from year -1 to year 0					
Panel A – Sub classification based on Tax cut excluding crisis period					
Panel A1: Pretax Cut – Excluding Crisis					
Mean (%)	2.56	3.60	3.92	4.01	3.87
Median (%)	1.69	2.57	2.65	2.78	2.88
WSR	12.52***	13.70***	12.35***	12.10***	14.86***
Sample size	1,423	1,414	1,401	1,387	1,387
Panel A2: Post-Tax Cut – Excluding Financial Crisis					
Mean (%)	2.22	2.50	2.64	2.71	2.52
Median (%)	1.12	1.67	1.49	1.65	1.77
WSR	7.99***	7.39***	6.38***	5.74***	6.69***
Sample size	733	722	703	683	683
(A1) VS (A2)	1.51	2.76***	2.65***	2.50**	3.50***
Panel A3: Post-Tax Cut – Excluding Financial Crisis and 2003					
Mean (%)	2.29	2.54	2.82	2.82	2.63
Median (%)	1.10	1.66	1.54	1.67	1.73
WSR	7.44***	6.94***	6.28***	5.56***	6.44***
Sample size	636	626	612	594	594
(A1) VS (A3)	1.35	2.63***	2.24**	2.22**	3.14***
Firms which announce a repurchase program either in year -1 or year 0 or both years					
Panel B – Sub classification based on Tax cut excluding crisis period					
Panel B1: Pretax Cut – Excluding Crisis					
Mean (%)	2.12	3.79	3.98	3.51	3.79
Median (%)	1.66	2.29	2.42	2.76	2.52
WSR	5.52***	6.66***	5.60***	5.18***	6.71***
Sample size	362	358	348	337	337
Panel B2: Post-Tax Cut – Excluding Financial Crisis					
Mean (%)	2.00	2.57	2.50	2.75	2.59
Median (%)	0.88	1.49	1.51	1.99	1.81
WSR	5.28***	5.94***	5.00***	5.00***	5.70***
Sample size	436	428	419	411	411
(B1) VS (B2)	0.77	1.60	1.32	1.03	1.72*
Panel B3: Post-Tax Cut – Excluding Financial Crisis and 2003					
Mean (%)	2.11	2.66	2.62	2.79	2.71
Median (%)	0.84	1.50	1.54	2.04	1.81
WSR	5.13***	5.74***	4.79***	4.75***	5.49***
Sample size	388	381	372	366	366

Table A2 Abnormal Operating Performance of Dividend Increases for Firms' Operating Performance Data Available for Each Year of the Post-announcement Three-year Period – REP versus NREP firms and Pre- versus Post-Tax Cut

This table provides the mean and median abnormal operating performance (difference in EBITDA/TA between sample and control firms - ABEAR) for each year from the year of increasing dividend to three years after for the full sample, the dividend increasers of the pre- and post-tax cut period, using the matching method discussed in Table 3. This table also presents the average abnormal operating performance for the three-year period. We report the Wilcoxon signed rank (WSR) test to identify whether the median abnormal operating performance is different from zero. We also report the Mann-Whitney (MW) test to identify whether the median abnormal operating performance is different between different subgroups. Panel A presents the results for NREP, partitioning the sample into pretax and post-tax subgroups. Panel B presents the results for REP, partitioning the sample into pretax and post-tax subgroups. The superscripts ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	Year 0 $ABEAR_t$	Year 1 $ABEAR_{t+1}$	Year 2 $ABEAR_{t+2}$	Year 3 $ABEAR_{t+3}$	Ave3yrs AABEAR
Firms which do not announce a repurchase program from year -1 to year 0					
Panel A – Sub classification based on Tax cut					
Panel A1: Pretax Cut					
Mean (%)	2.77	3.75	4.02	4.12	3.99
Median (%)	1.77	2.68	2.70	2.92	3.03
WSR	13.82***	14.99***	13.38***	13.30***	16.20***
Sample size	1,577	1,577	1,577	1,577	1,577
Panel A2: Post-Tax Cut					
Mean (%)	2.15	2.85	2.82	2.65	2.67
Median (%)	1.16	1.91	1.59	1.59	1.83
WSR	9.24***	9.46***	7.38***	6.70***	8.27***
Sample size	1,000	1,000	1,000	1,000	1,000
(A1) VS (A2)	2.33**	2.67***	3.02***	3.39***	4.13***
Panel A3: Post-Tax Cut – Excluding 2003					
Mean (%)	2.14	2.86	2.95	2.71	2.76
Median (%)	1.07	1.91	1.72	1.62	1.79
WSR	8.58***	8.98***	7.25***	6.55***	8.08***
Sample size	911	911	911	911	911
(A1) VS (A3)	2.37**	2.64***	2.73***	3.19***	3.83***
Firms which announce a repurchase program either in year -1 or year 0 or both years					
Panel B – Sub classification based on Tax cut					
Panel B1: Pretax Cut					
Mean (%)	2.19	3.69	3.70	3.24	3.58
Median (%)	1.64	2.13	2.12	2.31	2.37
WSR	5.51***	6.66***	5.50***	5.11***	6.64***
Sample size	393	393	393	393	393
Panel B2: Post-Tax Cut					
Mean (%)	2.10	2.76	2.38	2.28	2.44
Median (%)	1.21	1.61	1.76	1.38	1.70
WSR	7.19***	7.38***	5.82***	5.43***	6.87***
Sample size	675	675	675	675	675
(B1) VS (B2)	0.43	1.34	1.29	1.30	1.62
Panel B3: Post-Tax Cut – Excluding 2003					
Mean (%)	2.18	2.85	2.45	2.27	2.49
Median (%)	1.23	1.65	1.79	1.40	1.70
WSR	7.17***	7.28***	5.68***	5.20***	6.70***
Sample size	630	630	630	630	630

Table A3: Long-term Buy and Hold Abnormal Returns to Dividend Increases – Reference Portfolio Approach – excluding crises period

This table reports the mean and median buy-and-hold abnormal returns for one-year, two-year and three-year periods for various samples using the matching reference portfolio approaches of Daniel, Grinblatt, Titman, and Wermers (1997) and Lyon, Barber, and Tsai (1999). We provide the bootstrap test statistics to test the significance level of buy and hold abnormal returns. The superscripts ***, **, and * indicate significance at the 1%, 5%, and 10%, respectively.

	LBT (1999) Method			DGTW (1997) Method		
	1 year	**2 years**	**3 years**	**1 year**	**2 years**	**3 years**
Panel B – Firms which do not announce a repurchase program from year -1 to year 0						
Panel B4: Pretax Cut exc Crisis						
Mean (%)	0.78	1.84	2.77	0.37	1.61	2.53
Median (%)	1.28	1.49	2.66	1.05	1.60	1.84
Bootstrap test	(1.19)	(1.96)**	(2.24)**	(0.59)	(1.81)*	(2.12)**
Sample Size	1,420	1,418	1,404	1,420	1,418	1,404
Panel B5: Post-tax Cut exc Financial Crisis						
Mean (%)	2.35	3.47	4.33	2.84	4.21	4.50
Median (%)	1.23	2.24	4.56	1.99	3.72	6.14
Bootstrap test	(2.60)***	(2.72)***	(2.47)**	(3.40)***	(3.33)***	(2.66)***
Sample Size	727	725	708	733	729	710
Panel B6: Post-tax Cut exc 2003 and Financial Crisis						
Mean (%)	2.04	2.58	3.49	2.40	3.10	3.65
Median (%)	1.08	1.67	4.41	2.44	2.68	5.36
Bootstrap test	(2.15)**	(1.89)*	(1.92)*	(2.60)***	(2.29)**	(2.10)**
Sample Size	630	627	613	635	631	615
Panel C – Firms which announce a repurchase program either in year -1 or year 0 or both years						
Panel C4: Pretax Cut exc Crisis						
Mean (%)	0.75	0.77	0.54	-0.02	-0.43	-2.90
Median (%)	1.81	3.36	0.67	0.54	2.40	-0.56
Bootstrap test	(0.56)	(0.38)	(0.20)	(-0.02)	(-0.22)	(-1.18)
Sample Size	363	362	354	363	362	354
Panel C5: Post-tax Cut exc Financial Crisis						
Mean (%)	2.40	3.56	4.92	3.41	5.06	6.05
Median (%)	0.93	2.90	4.61	2.92	5.23	6.42
Bootstrap test	(2.51)**	(2.62)***	(2.56)**	(3.41)***	(3.51)***	(3.16)***
Sample Size	438	435	425	439	437	426
Panel C6: Post-tax Cut exc 2003 and Financial Crisis						
Mean (%)	2.76	4.09	5.98	3.44	5.13	6.67
Median (%)	1.59	3.32	5.89	3.03	5.33	6.99
Bootstrap test	(2.98)***	(2.74)***	(2.94)***	(3.10)***	(3.48)***	(3.15)***
Sample Size	389	387	377	390	389	378

Table A4: Long-term Returns to Dividend Increases – Calendar Time Methodology – Excluding crises periods

This table presents the average monthly abnormal returns (α_p) for one-year, two-year and three-year periods from the month after the announcement of a dividend initiation using the calendar time methodology. We present the results using the three-factor, four-factor and five-factor models. t-statistics are also reported in the table. The superscripts ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

		Three-factor model		Four-factor model		Five-factor model	
		α_p (%)	t-statistic	α_p (%)	t-statistic	α_p (%)	t-statistic
Panel B – Firms which do not announce a repurchase program from year -1 to year 0							
Panel B4: Pretax Cut – Excluding Crisis							
12 Months	OLS	0.25	1.42	0.11	0.59	0.11	0.56
	WLS	0.28	1.68*	0.21	1.09	0.21	1.09
24 Months	OLS	0.27	1.69*	0.21	1.18	0.20	1.13
	WLS	0.25	1.56	0.24	1.32	0.24	1.33
36 Months	OLS	0.28	1.81*	0.22	1.28	0.19	1.13
	WLS	0.25	1.60	0.25	1.41	0.25	1.37
Panel B5: Post-Tax Cut – Excluding Financial Crisis							
12 Months	OLS	0.31	1.62	0.22	1.22	0.18	1.00
	WLS	0.36	1.87*	0.28	1.48	0.23	1.26
24 Months	OLS	0.27	1.62	0.22	1.30	0.18	1.07
	WLS	0.31	1.87*	0.25	1.53	0.22	1.37
36 Months	OLS	0.30	2.05**	0.24	1.62	0.22	1.44
	WLS	0.32	2.20**	0.26	1.80*	0.25	1.70*
Panel B6: Post-Tax Cut – Excluding 2003 and Financial Crisis							
12 Months	OLS	0.39	2.05**	0.31	1.70*	0.29	1.60
	WLS	0.41	2.18**	0.32	1.79*	0.30	1.72*
24 Months	OLS	0.36	2.14**	0.32	1.85*	0.30	1.77*
	WLS	0.33	2.01**	0.27	1.68*	0.26	1.64
36 Months	OLS	0.41	2.79***	0.35	2.33**	0.35	2.34**
	WLS	0.35	2.39**	0.29	1.99**	0.29	1.98**
Panel C – Firms which announce a repurchase program either in year -1 or year 0 or both years							
Panel C4: Pretax Cut – Excluding Crisis							
12 Months	OLS	-0.02	-0.07	-0.03	-0.10	-0.09	-0.31
	WLS	0.12	0.54	0.13	0.50	0.10	0.38
24 Months	OLS	0.19	0.91	0.16	0.69	0.10	0.44
	WLS	0.18	0.90	0.17	0.73	0.12	0.54
36 Months	OLS	0.18	0.82	0.12	0.55	0.08	0.35
	WLS	0.12	0.62	0.12	0.55	0.06	0.29
Panel C5: Post-Tax Cut – Excluding Financial Crisis							
12 Months	OLS	0.35	2.05**	0.26	1.51	0.25	1.42
	WLS	0.38	2.33**	0.30	1.76*	0.29	1.68*
24 Months	OLS	0.33	1.99**	0.29	1.73*	0.29	1.71*
	WLS	0.30	1.81*	0.25	1.54	0.26	1.56
36 Months	OLS	0.30	2.03**	0.26	1.67*	0.27	1.73*
	WLS	0.33	2.14**	0.29	1.85*	0.30	1.93*
Panel C6: Post-Tax Cut – Excluding 2003 and Financial Crisis							
12 Months	OLS	0.50	2.46**	0.43	1.96*	0.44	1.96*
	WLS	0.48	2.83***	0.39	2.20**	0.39	2.24**
24 Months	OLS	0.51	2.66***	0.48	2.35**	0.49	2.37**
	WLS	0.39	2.32**	0.34	2.02**	0.35	2.04**
36 Months	OLS	0.48	2.82***	0.45	2.37**	0.47	2.46**
	WLS	0.42	2.62**	0.38	2.30**	0.39	2.35**

Table A5: Abnormal Operating Performance of Dividend Decreases – REP versus NREP Firms, and Pre- versus Post-Tax Cut – Excluding Crises periods

This table provides the mean and median abnormal operating performance (difference in EBITDA/TA between sample and control firms - ABEAR) for each year from the year of a decreasing dividend to three years after for the full sample, the dividend reduction of the pre- and post-tax cut period, using the matching method discussed in Table 13. This table also presents the average abnormal operating performance for the three-year period. We report the Wilcoxon signed rank (WSR) test to identify whether the median abnormal operating performance is different from zero. We also report the Mann-Whitney (MW) test to identify whether the median abnormal operating performance is different between different subgroups. Panel A presents the results for NREP excluding crisis periods, partitioning the sample into pretax and post-tax subgroups. Panel B presents the results for REP excluding crisis periods, partitioning the sample into pretax and post-tax subgroups. The superscripts ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	Year 0 $ABEAR_t$	Year 1 $ABEAR_{t+1}$	Year 2 $ABEAR_{t+2}$	Year 3 $ABEAR_{t+3}$	Ave3yrs AABEAR
Firms which do not announce a repurchase program from year -1 to year 0					
Panel A – Sub classification based on Tax cut excluding crisis period					
Panel A1: Pretax Cut – Excluding Crisis					
Mean (%)	-2.06	-0.94	1.03	0.20	0.08
Median (%)	-1.58	-0.94	0.10	0.19	0.52
WSR	-2.53**	-1.18	0.66	0.43	0.31
Sample size	107	104	103	98	98
Panel A2: Post-Tax Cut – Excluding Financial Crisis					
Mean (%)	-3.67	-3.76	-3.55	-2.61	-3.05
Median (%)	-3.75	-3.04	-3.05	-2.82	-2.52
WSR	-4.34***	-3.82***	-3.66***	-2.27**	-3.11***
Sample size	84	82	81	78	78
(A1) VS (A2)	1.61	1.89*	2.95***	2.02**	2.47**
Panel A3: Post-Tax Cut – Excluding Financial Crisis and 2003					
Mean (%)	-3.54	-3.60	-3.69	-2.84	-3.11
Median (%)	-3.68	-2.98	-2.94	-2.20	-2.33
WSR	-3.88***	-3.44***	-3.53***	-2.12**	-2.93***
Sample size	76	74	73	70	70
(A1) VS (A3)	1.44	1.65*	2.86***	1.93*	2.34**
Firms which announce a repurchase program either in year -1 or year 0 or both years					
Panel B – Sub classification based on Tax cut excluding crisis period					
Panel B1: Pretax Cut – Excluding Crisis					
Mean (%)	-1.31	-0.56	-0.99	0.46	-0.78
Median (%)	-3.32	1.67	1.30	0.61	0.52
WSR	-0.80	-0.36	0.53	0.46	0.36
Sample size	13	11	11	10	10
Panel B2: Post-Tax Cut – Excluding Financial Crisis					
Mean (%)	-6.04	-3.56	-4.07	-6.08	-4.81
Median (%)	-6.18	-1.67	-2.73	-5.04	-3.13
WSR	-2.71***	-1.06	-2.03**	-3.06***	-2.20**
Sample size	23	22	21	20	20
(B1) VS (B2)	1.50	0.38	1.45	1.85*	1.45
Panel B3: Post-Tax Cut – Excluding Financial Crisis and 2003					
Mean (%)	-6.25	-3.60	-4.14	-6.08	-4.81
Median (%)	-6.67	-1.62	-2.55	-5.04	-3.13
WSR	-2.68***	-0.99	-1.98**	-3.06***	-2.20**
Sample size	22	21	20	20	20

Table A6: Abnormal Operating Performance of Dividend Decreases for Operating Performance Data Available for Each Year of the Post-announcement Three-year Period – REP versus NREP Firms, and Pre- versus Post-Tax Cut

This table provides the mean and median abnormal operating performance (difference in EBITDA/TA between sample and control firms - ABEAR) for each year from the year of the decreasing dividend to three years after for the full sample, the dividend increasers of the pre- and post-tax cut period, using the matching method discussed in Table 13. This table also presents the average abnormal operating performance for the three-year period. We report the Wilcoxon signed rank (WSR) test to identify whether the median abnormal operating performance is different from zero. We also report the Mann-Whitney (MW) test to identify whether the median abnormal operating performance is different between different subgroups. Panel A presents the results for NREP, partitioning the sample into pretax and post-tax subgroups. Panel B presents the results for REP, partitioning the sample into pretax and post-tax subgroups. The superscripts ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	Year 0 $ABEAR_t$	Year 1 $ABEAR_{t+1}$	Year 2 $ABEAR_{t+2}$	Year 3 $ABEAR_{t+3}$	Ave3yrs AABEAR
Firms which do not announce a repurchase program from year -1 to year 0					
Panel A – Sub classification based on Tax cut					
Panel A1: Pretax Cut					
Mean (%)	-2.68	-1.52	0.22	0.58	-0.19
Median (%)	-2.78	-1.96	-0.24	0.18	0.48
WSR	-3.71***	-2.10**	-0.37	0.57	-0.12
Sample size	136	136	136	136	136
Panel A2: Post-Tax Cut					
Mean (%)	-3.45	-2.62	-1.94	-2.12	-2.28
Median (%)	-3.74	-2.79	-2.45	-2.72	-2.33
WSR	-4.59***	-3.35***	-2.80***	-2.37**	-2.99***
Sample size	108	108	108	108	108
(A1) VS (A2)	0.85	0.79	1.47	2.17**	2.02**
Panel A3: Post-Tax Cut – Excluding 2003					
Mean (%)	-3.34	-2.41	-1.91	-2.24	-2.26
Median (%)	-3.65	-2.45	-2.33	-2.20	-2.12
WSR	-4.19***	-2.99***	-2.60***	-2.23**	-2.80***
Sample size	100	100	100	100	100
(A1) VS (A3)	0.72	0.56	1.33	2.08**	1.90*
Firms which announce a repurchase program either in year -1 or year 0 or both years					
Panel B – Sub classification based on Tax cut					
Panel B1: Pretax Cut					
Mean (%)	-1.22	-1.90	-1.93	-0.34	-1.58
Median (%)	-2.72	-2.40	0.85	-0.87	-0.31
WSR	-1.57	-1.55	-0.34	-0.05	-0.71
Sample size	28	28	28	28	28
Panel B2: Post-Tax Cut					
Mean (%)	-4.54	-3.60	-4.09	-5.13	-4.27
Median (%)	-5.36	-1.62	-2.07	-4.88	-2.28
WSR	-2.96***	-1.31	-2.20**	-3.25***	-2.43**
Sample size	31	31	31	31	31
(B1) VS (B2)	1.81*	0.20	1.47	2.03**	1.31
Panel B3: Post-Tax Cut – Excluding 2003					
Mean (%)	-4.54	-3.60	-4.09	-5.13	-4.27
Median (%)	-5.36	-1.62	-2.07	-4.88	-2.28
WSR	-2.96***	-1.31	-2.20**	-3.25***	-2.43**
Sample size	31	31	31	31	31
(B1) VS (B3)	1.63	0.70	1.54	1.85*	1.45

Table A7: Long-term Buy and Hold Abnormal Returns to Dividend Decreases – Reference Portfolio Approach – Excluding Crises Periods

This table reports the mean and median buy-and-hold abnormal returns for the one-year, two-year and three-year periods for various samples using the matching reference portfolio approaches of Daniel et al. (1997) and Lyon et al. (1999). We provide bootstrap test statistics to test the significance level of buy and hold abnormal returns. The superscripts ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

	LBT (1999) Method			DGTW (1997) Method		
	1 year	2 years	3 years	1 year	2 years	3 years
Panel B – Firms which do not announce a repurchase program from year -1 to year 0						
Panel B4: Pretax Cut exc Crisis						
Mean (%)	-1.14	-0.54	2.43	-2.25	-2.15	0.53
Median (%)	0.09	0.82	-1.16	0.40	0.19	-5.37
Bootstrap test	(-0.26)	(-0.09)	(0.35)	(-0.56)	(-0.41)	(0.08)
Sample Size	104	102	101	106	104	102
Panel B5: Post-tax Cut exc Financial Crisis						
Mean (%)	7.30	5.62	3.66	8.90	5.39	1.82
Median (%)	9.44	4.82	16.43	7.57	5.27	8.49
Bootstrap test	(1.45)	(0.77)	(0.43)	(1.79)*	(0.74)	(0.20)
Sample Size	82	81	80	85	83	81
Panel B6: Post-tax Cut exc 2003 and Financial Crisis						
Mean (%)	9.99	8.46	9.05	11.26	7.24	6.29
Median (%)	10.83	15.25	19.65	8.75	8.98	10.99
Bootstrap test	(1.90)*	(1.03)	(0.88)	(1.91)*	(0.89)	(0.63)
Sample Size	73	72	71	76	74	72

Table A8: Long-term Returns to Dividend Decreases – Calendar Time Methodology - – Excluding Crises Periods

This table presents the average monthly abnormal returns (α_p) for the one-year, two-year and three- year periods from the month after the announcement of dividend decreases using the calendar time methodology. We present the results using the three-factor, four-factor, and five-factor models. t-statistics are also reported in the table. The superscripts ***, **, and * indicate significance at the 1%, 5%, and 10% level, respectively.

		Three-factor model		Four-factor model		Five-factor model	
		α_p (%)	t-statistic	α_p (%)	t-statistic	α_p (%)	t-statistic
Panel B – Firms which do not announce a repurchase program from year -1 to year 0							
Panel B4: Pretax Cut – Excluding Crisis							
12 Months	OLS	-0.22	-0.46	0.01	0.03	0.09	0.17
	WLS	-0.29	-0.66	-0.09	-0.20	-0.05	-0.10
24 Months	OLS	-0.07	-0.19	0.08	0.21	0.10	0.27
	WLS	-0.21	-0.67	-0.04	-0.10	-0.03	-0.10
36 Months	OLS	0.22	0.74	0.54	1.38	0.61	1.39
	WLS	0.03	0.10	0.28	0.91	0.32	0.92
Panel B5: Post-Tax Cut – Excluding Financial Crisis							
12 Months	OLS	-0.84	-1.50	-0.57	-1.14	-0.59	-1.12
	WLS	-0.38	-0.64	-0.17	-0.33	-0.04	-0.06
24 Months	OLS	-0.63	-1.64	-0.39	-1.13	-0.40	-1.13
	WLS	-0.12	-0.31	0.02	0.05	0.05	0.13
36 Months	OLS	-0.64	-1.82*	-0.42	-1.27	-0.42	-1.25
	WLS	-0.12	-0.39	-0.01	-0.01	0.01	0.01
Panel B6: Post-Tax Cut – Excluding 2003 and Financial Crisis							
12 Months	OLS	-0.93	-1.47	-0.70	1.23	-0.75	-1.27
	WLS	-0.38	-0.59	-0.22	-0.37	-0.10	-0.15
24 Months	OLS	-0.70	-1.54	-0.48	-1.18	-0.49	-1.18
	WLS	-0.10	-0.24	0.01	0.03	0.03	0.08
36 Months	OLS	-0.69	-1.72*	-0.50	-1.34	-0.49	-1.31
	WLS	-0.05	-0.14	0.05	0.15	0.05	0.15