Corporate Payout Policy and Credit Risk: Evidence from CDS Markets

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Abstract

We examine the consequences of unexpected dividend changes in the cost of debt using evidence from the credit default swaps (CDS) market. We find that CDS spreads substantially increase in response to dividend cuts, especially during recessions and among firms with high credit risk and worse past stock performance, suggesting that the information content effect of dividend cuts dominates the wealth transfer effect for debt holders. In addition, dividend cuts are followed by a higher probability of defaults and credit rating downgrades. We find little evidence that CDS spreads change in response to dividend raises or share repurchases.

Keywords: Credit default swaps, Dividend policy, Credit risk, Information content, Wealth transfer

JEL Classification: G12, G14, G15

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1. Introduction

Despite tax disadvantages and a lack of flexibility, dividend payouts remain economically significant and salient (Floyd, Li, and Skinner (2015)). A well-documented empirical regularity is that firms usually increase dividends gradually and rarely cut them (Allen and Michaely (1995)). According to the survey by Brav, Graham, Harvey, and Michaely (2005), managers believe that maintaining the dividend level is as important as making investment decisions and will only resort to slaying the sacred cows by cutting dividends when they are unable to conserve or raise funds using other means. However, the strong desire to avoid dividend cut of most managers has not been fully understood by the existing studies. In this paper, we provide fresh evidence that dividend cutting is associated with a substantial increase in the cost of debt, especially when firms are already in financial distress. Our results provide a potential explanation for the puzzling phenomenon: managers are extremely reluctant to cut dividends even when firms are short on cash.

Prior research provides extensive evidence that the stock market reacts negatively (positively) to announcements of dividend cuts (raises). Such market reaction in response to unexpected dividend changes can be explained by the information content hypothesis, which states that due to the asymmetric information between managers and outsider shareholders, dividend cuts signal the decline in firms' future prospects (see, for example, Bhattacharya (1979), John and Williams (1985), and Miller and Rock (1985)). Alternatively, the wealth transfer effect posits that dividend payments represent a wealth transfer from debt holders to equity holders and dividend cuts are perceived as bad news to the equity market. While both hypotheses have the same prediction for equity markets, they yield opposite predictions for debt markets. The information content hypothesis predicts that debt value should decrease while the wealth transfer hypothesis predicts that debt value should increase in response to dividend cuts. However, the consequence of dividend cuts in the debt market is less understood and the empirical evidence is mixed. For example, Handjinicolaou and Kalay (1984) find that bond prices react negatively to dividend cuts, while Dhillon and Johnson (1994) show the opposite.[1]

In this paper, we take advantage of the credit default swaps (CDS) market to shed new light on the controversial findings on the relation between dividend decisions and firm credit risk. Due to data availability, past studies generally investigate the relation between dividend policy and credit risk by utilizing secondary corporate bond prices.[2] While in principle credit risk should be reflected similarly in both CDS spreads and bond prices, CDS spreads have several important advantages over bond prices. First, CDS spreads are a more accurate measure of credit risk, while bond prices are affected by various non-credit risk factors, such as systematic risks unrelated to default (e.g. interest rate risk) and liquidity (Chen, Lesmond, and Wei (2007), Covitz and Downing (2007), Bao, Pan, and Wang (2011), Lin, Wang, and Wu (2011), Acharya, Amihud, and Bharath (2013)). Second, CDS markets reflect changes in credit risk more quickly and timely than the bond markets. Institutional features facilitate continuous flow of trades in the CDS markets, while secondary bond markets are much less liquid due to the "buy and hold" portfolios of institutional investors. As a result, a number of studies find that the CDS markets lead the bond markets in credit risk

[1] Specifically, Handjinicolaou and Kalay (1984) examine 1,967 dividend announcements from 1975-1976 and find that bond prices react negatively to dividend cuts. In contrast, Dhillon and Johnson (1994) examine 131 dividend change announcements from 1978 to 1987 and find that bond prices react positively to dividend cuts. Both studies find little evidence that bond prices react to dividend raises.

[2] Early studies obtain daily bond returns from *The Wall Street Journal* and monthly returns from Moody's and Standard and Poor's Bond Guides or the Lehman Brothers Bond Database. The recently TRACE database make individual bond transactions available. A disadvantage is that TRACE only starts from July 2002 and is only fully implemented in February 2005, which cannot cover the recession during 2001-2002. Although TRACE covers more firms than the CDS data does, due to illiquidity in the secondary corporate bond market, only less than 20% of firms have institutional-sized bond trades during or one day after dividend announcements.

price discovery.[3] Third, CDS contracts are standardized and homogeneous, while corporate bonds are associated with heterogeneous features, such as embedded options, guarantees, and covenants. Thus, CDS spreads serve as a much better and more direct measure of firm credit risk than secondary corporate bond prices. A number of recent papers use CDS spreads to estimate credit risk premia and recovery rates in asset pricing studies (for example, Elkamhi, Jacobs and Pan (2014) and Friewald, Wagner, and Zechner (2014)), and to measure firm financial heath and default risk in corporate finance studies (for example, Carlson and Lazrak (2010), Hortacsu, Matvos, Syverson and Venkataraman (2013), and Adelino and Dinc (2014)).

Our sample consists of 14,377 dividend announcements by firms with CDS trading data from 2001 to 2014. We find that dividend cuts tend to be less frequent but larger in magnitudes than dividend raises. In addition, our univariate analysis shows that CDS spreads increase (i.e., debt markets react negatively) during the announcements of dividend cuts and CDS spreads decrease (i.e., debt markets react positively) during the announcements of dividend raises. This result suggests that for debt holders, the information content effect of dividend changes dominates the wealth transfer effect.

We also find that CDS spreads react more strongly to dividend cuts than to dividend raises. For example, one-year CDS spreads on average increase by 55 percent during the 15-day event window surrounding the announcements of dividend cuts[4] but decrease by merely 1 percent during the same event window surrounding the announcements of dividend raises. In our regression

[3] See, for example, Blanco, Brennan, and Marsh (2005), and Daniels and Jensen (2005). Several studies, such as Norden and Weber (2004), and Acharya and Johnson (2007), also suggest that CDS markets respond to adverse changes in credit risk earlier than equity markets.

[4] We choose a relatively large event window, (-7, 7) trading days, because our analysis suggests that CDS spreads start to react as early as seven trading days before the dividend announcement date. This design choice is also in line with the finding in prior studies that the CDS market reacts earlier to event announcements than other markets (Loon and Zhong (2014)). The results based on alternative event windows, (-5, 5) and (-3, 3) trading days, have similar patterns but smaller magnitudes.

analysis, controlling for concurrent information from the equity market (i.e., stock returns) and other firm news (i.e., earnings surprises), we find that changes in CDS spreads are associated with dividend cuts but not dividend raises. This result holds after further considering the magnitudes of the dividend changes.

The asymmetric reaction of CDS spreads to dividend cuts versus dividend raises is consistent with two explanations. First, the payoff function of debt is concave. Due to the non-linear asymmetric payoff functions for debtholders, debt value will decrease more than it would increase for the same change in the firm's market value (Handjinicolaou and Kalay (1984)). Second, dividend decisions are not exogenous. Because managers are more likely to cut dividends when firms are in distress and face long-lasting liquidity crises, debt value will change more from dividend cuts than dividend raises.

To further understand our results, we perform analyses conditional on macroeconomic environments and firm-level credit risk. We find that the increase in CDS spreads in response to dividend cuts is greater during periods of recession and among firms with high credit risk and negative past stock performance. We continue to find that CDS spreads do not react to dividend raises in general, although there is some evidence that CDS spreads decrease more from dividend raises among firms with negative past stock performance. These results are consistent with our expectation that the effect of dividend changes on debt value should be more pronounced when firms approach defaults. They also confirm that dividend cuts have a greater information content effect than dividend raises.

It is worth noting that the dominance of the information content effect does not rule out the wealth transfer effect. In addition, the information content hypothesis only suggests that dividend changes convey new information to the market. We are agnostic about the motivations behind the dividend decisions. For example, while managers may use dividend raises as a signal to the market participants for firms' future prospects or as a way to transfer wealth from debt to equity holders, they are unlikely to use dividend cuts for these reasons. However, once the decision is made, announcements of dividend cuts and raises can have the unintended consequences of conveying information to the market or causing wealth redistribution between debt and equity holders.

To shed light on the relative importance of the information content and wealth transfer effects, we attempt to quantify these effects by estimating the changes in debt value associated with announcements of dividend cuts and raises. We first estimate the net change in debt value based on the information in a firm's term structures of CDS spreads (Feldhutter, Hotchkiss, and Karakas (2016)). We then estimate the wealth transfer effect based on the amount of dividend payments and default probabilities. Finally, we subtract the estimated wealth transfer effect from the estimated net change in debt value to obtain the estimated information content effect. Our results confirm that the information content is the predominant effect of dividend change announcements and that announcements of dividend cuts are associated with greater changes in debt value than announcements of dividend raises. For example, our estimation suggests that during the announcements of dividend cuts, the average debt return is -0.753%.[5] In addition, we estimate that this number consists of 0.132% and -0.886% for the wealth transfer effect and information content effect, respectively. In contrast, during the announcements of dividend raises, the average debt return is only 0.009%.

[5] We assume that all long-term debt is a 5-year zero-coupon bond with present value equal to its current book value. To the extent that the average maturity of a firm's long-term debt is longer than five years, we under-estimate the net change in debt value. Nonetheless, our estimated magnitude of bond return during announcements of dividend cuts is greater than the amount documented in Handjinicolaou and Kalay (1984)), suggesting that the information content of dividend cuts is stronger than previously thought.

We also evaluate the information conveyed by dividend cuts and raises for assessing credit risk. We find that firms with dividend cuts are more likely to experience subsequent defaults and downgrades of credit ratings. The results for dividend raises are more nuanced: firms with dividend raises do not have a lower likelihood of future defaults but are more likely to receive future credit rating upgrades. In terms of economic significance, the odds of defaults for firms experiencing dividend cuts are 3.25 times as high as the odds of defaults for firms without dividend cuts. Firm credit ratings on average decrease by 0.26 notches after a dividend cut and increase by 0.03 notches after a dividend raise.

Finally, we extend our analysis to examine the effect of share repurchases on CDS spreads. Share repurchases are an important alternative form of payout policies but do not involve ongoing commitment as dividend raises do (Guttman, Kadan, and Kandel (2010)). Using a sample of 1,248 repurchases from 2001 to 2014, our univariate analysis finds weak evidence that CDS spreads increase in response to the announcements of share repurchases. This result supports the wealth transfer effect and is consistent with the finding in Maxwell and Stephens (2003) that bond prices decrease in response to repurchase announcements. However, this relation becomes insignificant after controlling for information from the equity market. In sum, these results suggest that share repurchases play a negligible information role for debt holders.

We contribute to the literature in three important aspects. First, our study helps to rationalize a long-lasting but less-understood regularity of dividend policy: managers have a strong desire to avoid cutting dividend and treat maintaining the dividend level on par as making investment decisions (Brav, Graham, Harvey, and Michaely (2005)). Using CDS spreads as a clean measure of firm credit risk, we provide clear evidence that dividend cuts send strong negative signal to the credit market and are associated with substantial increase in the cost of debt.

Second, by conducting our study using a large sample covering firms with heterogeneous financial conditions through different economic cycles, our study allows a more updated and in-depth understanding of the impact of payout policies on credit risk. Our finding also has implications on the controversy of dividend payouts during the 2008-2009 financial crisis. During the crisis, firms showed strong reluctance to cut dividends even when they suffered large losses. Because these dividend payments can represent a transfer of wealth from debt to equity holders, firms are often urged to stop the payments to protect debt holders (Scharfstein and Stein (2008); Acharya, Gujral, Kulkami, and Shin (2011)). Yet it is also possible that dividend cuts will convey news about worsened firm prospects and therefore harm debt holders. We show that CDS spreads spike when firms cut dividends during financial crises. This finding is consistent with the view that managers are reluctant to cut dividends during financial distress, not because they use dividends to expropriate debt holders but because dividend cuts are a sign of their firms' financial weakness (Floyd et al. (2015)).

Third, we improve our understanding of the information content explanation of payout policy. The traditional view of the information content explanation suggests that dividend changes convey managers' views of future earnings prospects. However, several studies cast doubt on this view by documenting that dividend raises and cuts are not followed by future earnings increases and decreases (DeAngelo, DeAngelo, and Skinner (1996); Benartzi, Michaely, and Thaler (1997)). A newer view is that dividend changes convey news about changes in discount rates. Grullon, Michaely, and Swaminathan (2002) suggest that dividend raises are associated with a subsequent decline in systematic risk because firms tend to increase their dividends when they become mature. Charitou, Lambertides, and Theodoulou (2011) extend Grullon et al. and find that dividend raises are followed by a reduction in default risk. Different from Charitou et al. (2011), who estimate default risk using option- and accounting-based measures, we use CDS spreads that are directly measurable and mainly capture changes in default probabilities and default risk premia. In addition, Charitou et al. focus on dividend raises, whereas we examine both dividend cuts and raises. Our study not only documents the asymmetric effect of dividend cuts versus raises on credit risk but also examines the predictability of dividend changes on future defaults and credit rating changes, thereby asserting the link between dividend cuts and firm credit risk.

The remainder of the paper proceeds as follows. Section 2 describes the data. Section 3 presents the empirical results. Section 4 discusses additional analyses and Section 5 concludes.

2. Data

We obtain CDS data during the period 2001 to 2014 from Markit. We focus on CDS contracts with maturities of one, three, and five years because they are the most liquid contracts. In addition, to enhance the homogeneity of the sample, we limit our analysis to CDS contracts that are denominated in US dollars and adopt the no-restructuring (XR) or modified-restructuring (MR) clause (Friewald et al. (2014)).[6] Data on daily stock returns and dividend announcement dates are from the Center for Research in Security Prices (CRSP). Financial statement information and credit rating data are from Compustat. We restrict our sample to common stocks traded on NYSE, Amex, and NASDAQ and ordinary cash dividends paid in US dollars that are recurring in nature (i.e., quarterly, semi-annual, and annual dividends). Our final sample for testing CDS market

[6] Under the XR clause, restructuring credit events are eliminated from a CDS contract. Under the MR clause, any restructuring is defined as a credit event, but the deliverable obligations are limited to bonds with maturities within 30 months of the CDS contract's remaining maturity.

reactions to dividend changes consists of 14,377 dividend announcements by 500 firms from 2001 to 2014.[7]

We obtain share repurchase announcements from the Securities Data Company (SDC) mergers and acquisition database. We identify 9,784 share repurchase events from 2001-2014 after linking the SDC and CRSP data. After further merging with CDS data, our final sample for testing CDS market reactions to share repurchases consists of 1,248 repurchase announcements by 417 firms from 2001 to 2014.

Table 1 presents the frequency of dividend changes and share repurchases by year. It shows that 210, 2,140, and 12,027 announcements indicate dividend cuts, dividend raises, and zero dividend changes, respectively. In addition, dividend cuts are more frequent in 2008 and 2009, and dividend raises and repurchases are more frequent during 2005-2007.

Figure 1 plots the average cumulative CDS spread changes surrounding the dividend announcement date for dividend cuts, dividend raises, and zero dividend changes. It shows that CDS spreads start to react as early as seven trading days before the actual dividend announcement date for both dividend cuts and dividend raises, indicating that the CDS market preempts the public disclosure of dividend changes.[8] This pattern is similar to the findings in prior studies that CDS markets usually react earlier to event announcements. For example, Loon and Zhong (2014) show that the CDS market reacts to the announcement of central clearing 10 days before the announcements. A potential explanation for this phenomenon is the use of insider information (Acharya and Johnson (2007)). Consequently, we consider three different event windows: (-7, 7)

[7] 14,159 (98.5%), 68 (0.5%), and 150 (1%) of the sample are quarterly, semi-annual, and annual dividend payments, respectively. We keep all types of dividend payments for completeness, but our results are qualitatively the same when we restrict the sample to quarterly dividend payments.

[8] This effect remains the same after we exclude dividend announcements with concurrent earnings announcements during the (-14, 0) event window as shown in Table IA2 and Figure IA1 in Internet Appendix

days, (-5, 5) days, and (-3, 3) days, also referred to as 15-day, 11-day, and 7-day event windows, respectively, with day 0 being the dividend announcement date. We use the 15-day event window as our primary event window.[9]

Table 2 presents the descriptive statistics of the variables used in our analyses. We winsorize all continuous variables at the top and bottom 1% of their respective distributions. Appendix A provides the definitions of the variables. We find that on the dividend announcement date, the average CDS spreads for 1-year, 3-year, and 5-year contracts are 0.585%, 0.832%, and 1.067%, respectively. During the 15-day event window, the average changes in CDS spreads for 1-year, 3-year, and 5-year contracts are 0.004%, 0.004%, and 0.003%, respectively. In addition, the average dividend change is 0.001%. Among observations with non-zero dividend changes, we find that the average magnitude of dividend cuts (1%) is almost 10 times larger than the average magnitude of dividend raises (0.1%). For the control variables, we find that the average equity return during the 15-day event window is 0.8%. The average earnings surprise and earnings change are 0.017% and 0.024%, respectively.

3. Empirical Results

3.1 CDS market reactions to dividend announcements

Table 3, Panel A presents a univariate analysis of the average CDS spread changes during various event windows surrounding the announcements of dividend cuts, dividend raises, and zero dividend changes. The table shows three main findings. First, CDS spreads strongly respond to dividend changes. Except for the CDS contract with five-year maturity during the event

[9] Since most of the CDS market reaction happens before the announcement date, we also consider a shorter post-event window from day -7 to day 1. The results for this shorter window remain qualitatively the same and are reported in the Table IA3 in Internet Appendix.

window (-3, 3) days, CDS spreads of all maturities significantly increase during the announcements of dividend cuts and decrease during the announcements of dividend raises throughout various event windows. These results suggest that the information content effect dominates the wealth transfer effect of dividend decisions on credit risk. The market reaction to dividend changes is not only statistically significant but also economically large. For example, as the average one-year CDS spread is 0.585%, an increase of 0.322% for the one-year CDS spreads during the 15-day event window of dividend cuts suggests that the one-year CDS spread jumps by 55% (0.322/0.585) on average during this event window. In contrast, the CDS spreads experience insignificant changes during announcements with zero dividend changes.

Second, the response of CDS spreads to dividend changes decreases with the maturity of the CDS contract. During the 15-day event window of a dividend cut announcement, the 1-year, 3-year, and 5-year CDS spreads increase by 0.322%, 0.266%, and 0.216%, respectively. This finding suggests that dividend changes have a greater impact on CDS contracts with a shorter maturity. Previous studies also report that the effect of current earnings news on CDS spreads decreases with CDS maturity (Callen, Livnat, Segal (2009)). Intuitively, current dividend decisions are more likely to be informative about firms' ability to repay debtholders in the near future. The default probability of reference entities in the distant future is not only determined by the information revealed by current dividend decisions but also affected by future information as uncertainty gradually resolves. Theoretically, Duffie and Lando (2001) show that credit spreads under imperfect information are strictly higher than those under perfect information when maturity approaches zero because investors are uncertainty about the distance between the firm asset value and the trigger level at which the firm would default. The theory thus suggests that information has a larger impact on credit spreads when debt maturity is shorter.[10] However, the relation between CDS spreads, dividend policies, and maturity may be complicated by other factors (such as liquidity) and ultimately is an empirical question.

Third, dividend cuts have a stronger impact on CDS spreads than dividend raises. The average magnitude of the change in CDS spreads is much stronger during the announcements of dividend cuts than the announcements of dividend raises. Using the event window (-7, 7) days, the average magnitude of the change in one-year CDS spreads is 0.322% for dividend cuts but only 0.006% for dividend raises.

Next, we perform a regression analysis of CDS market reactions to dividend announcements. To capture dividend cuts and raises, our first regression model uses dummy variables indicating cuts and raises, and our second regression model uses the magnitudes of the corresponding dividend changes. We use both approaches to facilitate the interpretation of the results because the magnitudes of dividend cuts tend to be greater than the magnitudes of dividend raises. Our regression models follow:

$$\Delta Spread_{i,t} = \beta_0 + \beta_1\, CutD_{i,t} + \beta_2\, RaiseD_{i,t} + \gamma\, Control_{i,t} + \varepsilon_{i,t}, \qquad (1)$$

$$\Delta Spread_{i,t} = \beta_0 + \beta_1\, Cut_{i,t} + \beta_2\, Raise_{i,t} + \gamma\, Control_{i,t} + \varepsilon_{i,t}, \qquad (2)$$

where $\Delta Spread_{i,t}$ is the changes in CDS spreads for firm *i* during the 15-day event window surrounding the dividend announcement date *t*. *CutD* is a dummy variable that equals one if the dividend change is negative and zero otherwise. *RaiseD* is a dummy variable that equals one if the dividend change is positive and zero otherwise. *Cut* equals the absolute change in the dividends if

[10] Figure 1 in Duffie and Lando (2001) compares the credit spreads under imperfect information and perfect information. Figure 10 presents similar comparison for default swap spreads. It is evident that the spread difference significantly increases as maturity approaches zero, which suggests the information effect is larger when maturity is shorter.

the dividend change is negative and zero otherwise. *Raise* equals the change in dividends if the dividend change is positive and zero otherwise. We include the following control variables: (1) *EquityRet*, the cumulative equity returns during the 15-day event window, (2) *EarnSur*, earnings surprises, and (3) Δ*Earning*, earnings changes. We control for equity returns during the announcement window to test whether dividend announcements convey incremental information to the credit market in addition to what has already been reflected in the equity market. We control for earnings surprises and earnings changes because Callen, Livnat, and Segal (2009) suggest that earnings surprises and earnings changes are associated with changes in CDS spreads. We also control year and firm fixed effects.

Table 3, Panel B presents the results of the regression analysis for CDS contracts of 1-year, 3-year, and 5-year maturities. Columns 1-6 report the results estimating Eq. (1). Columns 1-3 include the dummy variables indicating dividend cuts and raises and the year and firm fixed effects. We find that the regression results are generally similar to the results of the univariate analysis. The coefficients on *CutD* are significantly positive, suggesting that CDS spreads increase during announcements of dividend cuts. The coefficients on *RaiseD* are significantly negative, suggesting that CDS spreads decrease during the announcements of dividend raises. Further, the magnitudes of the coefficients on *CutD* are much larger than the magnitudes of the coefficients on *RaiseD*. Columns 4-6 include additional control variables. We find that the coefficients on *CutD* remain significantly positive, but the coefficients on *RaiseD* become insignificant. These results suggest that dividend cuts contain useful information for the credit market beyond the information conveyed by the equity market and earnings news, while dividend raises do not provide incremental information content.

Columns 7-12 of Table 3, Panel B report the regression results estimating Eq. (2). We find that even after considering the level of dividend changes, the coefficients on *Cut* remain significantly positive and have larger magnitudes than the coefficients on *Raise*.

In sum, our analyses in Table 3 find that CDS spreads increase during announcements of dividend cuts, suggesting that the information content effect of dividend cuts dominates the wealth transfer effect for debt holders. Moreover, CDS markets react more strongly to dividend cuts than to dividend raises, which is consistent with the notion that the payoff function of debt is concave and that dividend cuts indicate severe financial weakness in firms.

3.2 Analyses conditional on macroeconomic environments

Due to the concave payoff function of debt, debt value should respond more to changes in firm value when firm value approaches the default boundary. Thus, the effects of dividend changes in the credit market should be greater when firm value is low and credit risk is high. In this section, we test this prediction by conditioning the analysis on macroeconomic environments.

We define the recession periods as the years 2001, 2002, 2008, and 2009.[11] Panel A of Table 4 reports the univariate analysis. We find that CDS spreads respond significantly to dividend cuts only during the recession periods, with the 1-year, 3-year, and 5-year CDS spreads increasing by 0.631%, 0.532%, and 0.435%, respectively. Given that the average one-year CDS spread is 0.575%, an increase of 0.631% suggests that the one-year CDS spread jumps by 110% on average during the 15-day event window of dividend cuts. The magnitude of the CDS market reaction to

[11] These periods follow the peak of the NBER business cycle reference dates of March 2001 and December 2007. As in Bordo (2008), we identify 2001-2002 as the recession period because of the heightened Baa Ten Year Composite spreads, a measure of the financial market's assessment of credit risk. 2008-2009 is the financial crisis period commonly identified in prior studies (Lins, Servaes, and Tomayo (2017)).

dividend raises is also larger during the recession periods than the other periods, but the effect is much smaller than that of dividend cuts.

Panel B of Table 4 reports the regression analysis. Columns 1-3 investigate the coefficient on the interaction terms between the dummy variables indicating dividend cuts and raises (*CutD* and *RaiseD*) and a dummy variable indicating recession periods (*Recession*). We find that the coefficients on *CutD* × *Recession* are significantly positive (0.558, 0.493, and 0.395 for the 1-year, 3-year, and 5-year CDS contracts, respectively), suggesting that CDS spreads increase more in response to dividend cuts during recession periods than non-recession periods. The coefficients on *RaiseD* × *Recession* are all insignificant in these columns. Columns 4-6 show similar results using the magnitudes of dividend cuts and raises. These results are consistent with our predictions and suggest that the effect of dividend cuts on credit risk is greater during recession periods.

Figure 2 illustrates the impact of dividend announcements on CDS spreads during 2001-2014. It shows that CDS spreads increase the most during announcements of dividend cuts in 2002 and 2008. The year 2002 corresponds to the recession following the burst of the dot-com bubble and 2008 is the heart of the financial crisis originating from the credit market. One-year CDS spreads jumped by around 200 basis points in 2002 and 100 basis points in 2008 on average during the 15-day event window of dividend cuts. It is evident from the figure that the credit market reacts strongly and unfavorably to dividend cuts, especially during the period of heightened credit risk.

3.3 Analyses conditional on firm-level credit risk

We further examine the effect of dividend changes on CDS spreads conditional on firm-level credit risk. We use credit ratings, leverage, and Oscore to capture firm-level credit risk. Our first measure, a speculative grade dummy (*SPE)*, equals one if a firm has a S&P long-term credit rating below BBB- and zero otherwise. Our second measure, *LevD*, equals one if a firm's leverage is above the sample median in the current quarter and zero otherwise. Our third measure, *OscoreD,* equals one if a firm's Oscore, a measure of firm bankruptcy risk based on accounting information (Ohlson (1980)), is above the sample median in the current quarter and zero otherwise. Firms with a value of one for *SPE*, *LevD*, or *OscoreD* have higher credit risk than the other firms. We interact the dummy variables indicating dividend changes (*CutD* and *RaiseD*) with each credit risk measure and investigate the coefficients on the interaction terms.

Table 5 reports the results. The coefficients on the interaction terms between *CutD* and all three credit risk measures are significantly positive, confirming that CDS spreads increase more in response to dividend cuts among firms with higher credit risk. The coefficients on the interaction terms between *RaiseD* and all three default measures are insignificant.[12]

Taken together, our analyses suggest that CDS spreads increase more in response to dividend cuts among firms with higher credit risk. These results corroborate the importance of the information role of dividend payout decisions when firms are in financial distress.

3.4 Analyses conditional on firm past stock performance

Due to their different payoff functions, the values of equity and debt change with the underlying firm value in a predictable way. When a firm receive negative shocks, the equity value of the firm first decreases. As the firm approaches its default boundary, the debt value of the firm starts to decreases. In other words, a decrease in equity value reflects a decline in firm credit quality.

[12] For parsimony, we only present results using dummy variables indicating dividend changes in this and subsequent analyses. The use of dummy variables also facilitates the interpretation of the coefficients on the interaction terms and avoids the assumption of a linear relation between CDS spread changes and dividend changes. The results using magnitudes of dividend changes (untabulated) generally are qualitatively the same as the results using dummy variables indicating dividend changes. The only exception is that the coefficient on *CutD* × *SPE* in Table 5 becomes insignificant, which may be due to the large market surprise induced by dividend cuts for some firms with high credit ratings prior to the crisis.

Thus, a decrease in equity value will precede an increase in CDS spreads in response to negative news such as a dividend cut.

To test this prediction, we investigate the effect of dividend changes on CDS spreads conditional on a firm's past stock performance. We define a dummy variable, *NegPastRet*, which equals one if the firm's stock return in the past quarter is negative and zero otherwise. We interact the dummy variables indicating dividend changes (*CutD* and *RaiseD*) with *NegPastRet* and investigate the coefficients on the interaction terms.

Table 6 reports the results. We find that the coefficient on *CutD* is insignificant. Importantly, we find that the coefficient on *CutD* × *NegPastRet* is significantly positive for all three types of CDS contracts. The results support our prediction that the CDS market starts to respond to negative news after firms have already received negative shocks, as reflected by the past stock return performance. Similarly, we find that the coefficient on *RaiseD* × *NegPastRet* is significantly negative, indicating that CDS spreads also react more to good news when firm value has experienced negative shocks in the past.

3.5 Estimation of the information content and wealth transfer effects

In this section, we attempt to estimate the relative importance of information content and wealth transfer effects of dividend changes on debt value. Our analyses so far measure the net effect of information content and wealth transfer on CDS spreads. While the findings suggest that the information content effect dominates the wealth transfer effect, it does not rule out the existence of the wealth transfer effect. Because the two effects impact CDS spreads in opposite directions, the net effect in fact provides a lower bound of the information content effect.

In Appendix B, we provide a detailed description of the estimation procedure. First, we estimate the net change in debt value during dividend announcements based on the CDS-implied zero coupon yield curves (Feldhutter, Hotchkiss, and Karakas (2016)). We assume that all long-term debt is a five-year zero coupon bond with present value equal to its current book value. Badoer and James (2016) suggest that the average maturity of corporate borrowing is five years. We thus assume that all debt is a five-year zero coupon bond to facilitate our calculation. To the extent that the maturity of a firm's debt is longer than five years, we underestimate the net change in debt value.

Second, we estimate the changes in bond present value associated with the wealth transfer effect. Dividend changes only affect debt values if firms default. Thus the expected change in debt present value equals the expected default probability times the present value of all dividend changes. We derive the estimated change in debt value due to the wealth transfer effect in Appendix B. We take the actuarial approach similar to that used by Credit Suisse Financial Products (CSFP) with CreditRisk+ by assuming that default for individual bonds follows an exogenous Poisson process, which allows us to calculate default probability and debt value with analytical expressions.[13] We use an annual discount rate of 8%, which equals a 6% equity premium plus a 2% risk-free rate.[14] Third, we subtract the estimated wealth transfer effect from the net change in debt value to obtain the information content effect.

Panel A of Table 7 reports the results for dividend cuts.[16] We present the results for the full sample during all years and subsamples during the recession and non-recession periods based on the 15-day event window. Column 1 reports the estimated net change in debt value during

[13] See Crouhy, Galai, and Mark (2000) for a review of widely used Credit Value-at-Risk methodologies. Alternative approaches include (1) modeling default in a structured model as an endogenous process, which is related to the capital structure of the firm, and (2) conditioning default probability on macroeconomic variables such as unemployment, interest rates, and economic growth rates, which drives the credit cycle of the economy.
[14] See Fama and French (2002) for the estimated equity premium.
[16] The sample size in this analysis is slightly reduced due to the requirement of credit ratings to estimate default probabilities.

announcements of dividend cuts, and Columns 2-3 report the estimated wealth transfer and information content effects. Our estimation suggests that during the announcements of dividend cuts, debt value on average decreases by $148.7 million. In addition, the estimated wealth transfer and information content effects on average are associated with an increase of $26.1 million and a decrease of $174.8 million, respectively. Consistent with our earlier results, the estimated change in debt value is greater during the recession period. The difference is also economically significant, with a decrease of $279.9 million during the recession period versus a decrease of $20.1 million during the non-recession period.

Our estimation also suggests that the average debt return during the announcements of dividend cuts is -0.753%, which consists of 0.132% and -0.886% for the estimated wealth transfer effect and information content effect, respectively. Our estimated magnitudes of debt return during announcements of dividend cuts are larger than the result documented in Handjinicolaou and Kalay (1984). Specifically, Table 6 of Handjinicolaou and Kalay (1984) reports the mean excess premium bond returns of -0.478% during the event window between the last bond trading date before, and the first bond trading date after, the announcements of dividend cuts.[17]

Panel B of Table 7 uses the same structure and reports the results for dividend raises. Our estimation suggests that during the announcements of dividend raises, debt value on average increases by $0.8 million. In addition, the estimated wealth transfer and information content effects on average are associated with a decrease of $3.0 million and an increase of $3.7 million, respectively.

[17] We use their result in Panel B of Table 6 because this event window gives the most negative bond return, although the exact length of the event window is unclear. If we recalculate their average bond return using the same (-7, 7) event window, the average bond return is -0.26%, which equals the cumulative mean excess premium returns on day 7 (-1.046%) minus the number on day -8 (-0.787%), as reported in Table 4 of Handjinicolaou and Kalay (1984).

In terms of the estimated debt returns, the average debt return during the announcements of dividend raises is small, 0.009%, which consists of -0.036% and 0.046% for the estimated wealth transfer effect and information content effect, respectively. The small magnitudes, in line with the result in Handjinicolaou and Kalay (1984),[18] suggest that dividend raises have little information content for debt holders.

Taken together, our analyses suggest that the information content is the predominant effect of dividend announcements. Confirming our previous inferences, dividend cuts have larger economic consequences on debt value than dividend raises. In addition, the change in debt value and the information content effect of dividend cuts are much stronger during recessions.

4. Additional Analyses

4.1 Dividend changes and future defaults

To help shed light on the information conveyed by the dividend changes, we examine the relation between dividend changes and future defaults. Asset prices are forward-looking and CDS spreads are *ex ante* measure of firms' future default probability. If dividend changes genuinely reflect important information about firm credit risk and are associated with significant changes in CDS spreads, they should be able to predict future defaults.

We test this relation by running the following logit regression:

$$Default_{i,t+5} = \beta_0 + \beta_1\, CutD_{i,t} + \beta_2\, RaiseD_{i,t} + \gamma\, Control_{i,t} + \varepsilon_{i,t}, \qquad (3)$$

where $Default_{i,t+5}$ is a dummy variable that equals one if the firm defaults in the next five years and zero otherwise.

[18] Handjinicolaou and Kalay (1984) report mean excess premium bond returns of 0.008% during the event window between the last bond trading date before, and the first bond trading date after, the announcements of dividend raises.

Table 8 reports the results. Column 1 includes our variables of interest, dividend dummies (*CutD* and *RaiseD*), and Column 2 adds year fixed effects. Column 3 further controls firm characteristics commonly used in the literature to predict defaults (Ohlson (1980); Ericsson, Jacobs, and Oviedo (2009), Gopalan, Song, and Yerramilli (2014)): firm size (*SIZE*), book-to-market equity ratio (*BM*), leverage (*LEV*), profitability (*PROFIT*), R&D expenditure (*RDA*), cash holdings (*CASH*), tangibility (*TANG),* and volatility of return on equity (*VROE*). Column 4 further controls for credit rating fixed effects. We find that the coefficient on *CutD* is significantly positive in all columns, suggesting that the probability of defaults is higher for firms with a dividend cut than other firms. For example, the coefficient on *CutD* in Column 4 is 1.180, indicating that the odds of defaults for firms experiencing a dividend cut is 3.25 ($e^{1.180}$) times as high as the odds of defaults for firms without a dividend cut.[19] The coefficient on *RaiseD* is insignificant. Among the control variables, the coefficients on leverage are significantly positive, suggesting that firms with higher leverage have greater default probability.

Overall, these findings show that dividend changes contain useful information for predicting future defaults. In addition, the relation between dividend changes and future defaults is asymmetric. Dividend cuts predict firms' defaults, but dividend raises do not.

4.2 Dividend changes and future credit rating changes

Both CDS spreads and credit ratings provide *ex ante* measures of firm default probability. However, while CDS spreads respond to credit information more quickly and efficiently, credit ratings are generated by rating agencies and incorporate changes in credit risk less timely than

[19] The odds of defaults are defined as the ratio of the probability of default over the probability of no default.

market-based risk measures.[20] If dividend decisions contain useful information about credit risk, we expect them to predict future credit rating changes.

We test this prediction by running the following regression of future credit rating changes on dividend changes:

$$\Delta Rating_{i,t+1} = \beta_0 + \beta_1\, CutD_{i,t} + \beta_2\, RaiseD_{i,t} + \gamma\, \Delta Control_{i,t} + \varepsilon, \quad (4)$$

where $\Delta Rating_{i,t+1}$ is credit rating changes in the following year. *Rating* is an ordinal variable that indicates the S&P long-term credit rating of the firm. *Rating* takes the value of 1 through 22, with a larger value representing a better credit rating. Appendix A provides detailed definitions of the variables.

Table 9 reports the results. Column 1 includes only the dividend dummies (*CutD* and *RaiseD*), Column 2 adds year and firm fixed effects, and Column 3 further controls changes of other firm characteristics. The results suggest that dividend changes indeed have strong predictive power for future credit rating changes. In all specifications, the coefficient on *CutD* is significantly negative. Column 3 shows that this coefficient is -0.26, suggesting that firm credit ratings on average decrease by 0.26 notches after a dividend cut. The coefficient on *RaiseD* is also significantly positive in all specifications. Column 3 shows that this coefficient is 0.03, suggesting that firm credit ratings on average increase by 0.03 notches after a dividend raise. Among all of the control variables, firm size, profitability, and tangibility are positively associated with future credit rating upgrades, and book-to-market equity ratio, leverage, and volatility of return-on-equity are negatively associated with future credit rating upgrades. In sum, our results suggest that dividend

[20] It is widely recognized that credit ratings lack timeliness in response to changes in firm credit risks. The survey conducted by the Association for Financial Professionals (AFP, 2002) reports that 25% of issuers think that their firms' credit ratings are inaccurate and nearly 60% of practitioners observe a lack of timeliness in credit rating changes.

changes contain useful information about future credit rating changes, which is consistent with the information hypothesis of dividend policy.

4.3 Share repurchases and CDS spread changes

In this section, we investigate how CDS spreads respond to share repurchase announcements. Instead of paying out dividends, firms can also distribute cash to shareholders through share repurchases. Unlike dividend payments, which are usually repeated payments, share repurchases are less regular. A number of studies suggest that firms choose share repurchases to distribute relatively transient cash flow shocks and choose dividend raises to distribute permanent cash-flow shocks (e.g., Guay and Harford (2000)). Thus, share repurchases should signal less persistent cash flow shocks and therefore play a weaker information role than dividend raises.

Panel A of Table 10 reports the average CDS spread changes of 1-, 3-, and 5-year contracts during the 15-day, 11-day, and 7-day event windows surrounding the share repurchase announcement dates. The univariate analysis shows that CDS spreads increase during share repurchase announcements, indicating that the wealth transfer effect dominates the information content effect for share repurchases. This result is consistent with the result in Maxwell and Stephens (2003), who find negative abnormal bond returns during the announcements of share repurchases.

Panel B of Table 10 presents the regression results. The benchmark firms consist of all firms with CDS data and without repurchase announcements surrounding the (-6, 6)-month event window of the repurchase firms. We find that repurchase firms do not experience significant changes in CDS spreads during share repurchase announcements after controlling for year and firm fixed effects.

In sum, the results in this section suggest that the announcements of share repurchases play a negligible information role on firm credit risk. Evidence in the equity market also suggests that stock prices react more positively to dividend raises than to share repurchases (e.g., Guay and Harford (2000)). Our findings are consistent with the view that share repurchases reflect transitory cash flow shocks and thus contains limited information about firm permanent performance in the future.

4.4 Controlling for the effect of debt covenant violation

While we control for equity returns and earnings news in our primary analysis, it is possible that our results could be subject to another confounding event, debt covenant violation. Thus, we further control for current and past covenant violation in Eq. (1). We identify the occurrence of debt covenant violation following Nini, Smith, and Sufi (2012), who obtain information directly from 10-K and 10-Q Securities and Exchange Commission (SEC) fillings based on a text-search algorithm. The data from 1996 to 2008 for non-financial firms are available on Amir Sufi's website. We use the same search algorithm and extend the data to 2014 for non-financial firms to cover our full sample period.[21]

A violation of debt covenants reveals substantial information about the firm's credit condition and leads to debt contract renegotiation. To address the concern that the CDS market reaction may be driven by information revealed by debt covenant violation rather than dividend announcements, we further control for *CurrentViolation* and *PastViolation* in Eq. (1) and repeat our analysis over the event window, (-7, 7) days. *CurrentViolation* equals one if the firm violates debt covenants in

[21] The sample of this analysis is restricted to non-financial firms due to the limitation of debt covenant violation data.

the current quarter and zero otherwise. *PastViolation* equals the frequency of debt covenant violations in the past three quarters.

Table 11 presents the results. We find that the coefficients on *CutD* remain significantly positive and the magnitudes barely change after controlling for covenant violations. This finding suggests that dividend announcements provide robust incremental information beyond what have been reflected in debt covenant violation events.

4.5 Dividend Omissions, Dividend Initiations, and CDS Spread Changes

In this section, we further examine how CDS spreads respond to dividend omissions and initiations. We identify a dividend initiation date when a firm announces a dividend payment for the first time or announces a dividend payment after at least five-year omission of dividends. We identify a dividend omission when a firm announces at least six consecutive quarterly cash dividend payments and then pays no cash dividend in the next quarter; when a firm announces at least three consecutive semi-annual cash dividend payments and then pays no cash dividend in the next six months; when a firm announces at least two consecutive annual cash dividend payments and then pays no cash dividend in the next year. The omission date is defined as the date of the corresponding quarter, semi-annual and annual dividend announcement in the last year plus 365 days. After merging with CDS data, our final sample has 58 dividend omission events and 81 dividend initiation events from 2001 to 2014.

In the Table IA1 of Internet Appendix we report the average CDS spread changes of one, three, and five-year contracts during (-3,3), (-5,5), and (-7,7) event windows for dividend omissions and dividend initiations. The results suggest that, in general, CDS spreads increase when firms omit dividends and decrease when firms initiate dividends. Moreover, dividend omissions have a stronger impact on CDS spreads than dividend initiations. For example, CDS spreads of one, three, and five-year contracts increase 1.346, 0.929, and 0.650 percentage points for dividend omissions, but only decrease 0.012, 0.025, and 0.034 percentage points for dividend initiations during (-7,7) announcement window. We further perform the following regression analysis:

$$\Delta Spread_{i,t} = \beta_0 + \beta_1 Omission_{i,t} + \beta_2 Initiation_{i,t} + \gamma\ Control_{i,t} + \varepsilon_{i,t}, \quad (5)$$

where $\Delta Spread_{i,t}$ is defined as the changes in CDS spreads for firm i during a 15-trading day (-7,7) window surrounding the dividend announcement date t. $Omission_{i,t}$ is a dummy variable that equals one if a firm omits a dividend payment and zero otherwise. $Initiation_{i,t}$ is a dummy variable that equals one if a firm initiates a dividend and zero otherwise. We include dividend announcements with no dividend changes in the regression as control samples. The results from the regression analysis are similar to those reported in the univariate analysis. CDS spreads increase during dividend omissions (although the coefficient become insignificant after controlling for fixed effects, the magnitude of the coefficient still remains large), and decrease during dividend initiations. And the magnitude of the coefficient on $Omission_{i,t}$ is more than ten times larger than that on $Initiation_{i,t}$. This asymmetric effect is again consistent with the information role of dividend decisions and the concave function of debt, which suggests that CDS spreads should respond more to bad news signaled by dividend omissions than to good news signaled by dividend initiations.

5. Conclusion

This paper identifies the information role of payout policy in the credit market. We show that CDS spreads increase substantially in response to dividend cuts. The negative CDS market reaction to dividend cuts is particularly pronounced during recession periods and among firms with high credit risk and worse past stock performance. These results support the dominant information content effect of dividend cuts on credit risk. We find little evidence that CDS spreads change in response to dividend raises or share repurchases, suggesting that the information content effect of these announcements is negligible in the debt market.

Firms' reluctance to cut dividends during the 2008-2009 financial crisis has attracted great scrutiny from both academic researchers and government regulators. Many firms keep paying out dividends to investors even when they suffer from large losses. While such firms are heavily blamed for their risk-shifting behavior by transferring wealth from debt to equity holders during financial distress, our evidence suggests an alternative explanation: dividend cuts convey information about firms' worsened future prospects. The information role of dividend payouts is particularly strong during the financial crisis; therefore, firms are extremely reluctant to reduce dividends.

Our study also adds to the debate on whether changes in dividend policies convey information about future cash flows or discount rates. Instead of inferring firm systematic risk from factor models or estimating default risk from option- and accounting-based models, we use CDS spreads to directly measure firm credit risk. We also lend further support for the information role of dividend policy by documenting that dividend changes contain useful information in predicting future defaults and credit rating changes. Dividend cuts predict a higher default probability in the next five years, and dividend cuts (raises) predict a higher probability of future credit rating downgrade (upgrade). The relation between dividend changes and future credit events confirm that the information conveyed in dividend decisions is important for evaluating firm credit risk.

Appendix A
Variable Definitions

CDS variables

Spread1Y: The premium of the CDS contract with one year to maturity at dividend announcement date (in %).

Spread3Y: The premium of the CDS contract with three years to maturity at dividend announcement date (in %).

Spread5Y: The premium of the CDS contract with five years to maturity at dividend announcement date (in %).

Δ***Spread1Y:*** The change in premium of the CDS contract with one year to maturity during the 15-day dividend announcement window (in %).

Δ***Spread3Y:*** The change in premium of the CDS contract with three years to maturity during the 15-day dividend announcement window (in %).

Δ***Spread5Y:*** The change in premium of the CDS contract with five years to maturity during the 15-day dividend announcement window (in %).

Dividend variables

Δ***Dividend:*** Dividend change, defined as the actual dividend per share (DPS) for the current quarter minus the actual DPS in the previous quarter, scaled by the stock price at the current quarter end (in %).

CutD: A dummy variable equal to one if $\Delta dividend < 0$ and zero otherwise.

RaiseD: A dummy variable equal to one if $\Delta dividend > 0$ and zero otherwise.

Cut: The absolute value of announced dividend cuts, which equals $| \Delta dividend |$ if $\Delta dividend < 0$ and zero otherwise (in %).

Raise: The absolute value of announced dividend raises, which equals $\Delta dividend$ if $\Delta dividend > 0$ and zero otherwise (in %).

Conditional variables

Recession: A dummy variable equal to one for the years 2001, 2002, 2008, and 2009 and zero otherwise.

SPE: A dummy variable equal to one if a firm's S&P's long-term credit rating is lower than BBB- and zero otherwise.

LevD: A dummy variable equal to one if a firm's market leverage is above the median leverage in the current quarter and zero otherwise.

OscoreD: A dummy variable equal to one if a firm's Oscore is above the median leverage Oscore in the current quarter and zero otherwise.

***NegPastRet**:* A dummy variable equal to one if a firm's stock return in the past quarter is negative and zero otherwise.

Appendix A, continued

***CurrentViolation**:* A dummy variable equal to one if the firm violates debt covenant in the current quarter and zero otherwise.

PastViolation: The frequency of debt covenant violations in the past three quarters.

Other credit risk variables

Default: A dummy variable equal to one if a firm defaults in the next five years and zero otherwise.

Rating: An ordinal variable that indicates the S&P long-term credit rating of the firm. The variable is coded as follows: AAA = 22, AA+ = 21, AA = 20, AA- = 19, A+ = 18, A= 17, A- = 16, BBB+ = 15, BBB = 14, BBB- = 13, BB+ = 12, BB = 11, BB- = 10, B+ = 9, B = 8, B- = 7, CCC+ = 6, CCC = 5, CCC- = 4, CC = 3, C = 2, D or SD= 1.

Control variables

EquityRet: Cumulative equity return during a 15-day dividend announcement window.

EarnSur: Earnings surprise, defined as the quarterly actual EPS minus the median of quarterly EPS forecasts, scaled by the stock price at current quarter end (in %).

Δ***Earning:*** Earnings change, defined as actual earnings per share (EPS) in the current quarter minus actual EPS in the previous quarter, scaled by stock price at current quarter end (in %).

SIZE: The natural logarithm of the book value of assets.

BM: Book-to-market equity ratio, defined as the book value of equity divided by the market value of equity at the end of the current quarter.

LEV: Market leverage, defined as the sum of long-term debt and debt in current liability scaled by total market value of equity in the current quarter.

PROFIT: Operating income scaled by total sales in the current quarter.

RDA: Research and development (R&D) expenditure scaled by total assets in the current quarter. We replace missing values of R&D expenditure as zero.

CASH: Total cash and marketable securities scaled by total assets in the current quarter.

TANG: Tangibility, defined as the ratio of property, plant, and equipment to total assets in the current quarter.

VROE: Standard deviation of quarterly ROE for the previous three years. We require at least eight observations.

Appendix B
Estimation Procedure for Calculating the Net Effect, the Wealth Transfer Effect, and the Information Content Effect Due to Dividend Announcements

1. Calculate the net effect on debt value

Before dividend announcements, the present value for a five-year zero coupon bond is:

$$PV_{before} = \frac{FV}{\left(1+z_{5,before}\right)^5} \quad => \quad \mathrm{FV} = PV_{before} \times \left(1+z_{5,before}\right)^5,$$

where PV_{before} is the current book value of debt, and $z_{5,before}$ is the annualized five-year zero coupon yield derived from the term structure of CDS spreads before dividend announcements.

After dividend announcements, the present value for the same bond is

$$PV_{after} = \frac{FV}{\left(1+z_{5,after}\right)^5},$$

where $z_{5,after}$ is derived from the term structure of CDS spreads after dividend announcements.

The change in debt value due to the net effect of dividend announcements, $\Delta Debt$, follows $\Delta Debt = PV_{after} - PV_{before}$.

2. Calculate the wealth transfer effect

Suppose there is a dividend stream, *Dt*, paid at the end of each period *t* (*t*=0, 1, 2…). At period 0, we observe a dividend change, *ΔD*. Assuming that the dividend stream follows a random walk, the expected dividend changes for each period will be *ΔD*. We also assume that the default probability follows a Poisson distribution with a constant default rate per period, λ. E_t denotes the present value of expected change in debt value due to dividend raises (i.e., wealth transfer) for period *t*, right before dividend payment D_t. μ denotes the discount rate per period for the dividend stream. The formula for *Et* at the end of each period follows:

$$E_0 = 0,$$
$$E_1 = -\lambda \Delta D,$$
$$E_2 = -\lambda(1-\lambda)\left[\Delta D + \frac{\Delta D}{1+\mu}\right],$$
$$E_3 = -\lambda(1-\lambda)^2\left[\Delta D + \frac{\Delta D}{1+\mu} + \frac{\Delta D}{(1+\mu)^2}\right],$$
$$E_4 = -\lambda(1-\lambda)^3\left[\Delta D + \frac{\Delta D}{1+\mu} + \frac{\Delta D}{(1+\mu)^2} + \frac{\Delta D}{(1+\mu)^3}\right],$$
$$E_5 = -\lambda(1-\lambda)^4\left[\Delta D + \frac{\Delta D}{1+\mu} + \frac{\Delta D}{(1+\mu)^2} + \frac{\Delta D}{(1+\mu)^3} + \frac{\Delta D}{(1+\mu)^4}\right],$$

For a five-year bond, the estimated change in debt value due to the wealth transfer effect, $\Delta Debt_w$, is as follows:

$$\Delta Debt_w = E_1 + E_2 + E_3 + E_4 + E_5.$$

Appendix B, continued

3. **Calculate the information content effect**
   The change in debt value due to the information content effect, $\Delta Debt_i$, is the difference between the net effect and the wealth transfer effect:

   $$\Delta Debt_i = \Delta \text{Debt} - \Delta Debt_{w.}$$

References

Acharya, Viral V., Yakov Amihud, and Sreedhar T. Bharath. 2013. "Liquidity risk of corporate bond returns: conditional approach." *Jornal of Financial Economics* 110: 358–386.

Acharya, Viral V, Irvind Gujral, Nirupama Kulkami, and Hyun Song Shin. 2011. "Dividends and bank capital in the financial crisis of 2007-2009." NBER working paper No. 16896.

Acharya, Viral V., and Timothy C. Johnson. 2007. "Insider trading in credit derivatives." *Journal of Financial Economics* 84: 110-141.

Adelino, Manuel, and I. Serdar Dinc. 2014. "Corporate distress and lobbying: Evidence from the Stimulus Act." *Journal of Financial Economics* 114: 256-272.

Allen, Franklin, Roni Michaely. 1995. "Payout policy." *Handbook of OR & MS 9*. Elsevier.

Amihud, Yakov, and Kefei Li. 2006. "The declining information content of dividend announcements and the effects of institutional holdings." *Journal of Financial and Quantitative Analysis* 41: 637-659.

Association for Financial Professionals. 2002. "Rating agencies survey: accuracy, timeliness, and regulation." Bethesda, Maryland.

Badoer, Dominique C. and Christopher M. James. 2016. "The determinants of long-term corporate debt issuances." *Journal of Finance* 71: 457-492.

Bao, Jack, Jun Pan, and Jiang Wang. 2011. "The illiquidity of corporate bonds." *Journal of Finance* 66: 911-946.

Benartzi, Shlomo, Roni Michaely, and Richard Thaler. 1997. "Do changes in dividends signal the future or the past?" *Journal of Finance* 52: 1007-1034.

Bhattacharya, Sudipto. 1979. "Imperfect Iinformation, dividend policy, and “the bird in the hand” fallacy." *The Bell Journal of Economics* 10: 259-270.

Blanco, Roberto, Simon Brennan, and Lan W. Marsh. 2005. “An empirical analysis of the dynamic relation between investment-grade bonds and credit default swaps.” *Journal of Finance* 60: 2255-2281.

Bordo, Michael D. 2008. “An historical perspective on the crisis of 2007-2008.” NBER working paper No. 14569.

Brav, Alon, John R. Graham, Campbell Harvey, and Roni Michaely. 2005. “Payout policy in the 21st century.” *Journal of Financial Economics* 77: 483-527.

Callen, Jeffery L., Joshua Livnat, and Dan Segal. 2009. “The impact of earnings on the pricing of credit default swaps.” *The Accounting Review* 84: 1363-1394.

Carlson, Murray, and Ali Lazrak. 2010. “Leverage choice and credit spreads when managers risk shift.” *Journal of Finance* 6: 2323-2362.

Charitou, Andreas, Neophytos Lambertides, and Giorgos Theodoulou. 2011. “Dividend increases and initiations and default risk in equity returns.” *Journal of Financial and Quantitative Analysis* 46: 1521-1543.

Chen, Long, David A. Lesmond, and Jason Wei. 2007. "Corporate yield spreads and bond liquidity." *Journal of Finance* 62: 119-149.

Covitz, Dan, and Chris Downing. 2007. "Liquidity or credit risk? The determinants of very short-term corporate yield spreads." *Journal of Finance* 62: 2303-2328.

Crouhy, Michel, Dan Galai, Robert Mark. 2000. “A comparative analysis of current credit risk models.” *Journal of Banking and Finance* 24: 59-117.

Daniels, Kenneth N., and Malene S. Jensen. 2005. "The effect of credit ratings on credit default swap spreads and credit spreads." *Journal of Fixed Income* 15: 16-33.

DeAngelo, Harry, Linda DeAngelo, and Douglas J. Skinner. 1996. “Reversal of fortune dividend signaling and the disappearance of sustained earnings growth.” *Journal of Financial Economics* 40: 341-371.

Deffie, Darrell and David Lando. 2001. “Term Structures of Credit Spreads with Incomplete Accounting Information.” *Econometrica* 69: 633-664.

Dhillon, Upinder S., and Herb Johnson. 1994. “The effect of dividend changes on stock and bond prices.” *Journal of Finance* 49: 281-289.

EIkamhi, Redouane, Kris Jacobs, and Xuhui Pan. 2014. "The Cross Section of Recovery Rates and Default Probabilities Implied by Credit Default Swap Spreads." *Journal of Financial and Quantitative Analysis* 49: 193-220.

Ericsson, Jan, Kris Jacobs, and Rodolfo Oviedo. 2009. The determinants of credit default swap premia. *Journal of Financial and Quantitative Analysis* 44, 109-132

Fama, Eugene F., and Kenneth R. French. 2002. “The equity premium.” *Journal of Finance* 57: 637-659.

Feldhutter, Peter, Edith Hotchkiss, and Oguzhan Karakas. 2016. “The value of creditor control in corporate value.” *Journal of Financial Economics* 121, 1-27.

Floyd, Eric, Nan Li, and Douglas J. Skinner. 2015. “Payout policy through the financial crisis: The growth of repurchases and the resilience of dividends.” *Journal of Financial Economics* 118: 299-316.

Friewald, Nils, Christian Wagner, and Josef Zechner. 2014. “The cross-section of credit risk premia and equity returns.” *Journal of Finance* 69: 2419-2469.

Gopalan, Radhakrishnan, Fenghua Song, and Vijay Yerramilli. 2014. “Debt maturity structure and credit quality.” *Journal of Financial and Quantitative Analysis* 49, 817-842.

Grullon, Gustavo, Roni Michaely, and Bhaskaran Swaminathan. 2002. “Are dividend changes a sign of firm maturity?” *Journal of Business* 75: 387-424.

Guay, Wayne, and Jarrad Harford. 2000. “The cash-flow permanence and information content of dividend increases versus repurchases.” *Journal of Financial Economics* 57: 385-415.

Guttman, Ilan, Ohad Kadan, and Eugene Kandel. 2010. “Dividend stickiness and strategic pooling.” *Review of Financial Studies* 23, 4455-4495.

Handjinicolaou, George, and Avner Kalay. 1984. “Wealth redistributions or changes in firm value: An analysis of returns to bondholders and stockholders around dividend announcements.” *Journal of Financial Economics* 13: 35-63.

Hortacsu, Ali, Gregor Matvos, Chad Syverson, and Sriram Venkataraman. 2013. "Indirect costs of financial distress in durable goods industries: The case of auto manufacturers." *Review of Financial Studies* 5: 1248-1290.

John, Kose, and Joseph Williams. 1985. "Dividends, dilution, and taxes: a signaling equilibrium." *Journal of Finance* 40: 1053-1070.

Lin, Hai, Junbo Wang, and Chunchi Wu. 2011. “Liquidity risk and expected corporate bond returns.” *Journal of Financial Economics* 99: 628-650.

Lins, Karl V., Henri Servaes, and Ane Tamayo. 2017. “Social capital, trust, and firm performance: The value of corporate social responsibility during the financial crisis.” *Journal of Finance* 72: 1785-1824.

Loon, Yee Cheng, and Zhaodong Ken Zhong. 2014. “The impact of central clearing on counterparty risk, liquidity, and trading: Evidence from the credit default swap market.” *Journal of Financial Economics* 112: 91-115.

Maxwell, William F., and Clifford P. Stephens. 2003. “The wealth effects of repurchases on bondholders.” *Journal of Finance* 58: 895-920.

Miller, Merton H., and Kevin Rock. 1985. "Dividend policy under asymmetric information." *Journal of Finance* 40: 1031-1051.

Nini, Greg, David C. Smith, and Amir Sufi. 2012. “Creditor control rights and firm investment policy.” *Journal of Financial Economics* 92: 400-420.

Norden, Lars, and Martin Weber. 2004. "Informational efficiency of credit default swap and stock markets: The impact of credit rating announcements." *Journal of Banking and Finance* 28: 2813-2843.

Ohlson, James A. 1980. “Financial ratios and the probabilistic prediction of bankruptcy.” *Journal of Accounting Research* 18: 109-131.

Scharfstein, David S., and Jeremy Stein. 2008. “This bailout doesn't pay dividends.” *The New York Times*. 10 20.

Table 1. Frequency of Dividend Changes and Share Repurchases by Year
This table presents the frequency of dividend changes and share repurchases by year for our sample firms from 2001 to 2014.

Year	Dividend cuts	Dividend raises	No dividend change	Share repurchase
2001	14	32	430	37
2002	9	56	703	33
2003	9	125	788	61
2004	8	179	954	102
2005	6	224	1,052	139
2006	7	216	1,044	143
2007	9	218	1,076	160
2008	36	166	1,000	87
2009	49	68	931	46
2010	3	145	904	77
2011	11	182	862	109
2012	14	190	835	72
2013	27	189	818	89
2014	8	150	630	93
Total	210	2,140	12,027	1,248

Table 2. Summary Statistics
This table reports the descriptive statistics. See Appendix A for variable definitions.

Variables	N	Mean	Std. dev.	P25	Median	P75
Spread1Y (%)	12,947	0.585	1.119	0.109	0.239	0.572
Spread3Y (%)	13,561	0.832	1.130	0.236	0.448	0.944
Spread5Y (%)	14,377	1.067	1.182	0.365	0.661	1.289
ΔSpread1Y (%)	13,298	0.004	0.276	-0.028	0.000	0.020
ΔSpread3Y (%)	13,763	0.004	0.250	-0.035	-0.001	0.024
ΔSpread5Y (%)	14,377	0.003	0.242	-0.039	-0.001	0.026
ΔDividend (%)	14,377	0.001	0.210	0.000	0.000	0.000
CutD	14,377	0.015	0.120	0.000	0.000	0.000
RaiseD	14,377	0.149	0.356	0.000	0.000	0.000
Cut (%)	14,377	0.016	0.192	0.000	0.000	0.000
Raise (%)	14,377	0.016	0.074	0.000	0.000	0.000
Cut (%), non-zero value	210	1.091	1.176	0.339	0.718	1.321
Raise (%), non-zero value	2,140	0.106	0.170	0.041	0.062	0.098
EquityRet	14,249	0.008	0.072	-0.029	0.008	0.045
EarnSur (%)	13,736	0.017	0.555	-0.037	0.043	0.169
ΔEarning (%)	13,710	0.024	1.189	-0.269	0.049	0.361
SPE	14,254	0.125	0.331	0.000	0.000	0.000
LevD	14,324	0.500	0.500	0.000	1.000	1.000
OscoreD	11,249	0.499	0.500	0.000	0.000	1.000
NegPastRet	14,249	0.407	0.491	0.000	0.000	1.000
Default	14,377	0.007	0.085	0.000	0.000	0.000
ΔRating	13,082	-0.122	0.714	0.000	0.000	0.000
SIZE	14,377	9.550	1.381	8.543	9.400	10.338
BM	14,377	0.558	0.361	0.294	0.472	0.742
LEV	14,377	0.642	1.161	0.157	0.304	0.662
PROFIT	14,377	0.161	0.132	0.078	0.133	0.215
RDA	14,377	0.003	0.007	0.000	0.000	0.001
CASH	14,323	0.086	0.091	0.023	0.053	0.117
TANG	14,377	0.296	0.248	0.092	0.227	0.484
VROE	14,234	0.033	0.057	0.011	0.018	0.033
CurrentViolation	12,091	0.038	0.266	0.000	0.000	0.000
PastViolation	12,091	0.012	0.111	0.000	0.000	0.000

Table 3. Analysis of CDS Market Reaction to Dividend Announcements

Panel A of this table reports the univariate results of cumulative spread changes (ΔSpread) in 1-year, 3-year, and 5-year CDS contracts over the event windows (-7,7), (-5,5), and (-3,3) trading days. Panel B presents the results of the following regression:

$$\Delta Spread_{i,t} = \beta_0 + \beta_1\, CutD_{i,t} + \beta_2\, RaiseD_{i,t} + \gamma\, Control_{i,t} + \varepsilon_{i,t}. \quad (1)$$

$$\Delta Spread_{i,t} = \beta_0 + \beta_1\, Cut_{i,t} + \beta_2\, Raise_{i,t} + \gamma\, Control_{i,t} + \varepsilon_{i,t}. \quad (2)$$

The dependent variable is $\Delta Spread_{i,t}$, the CDS spread change for firm *i* during the event window (-7, 7) days around dividend announcement date *t*. All CDS spreads are in %. The *t*-statistics are reported in brackets. *, **, and *** indicate significance at the 10%, 5%, and 1% two-tailed levels, respectively.

Panel A. Univariate analysis

	Event window =	(-7,7) days			(-5,5) days			(-3,3) days		
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	CDS maturity =	1-Year	3-Year	5-Year	1-Year	3-Year	5-Year	1-Year	3-Year	5-Year
Div. cuts	ΔSpread	0.322***	0.266***	0.216***	0.227**	0.175**	0.101**	0.111**	0.077*	0.038
	t-stat.	(2.78)	(3.08)	(2.93)	(1.98)	(2.55)	(1.99)	(2.08)	(1.91)	(1.11)
	N	199	208	210	199	207	210	199	205	210
Div. raises	ΔSpread	-0.006***	-0.004**	-0.004*	-0.006***	-0.004**	-0.003*	-0.004***	-0.003**	0.000
	t-stat.	(-3.16)	(-2.18)	(-1.76)	(-3.73)	(-2.50)	(-1.65)	(-2.91)	(-2.24)	(-0.06)
	N	2,014	2,082	2,140	2,007	2,078	2,140	1,992	2,072	2,140
Zero change	ΔSpread	-0.001	0.001	0.001	-0.001	-0.002	0.000	0.000	0.000	0.000
	t-stat.	(-0.42)	(0.52)	(0.35)	(-0.64)	(-0.95)	(-0.30)	(0.16)	(-0.11)	(-0.33)
	N	11,085	11,473	12,027	11,035	11,433	12,027	10,953	11,386	12,027

Table 3, continued

Panel B. Regression analysis with the dependent variable being changes in CDS spreads during the event window (-7, 7) days

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
CDS Maturity=	1-Year	3-Year	5-Year	1-Year	3-Year	5-Year	1-Year	3-Year	5-Year	1-Year	3-Year	5-Year
CutD	**0.334****	**0.283*****	**0.230*****	**0.310****	**0.259*****	**0.206****						
	(2.45)	**(2.81)**	**(2.66)**	**(2.32)**	**(2.67)**	**(2.49)**						
RaiseD	**-0.010****	**-0.009****	**-0.009*****	**-0.003**	**-0.002**	**-0.002**						
	(-2.07)	**(-2.47)**	**(-2.59)**	**(-0.64)**	**(-0.46)**	**(-0.42)**						
Cut							**0.208*****	**0.195*****	**0.151****	**0.189*****	**0.175*****	**0.131****
							(2.74)	**(2.81)**	**(2.53)**	**(2.67)**	**(2.75)**	**(2.40)**
Raise							**-0.036**	**-0.031**	**-0.039**	**-0.001**	**0.009**	**0.001**
							(-0.97)	**(-1.21)**	**(-1.84)**	**(-0.04)**	**(0.33)**	**(0.04)**
EquityRet				-0.866***	-0.986***	-1.006***				-0.867***	-0.986***	-1.007***
				(-9.17)	(-12.00)	(-13.06)				(-9.05)	(-11.92)	(-12.99)
EarnSur				-0.032***	-0.027**	-0.025***				-0.034***	-0.029**	-0.026***
				(-2.68)	(-2.47)	(-2.76)				(-2.64)	(-2.55)	(-2.86)
Δ*Earning*				-0.007	-0.007	-0.004				-0.007	-0.006	-0.004
				(-1.46)	(-1.52)	(-1.17)				(-1.38)	(-1.47)	(-1.12)
Fixed Effects		Year, Firm			Year, Firm			Year, Firm			Year, Firm	
Adjusted R^2	0.082	0.082	0.076	0.144	0.171	0.172	0.082	0.085	0.077	0.144	0.174	0.173
N	13,062	13,511	14,377	12,681	13,115	13,624	13,062	13,511	14,377	12,681	13,115	13,624

Table 4. Analysis Conditional on Macroeconomic Environments

This table reports the subsample analysis for recession and expansion periods. Panel A presents the univariate analysis and panel B presents the regression analysis. The dependent variable is $\Delta Spread_{i,t}$, the CDS spread change for firm *i* during the event window (-7, 7) days around dividend announcement date *t*. *CutD* is a dummy variable equal to one if the dividend change is negative and zero otherwise. *RaiseD* is a dummy variable equal to one if the dividend change is positive and zero otherwise. *Recession* is a dummy variable equal to one for years 2001, 2002, 2008, and 2009, and zero otherwise. *T*-statistics, reported in brackets, are based on robust standard errors clustered at the firm level. *, **, and *** indicate significance at the 10%, 5%, and 1% two-tailed levels, respectively. See Appendix A for definitions of other variables.

Panel A. Univariate analysis

		Recession=1			Recession=0		
		(1)	(2)	(3)	(4)	(5)	(6)
	CDS Maturity=	1-Year	3-Year	5-Year	1-Year	3-Year	5-Year
Div. cuts	ΔSpread	0.631***	0.532***	0.435***	0.028	0.010	0.011
	t-stat.	(2.74)	(3.16)	(3.01)	(0.69)	(0.28)	(0.31)
	N	97	102	103	102	106	107
Div. raises	ΔSpread	-0.019**	-0.012	-0.009	-0.004**	-0.004*	-0.003
	t-stat.	(-2.52)	(-1.62)	(-1.21)	(-2.11)	(-1.69)	(-1.41)
	N	280	291	304	1,734	1,791	1,836
Zero change	ΔSpread	-0.004	-0.007	-0.006	0.000	0.004*	0.003
	t-stat.	(-0.76)	(-1.18)	(-1.12)	(0.16)	(1.97)	(1.58)
	N	2,831	2,963	3,155	8,254	8,510	8,872

Table 4, continued
Panel B. Regression analysis

	(1)	(2)	(3)	(4)	(5)	(6)
CDS Maturity=	1-Year	3-Year	5-Year	1-Year	3-Year	5-Year
CutD	0.016	0.001	0.000			
	(0.35)	(0.02)	(-0.01)			
RaiseD	0.000	0.000	0.000			
	(0.02)	(-0.06)	(0.05)			
CutD* × *Recession	**0.558****	**0.493*****	**0.395****			
	(2.10)	**(2.61)**	**(2.38)**			
RaiseD* × *Recession	**-0.014**	**-0.002**	**-0.002**			
	(-1.25)	**(-0.19)**	**(-0.22)**			
Cut				0.019	0.004	-0.004
				(1.10)	(0.35)	(-0.26)
Raise				-0.005	0.002	0.006
				(-0.14)	(0.10)	(0.29)
Cut* × *Recession				**0.526*****	**0.521*****	**0.410*****
				(2.94)	**(3.48)**	**(3.03)**
Raise* × *Recession				**-0.009**	**0.020**	**-0.023**
				(-0.17)	**(0.24)**	**(-0.46)**
Recession	-0.013**	-0.018***	-0.017***	-0.013**	-0.020***	-0.018***
	(-2.28)	(-3.24)	(-2.98)	(-2.15)	(-3.58)	(-3.20)
EquityRet	-0.894***	-1.016***	-1.034***	-0.862***	-0.977***	-1.009***
	(-9.67)	(-12.58)	(-13.50)	(-9.70)	(-12.67)	(-13.56)
EarnSur	-0.031***	-0.027**	-0.025***	-0.029**	-0.023**	-0.022***
	(-2.82)	(-2.55)	(-2.89)	(-2.55)	(-2.25)	(-2.61)
ΔEarning	-0.007	-0.006	-0.004	-0.006	-0.006	-0.003
	(-1.38)	(-1.41)	(-1.05)	(-1.19)	(-1.32)	(-0.88)
Fixed Effects		Firm			Firm	
Adjusted R^2	0.143	0.168	0.167	0.121	0.157	0.145
N	12,681	13,115	13,624	12,681	13,115	13,624

Table 5. Analysis Conditional on Firm-level Credit Risks

This table reports analysis conditional on a firm's credit ratings, leverage, and Oscore. The dependent variable is $\Delta Spread_{i,t}$, the CDS spread change for firm *i* during the event window (-7, 7) days around dividend announcement date *t*. *CutD* is a dummy variable equal to one if the dividend change is negative and zero otherwise. *RaiseD* is a dummy variable equal to one if the dividend change is positive and zero otherwise. *SPE* is a dummy variable equal to one if the firm has a speculative investment grade and zero if the firm has an investment grade. *LevD* is a dummy variable equal to one if firm leverage is above the median leverage and zero otherwise. *OscoreD* is a dummy variable equal to one if firm Oscore is above the median Oscore and zero otherwise. *T*-statistics, reported in brackets, are based on robust standard errors clustered at the firm level. *, **, and *** indicate significance at the 10%, 5%, and 1% two-tailed levels, respectively. See Appendix A for definitions of other variables.

Table 5, continued

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
CDS Maturity=	1-Year	3-Year	5-Year	1-Year	3-Year	5-Year	1-Year	3-Year	5-Year
CutD	0.206	0.167	0.121	0.010	-0.017	-0.004	-0.083	-0.056	-0.041
	(1.30)	(1.61)	(1.36)	(0.22)	(-0.54)	(-0.13)	(-0.97)	(-1.36)	(-0.92)
RaiseD	-0.004	-0.001	-0.001	-0.001	-0.002	-0.003	-0.002	-0.003	-0.004
	(-0.72)	(-0.21)	(-0.32)	(-0.17)	(-0.56)	(-0.92)	(-0.43)	(-0.77)	(-1.09)
CutD* × *SPE	**0.519****	**0.473***	**0.449****						
	(1.98)	**(1.85)**	**(1.97)**						
RaiseD* × *SPE	**0.000**	**-0.018**	**-0.007**						
	(0.02)	**(-0.83)**	**(-0.36)**						
SPE	0.014	0.026	0.0334*						
	(0.80)	(1.57)	(1.94)						
CutD* × *LevD				**0.433*****	**0.393*****	**0.300****			
				(2.22)	**(2.80)**	**(2.46)**			
RaiseD* × *LevD				**-0.011**	**-0.004**	**0.001**			
				(-1.06)	**(-0.45)**	**(0.18)**			
LevD				-0.007	-0.002	-0.003			
				(-0.93)	(-0.23)	(-0.45)			
CutD* × *OscoreD							**0.549*****	**0.461*****	**0.359****
							(2.64)	**(2.73)**	**(2.44)**
RaiseD* × *OscoreD							**-0.002**	**0.000**	**0.000**
							(-0.34)	**(-0.05)**	**(-0.07)**
OscoreD							-0.006	-0.005	-0.004
							(-0.80)	(-0.59)	(-0.51)
EquityRet	-0.869***	-0.989***	-1.009***	-0.860***	-0.977***	-0.998***	-0.686***	-0.803***	-0.844***
	(-9.23)	(-12.02)	(-13.10)	(-9.16)	(-12.03)	(-13.05)	(-8.91)	(-10.99)	(-11.66)
EarnSur	-0.029**	-0.024**	-0.022**	-0.030***	-0.025**	-0.023***	-0.061***	-0.063***	-0.055***
	(-2.40)	(-2.28)	(-2.52)	(-2.64)	(-2.37)	(-2.65)	(-4.25)	(-4.80)	(-4.47)
ΔEarning	-0.007	-0.007	-0.004	-0.007	-0.007	-0.004	0.002	-0.001	-0.001
	(-1.41)	(-1.50)	(-1.18)	(-1.45)	(-1.55)	(-1.15)	(0.37)	(-0.28)	(-0.19)
Fixed Effects		Year, Firm			Year, Firm			Year, Firm	
Adjusted R^2	0.151	0.179	0.180	0.150	0.177	0.175	0.173	0.189	0.182
N	12,451	12,869	13,347	12,681	13,115	13,624	9,940	10,271	10,677

Table 6. Analysis Conditional on Firm Stock Past Performance

This table reports results of analyses conditional on a firm's stock past performance. The dependent variable is $\Delta Spread_{i,t}$, the CDS spread change for firm *i* during the event window (-7, 7) days around dividend announcement date *t*. *CutD* is a dummy variable equal to one if the dividend change is negative and zero otherwise. *RaiseD* is a dummy variable equal to one if the dividend change is positive and zero otherwise. *NegPastRet* is a dummy variable equal to one if firm stock return in the past quarter is negative and zero otherwise. *T*-statistics, reported in brackets, are based on robust standard errors clustered at the firm level. *, **, and *** indicate significance at the 10%, 5%, and 1% two-tailed levels, respectively. See Appendix A for definitions of other variables.

	(1)	(2)	(3)
CDS Maturity=	1-Year	3-Year	5-Year
CutD	0.060	0.038	-0.001
	(0.86)	(0.47)	(-0.03)
RaiseD	0.001	0.004	0.004
	(0.21)	(0.94)	(0.93)
CutD* × *NegPastRet	**0.404***	**0.342****	**0.326****
	(1.79)	**(2.04)**	**(2.35)**
RaiseD* × *NegPastRet	**-0.014****	**-0.016****	**-0.013****
	(-2.03)	**(-2.39)**	**(-1.99)**
NegPastRet	0.015***	0.022***	0.022***
	(3.65)	(5.12)	(5.04)
EquityRet	-0.848***	-0.965***	-0.993***
	(-9.39)	(-12.12)	(-13.20)
EarnSur	-0.026**	-0.021*	-0.018**
	(-2.32)	(-1.94)	(-2.14)
ΔEarning	-0.007	-0.006	-0.004
	(-1.39)	(-1.52)	(-1.13)
Fixed Effects		Year, Firm	
Adjusted R^2	0.115	0.143	0.144
N	12,681	13,115	13,624

Table 7. Estimated Changes in Debt Value due to Information Content and Wealth Transfer Effects
This table reports the estimated changes in debt value, as well as the estimated wealth transfer effect and the resulting information content effect for dividend cuts (Panel A) and dividend raises (Panel B). We assume an annual discount rate of 8%.

Panel A. Estimated changes in debt value, dividend cuts

		(1)	(2)	(3)
		Estimated Δdebt value	Wealth transfer	Information content
All years	Mean ($ million)	-148.704	26.099	-174.803
(N=208)	*ΔDebt/Debt (%)*	-0.753	0.132	-0.886
Recession=1	Mean ($ million)	-279.852	20.959	-300.811
(N=103)	*ΔDebt/Debt (%)*	*-1.133*	*0.085*	*-1.218*
Recession=0	Mean ($ million)	-20.054	31.141	-51.195
(N=105)	*ΔDebt/Debt (%)*	*-0.134*	*0.208*	*-0.342*

Panel B. Estimated changes in debt value, dividend raises

		(1)	(2)	(3)
		Estimated Δdebt value	Wealth transfer	Information content
All years	Mean ($ million)	0.769	-2.950	3.719
(N=2,131)	*ΔDebt/Debt (%)*	*0.009*	*-0.036*	*0.046*
Recession=1	Mean ($ million)	3.202	-2.238	5.440
(N=304)	*ΔDebt/Debt (%)*	*0.036*	*-0.025*	*0.062*
Recession=0	Mean ($ million)	0.364	-3.068	3.433
(N=1,827)	*ΔDebt/Debt (%)*	*0.005*	*-0.038*	*0.043*

Table 8. Dividend Changes and Future Defaults

This table reports the results from the following logit regression of future defaults:

$$Default_{i,t+5} = \beta_0 + \beta_1\, CutD_{i,t} + \beta_2\, RaiseD_{i,t} + \gamma\, Control_{i,t} + \varepsilon_{i,t},$$

where $Default_{i,t+5}$ is a dummy variable that equals one if the firm defaults in the next five years and zero otherwise. *CutD* is a dummy variable equal to one if the dividend change is negative and zero otherwise. *RaiseD* is a dummy variable equal to one if the dividend change is positive and zero otherwise. See Appendix A for definitions of other variables. The *t*-statistics based on robust standard errors clustered at the firm level are reported in brackets. *, **, and *** indicate significance at the 10%, 5%, and 1% two-tailed levels, respectively.

	(1)	(2)	(3)	(4)
CutD	**1.674*****	**1.953*****	**0.976****	**1.180****
	(5.03)	**(5.70)**	**(1.97)**	**(2.35)**
RaiseD	**-0.465**	**-0.490**	**-0.118**	**-0.024**
	(-1.04)	**(-1.09)**	**(-0.30)**	**(-0.07)**
SIZE			-0.051	0.269
			(-0.16)	(0.70)
BM			1.640***	1.173
			(2.61)	(1.24)
LEV			0.434***	0.391***
			(2.93)	(2.62)
PROFIT			-1.712	-1.411
			(-0.92)	(-0.96)
RDA			-18.459	-12.739
			(-0.43)	(-0.23)
CASH			2.544	3.002
			(0.53)	(0.71)
TANG			0.214	0.262
			(0.12)	(0.16)
VROE			-4.419	-7.640
			(-0.80)	(-0.93)
Constant	-4.908***			
	(-12.55)			
Fixed Effects	No	Year	Year	Year, Credit Rating
Adjusted R^2	0.001	0.006	0.020	0.030
N	14,377	14,377	14,232	14,232

Table 9. Dividend Changes and Future Credit Rating Changes

This table reports the results from the following regression of future credit rating changes:

$$\Delta Rating_{i,t+1} = \beta_0 + \beta_1\, CutD_{i,t} + \beta_2\, RaiseD_{i,t} + \gamma\, \Delta Control_{i,t} + \varepsilon_{i,t},$$

where $\Delta Rating_{i,t+1}$ is credit rating change of firm i in the next one year where credit rating is an ordinal variable from 1 to 22 that indicates the S&P long-term credit rating from D to AAA+. *CutD* is a dummy variable equal to one if the dividend change is negative and zero otherwise. *RaiseD* is a dummy variable equal to one if the dividend change is positive and zero otherwise. See Appendix A for definitions of other variables. The *t*-statistics based on robust standard errors clustered at the firm level are reported in brackets. *, **, and *** indicate significance at the 10%, 5%, and 1% two-tailed levels, respectively.

	(1)	(2)	(3)
CutD	**-0.445*****	**-0.357*****	**-0.262*****
	(-4.49)	**(-4.42)**	**(-3.22)**
RaiseD	**0.109*****	**0.039*****	**0.031*****
	(7.05)	**(3.18)**	**(2.63)**
$\Delta SIZE$			0.636***
			(3.76)
ΔBM			-0.268***
			(-3.04)
ΔLEV			-0.202***
			(-3.45)
$\Delta PROFIT$			0.337***
			(3.04)
ΔRDA			0.050
			(0.07)
$\Delta CASH$			-0.096
			(-0.48)
$\Delta TANG$			0.699
			(1.27)
$\Delta VROE$			-3.908**
			(-2.23)
Constant	-0.134***		
	(-10.27)		
Fixed Effects	No	Year, Firm	Year, Firm
Adjusted R^2	0.008	0.181	0.201
N	13,082	13,082	12,577

Table 10. Share Repurchases and CDS Spread Changes

Panel A of this table reports the univariate analysis of spread changes in 1-year, 3-year, and 5-year CDS contracts over the (-7, 7), (-5, 5), and (-3, 3) trading day windows around share repurchase announcements. Panel B reports the regression analysis with the CDS spread change over 15-day event window as the dependent variable. *RepD* is a dummy variable equal to one if a firm announces a repurchase program and zero otherwise. Firms that do not have any repurchase announcements six-months before or after a repurchase event are treated as the control group. All CDS spreads are in %. The *t*-statistics are reported in brackets. *, **, and *** indicate significance at the 10%, 5%, and 1% two-tailed levels, respectively.

Panel A. Univariate analysis of the CDS market reaction to repurchase

Event window =	(-7,7) days			(-5,5) days			(-3,3) days		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
CDS Maturity=	1-Year	3-Year	5-Year	1-Year	3-Year	5-Year	1-Year	3-Year	5-Year
ΔSpread	0.012***	0.009**	0.010**	0.010***	0.009**	0.009**	0.009**	0.004	0.004
t-stat.	(2.72)	(2.08)	(2.03)	(2.58)	(2.28)	(2.32)	(2.52)	(1.39)	(1.09)
N	1,157	1,201	1,248	1,149	1,198	1,248	1,137	1,191	1,248

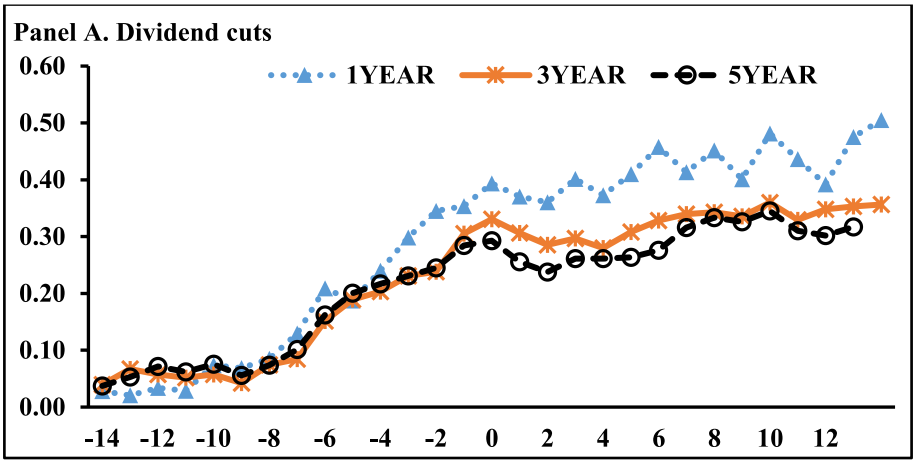
Panel B. Regression analysis during the event window (-7, 7) days

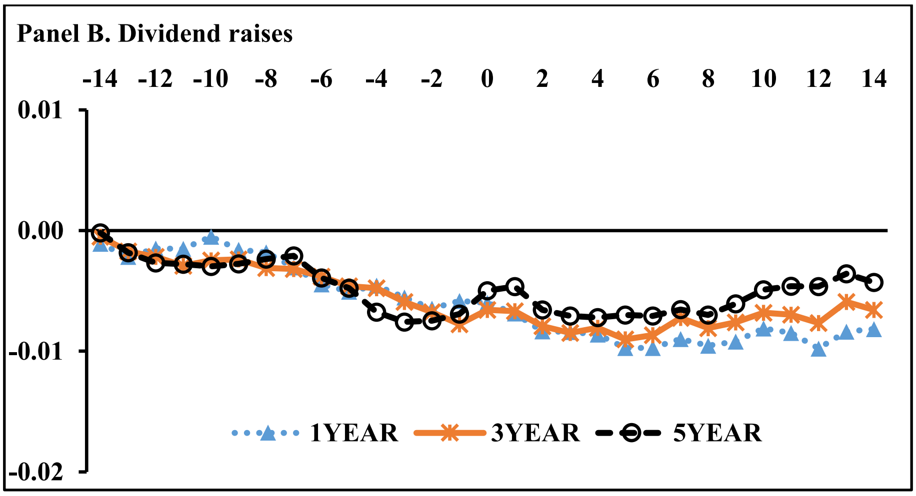
	(1)	(2)	(3)	(4)	(5)	(6)
CDS Maturity=	1-Year	3-Year	5-Year	1-Year	3-Year	5-Year
RepD	-0.023	-0.010	-0.003	0.009	0.006	0.009
	(-0.77)	(-0.63)	(-0.22)	(1.42)	(0.94)	(1.21)
EquityRet				-0.089***	-0.087***	-0.085***
				(-5.21)	(-6.66)	(-6.69)
EarnSur				-0.001	-0.002	-0.001
				(-0.57)	(-1.11)	(-0.64)
ΔEarning				0.000	-0.001	-0.001*
				(-0.33)	(-1.61)	(-1.95)
Fixed Effects		Year, Firm			Year, Firm	
Adjusted R^2	0.006	0.007	0.006	0.002	0.009	0.003
N	269,991	280,722	295,735	258,266	268,487	282,745

Table 11. The Effect of Debt Covenant Violations

This table reports the regression analysis of cumulative spread changes in 1-year, 3-year, and 5-year CDS contracts over the event windows (-7, 7) days around dividend announcement date by controlling the effect of debt covenant violations. All CDS spreads are in %. *CurrentViolation* equals one if the firm violates debt covenant in the current quarter and zero otherwise. *PastViolation* equals the frequency of debt covenant violations in the past three quarters. The *t*-statistics are reported in brackets. *, **, and *** indicate significance at the 10%, 5%, and 1% two-tailed levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
CDS Maturity=	1-Year	3-Year	5-Year	1-Year	3-Year	5-Year
CutD	**0.219****	**0.186****	**0.148****	**0.219****	**0.186****	**0.148****
	(2.12)	**(2.17)**	**(1.97)**	**(2.12)**	**(2.18)**	**(1.98)**
RaiseD	**0.000**	**0.000**	**-0.001**	**0.000**	**0.000**	**-0.001**
	(-0.10)	**(0.13)**	**(-0.25)**	**(-0.10)**	**(0.13)**	**(-0.24)**
CurrentViolation				-0.010	-0.001	-0.015
				(-0.28)	(-0.02)	(-0.58)
PastViolation				0.004	0.001	0.012
				(0.35)	(0.11)	(1.03)
EquityRet	-0.712***	-0.857***	-0.903***	-0.712***	-0.857***	-0.903***
	(-9.42)	(-11.57)	(-12.58)	(-9.42)	(-11.57)	(-12.59)
EarnSur	-0.047***	-0.051***	-0.043***	-0.047***	-0.051***	-0.043***
	(-4.02)	(-4.64)	(-4.17)	(-4.04)	(-4.66)	(-4.12)
Δ*Earning*	-0.002	-0.005	-0.004	-0.002	-0.005	-0.004
	(-0.47)	(-1.30)	(-1.07)	(-0.48)	(-1.30)	(-1.09)
Fixed Effects		Year, Firm			Year, Firm	
Adjusted R^2	0.119	0.144	0.142	0.119	0.144	0.142
N	10,996	11,376	11,826	10,996	11,376	11,826





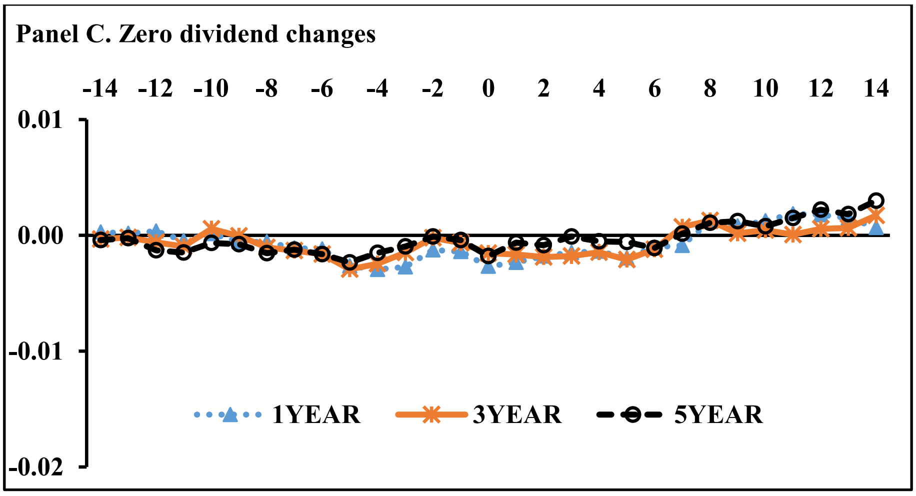


Figure 1. Cumulative CDS spread changes around dividend announcements

This figure plots the average cumulative changes in percentage in 1-year, 3-year, and 5-year CDS spreads around the dividend announcement date (day 0). Panels A, B, and C show the CDS market reactions for dividend cuts, dividend raises, and zero dividend changes, respectively.

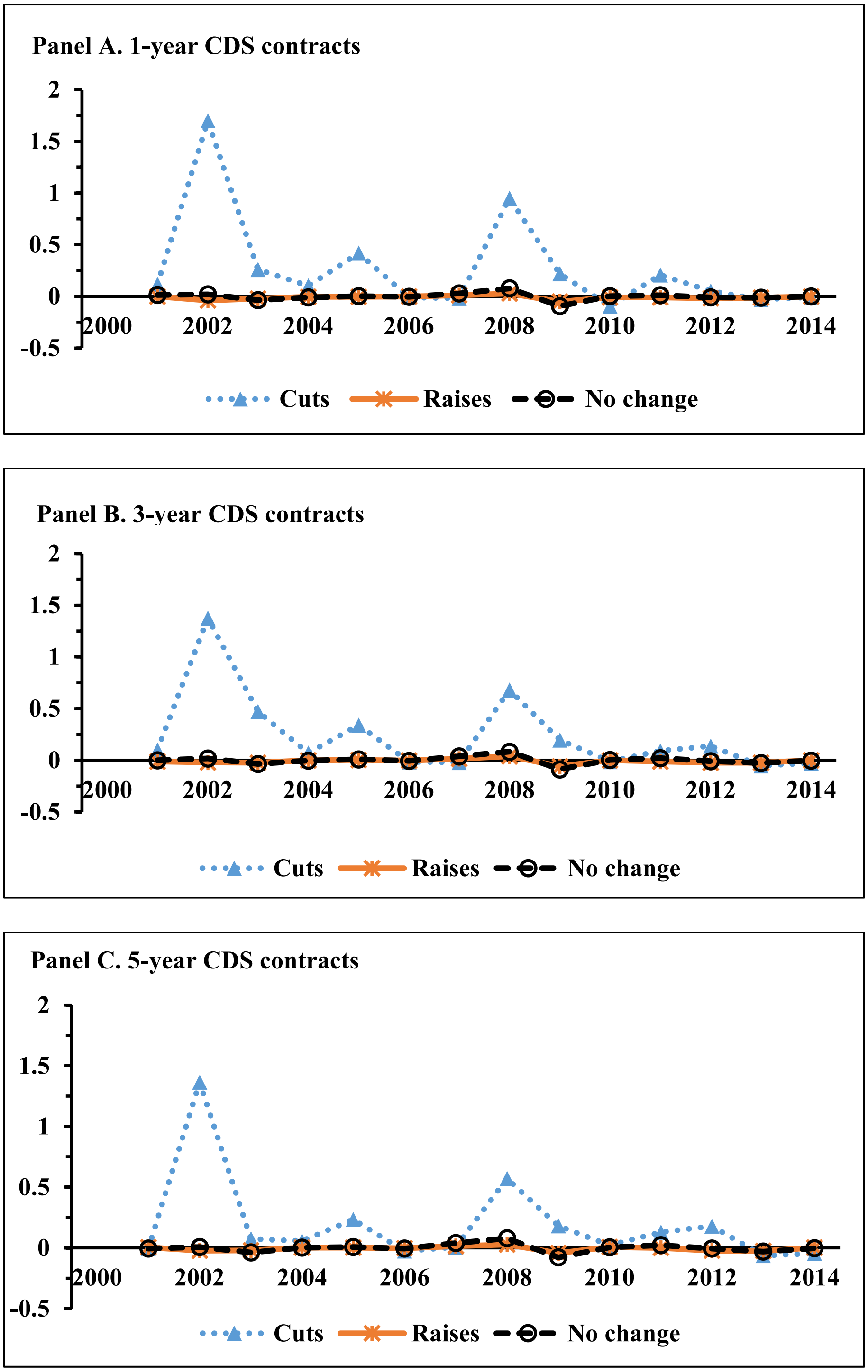


Figure 2. CDS spread changes around dividend announcements, 2001-2014

This figure plots the average changes in CDS spreads in percentage for dividend cuts, dividend raises, and zero dividend changes surrounding the event window (-7, 7) days from year 2001 to 2014. Panels A, B, and C show the changes for 1-year, 3-year, and 5-year CDS contracts, respectively.

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Table IA1. Dividend Omissions, Dividend Initiations, and CDS Spread Changes

Panel A of this table reports the univariate results of cumulative spread changes (ΔSpread) in one-year, three-year, and five-year CDS contracts over the (-7,7), (-5,5) and (-3,3) event windows around dividend omissions and dividend initiations. Panel B presents the results of the following regression:

$$\Delta Spread_{i,t} = \beta_0 + \beta_1 \text{Omission}_{i,t} + \beta_2 \, Initiation_{i,t} + \gamma \, Control_{i,t} + \varepsilon_{i,t}.$$

The dependent variable is $\Delta Spread_{i,t}$, the CDS spread change for firm *i* during the event window (-7,7) days around dividend initiation and expected dividend omission date *t*. All CDS spreads are in %. The *t*-statistics are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% two-tailed levels, respectively.

Panel A. Univariate analysis

Window=		(-7,7)			(-5,5)			(-3,3)		
CDS maturity=		**1-Year**	**3-Year**	**5-Year**	**1-Year**	**3-Year**	**5-Year**	**1-Year**	**3-Year**	**5-Year**
Omission	**Spread**	1.346*	0.929*	0.650*	0.797	0.346	0.220	0.201	0.208	0.133
	t	(1.66)	(1.78)	(1.74)	(1.08)	(1.17)	(1.19)	(0.93)	(1.07)	(0.94)
	N	52	55	58	52	55	58	52	55	58
Initiation	**Spread**	-0.012	-0.025	-0.034*	-0.018**	-0.031**	-0.028**	0.002	0.000	-0.010
	t	(-0.87)	(-1.51)	(-1.90)	(-2.03)	(-2.08)	(-2.00)	(0.19)	(-0.01)	(-0.80)
	N	64	66	81	64	66	81	62	65	81

Note: We identify a dividend initiation date when a firm announces a dividend payment for the first time or announces a dividend payment after at least five-year omission of dividends. We identify a dividend omission when a firm announces at least six consecutive quarterly cash dividend payments and then pays no cash dividend in the next quarter; when a firm announces at least three consecutive semi-annual cash dividend payments and then pays no cash dividend in the next six months; when a firm announces at least two consecutive annual cash dividend payments and then pays no cash dividend in the next year. The omission date is defined as the date of the corresponding quarter, semi-annual and annual dividend announcement in the last year plus 365 days.

Table IA1, continued

Panel B. Regression analysis with the dependent variable being changes in CDS spreads during the event window (-7, 7) days

	(1)	(2)	(3)	(4)	(5)	(6)
CDS Maturity=	1-Year	3-Year	5-Year	1-Year	3-Year	5-Year
Omission	**1.151**	**0.848**	**0.588**	**0.961**	**0.699**	**0.442**
	(1.48)	**(1.51)**	**(1.46)**	**(1.17)**	**(1.23)**	**(1.11)**
Initiation	**-0.061****	**-0.077****	**-0.065****	**-0.077****	**-0.086****	**-0.075*****
	(-1.96)	**(-2.44)**	**(-2.79)**	**(-2.10)**	**(-2.46)**	**(-2.80)**
EquityRet				-1.499***	-1.471***	-1.438***
				(-4.18)	(-6.15)	(-6.90)
EarnSur				-0.024	-0.022	-0.010
				(-0.72)	(-0.82)	(-0.45)
Δ*Earning*				1.496	0.677	0.455
				(1.35)	(0.84)	(0.60)
Fixed Effects		Year, Firm			Year, Firm	
Adjusted R^2	0.096	0.049	0.033	0.069	0.088	0.099
N	10,801	11,179	11,672	10,288	10,638	11,064

Table IA2. Analysis of CDS Market Reaction to Dividend Announcements in Subsample without Concurrent Earnings Announcements

Panel A of this table reports the univariate results of cumulative spread changes (ΔSpread) in 1-year, 3-year, and 5-year CDS contracts over the event windows (-7,7), (-5,5), and (-3,3) trading days. Panel B presents the results of the following regression:

$$\Delta Spread_{i,t} = \beta_0 + \beta_1\, CutD_{i,t} + \beta_2\, RaiseD_{i,t} + \gamma\, Control_{i,t} + \varepsilon_{i,t}.$$

$$\Delta Spread_{i,t} = \beta_0 + \beta_1\, Cut_{i,t} + \beta_2\, Raise_{i,t} + \gamma\, Control_{i,t} + \varepsilon_{i,t}.$$

The dependent variable is $\Delta Spread_{i,t}$, the CDS spread change for firm i during the event window (-7, 7) days around dividend announcement date t. All CDS spreads are in %. The t-statistics are reported in brackets. *, **, and *** indicate significance at the 10%, 5%, and 1% two-tailed levels, respectively. The sample is restricted to dividend announcements without concurrent earnings announcements within the (-14, 0) event window.

Panel A. Univariate analysis

	Event window =	(-7,7) days			(-5,5) days			(-3,3) days		
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	CDS maturity =	1-Year	3-Year	5-Year	1-Year	3-Year	5-Year	1-Year	3-Year	5-Year
Div. cuts	ΔSpread	0.327**	0.321***	0.284***	0.292**	0.247**	0.163**	0.123	0.089	0.078*
	t-stat.	(2.53)	(2.83)	(2.92)	(2.07)	(2.51)	(2.36)	(1.55)	(1.56)	(1.65)
	N	118	123	125	118	123	125	118	121	125
Div. raises	ΔSpread	-0.007***	-0.006**	-0.004	-0.006***	-0.006**	-0.004	-0.004**	-0.003**	0.000
	t-stat.	(-2.67)	(-2.28)	(-1.52)	(-2.98)	(-2.57)	(-1.47)	(-2.03)	(-1.99)	(0.20)
	N	1,113	1,153	1,185	1,109	1,151	1,185	1,099	1,147	1,184
Zero change	ΔSpread	-0.001	0.002	0.003	0.000	0.000	0.001	0.001	0.002	0.001
	t-stat.	(-0.44)	(0.88)	(0.99)	(-0.01)	(0.08)	(0.71)	(0.73)	(0.95)	(0.90)
	N	6,567	6,775	7,081	6,567	6,775	7,081	6,489	6,728	7,080

Table IA2, continued

Panel B. Regression analysis with the dependent variable being changes in CDS spreads during the event window (-7, 7) days

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
CDS Maturity=	1-Year	3-Year	5-Year	1-Year	3-Year	5-Year	1-Year	3-Year	5-Year	1-Year	3-Year	5-Year
CutD	0.339**	0.334***	0.288***				0.308**	0.296***	0.247**			
	(2.48)	(2.78)	(2.79)				(2.32)	(2.60)	(2.54)			
RaiseD	-0.003	-0.004	-0.005				0.003	0.005	0.004			
	(-0.44)	(-0.68)	(-1.06)				(0.51)	(0.79)	(0.72)			
Cut				0.197**	0.243**	0.206**				0.173**	0.217**	0.179**
				(2.20)	(2.39)	(2.34)				(2.11)	(2.32)	(2.23)
Raise				0.036	0.038	0.014				0.067*	0.077**	0.055*
				(1.10)	(1.13)	(0.48)				(1.90)	(2.19)	(1.84)
EquityRet							-0.827***	-0.968***	-1.007***	-0.830***	-0.964***	-1.006***
							(-7.82)	(-9.70)	(-10.98)	(-7.81)	(-9.82)	(-11.07)
EarnSur							-0.038***	-0.041**	-0.041***	-0.043***	-0.044***	-0.043***
							(-2.62)	(-2.48)	(-3.31)	(-2.81)	(-2.70)	(-3.55)
Δ*Earning*							0.000	-0.004	-0.004	0.001	-0.003	-0.003
							(-0.02)	(-0.71)	(-0.92)	(0.17)	(-0.56)	(-0.00)
Fixed Effects		Year, Firm			Year, Firm			Year, Firm			Year, Firm	
Adjusted R^2	0.077	0.060	0.065	0.073	0.077	0.070	0.138	0.154	0.162	0.135	0.162	0.167
N	7,798	8,051	8,391	7,798	8,051	8,391	7,631	7,877	8,189	7,631	7,877	8,189

Table IA3. Analysis of CDS Market Reaction to Dividend Announcements: Short Post-Event Windows.

Panel A of this table reports the univariate results of cumulative spread changes (ΔSpread) in one-year, three-year, and five-year CDS contracts over the event windows (-7,1) trading days in full sample and subsample restricted to dividend announcements without concurrent earnings announcements within the (-14, 0) event window. Panel B presents the results of the following regression:

$$\Delta Spread_{i,t} = \beta_0 + \beta_1\, CutD_{i,t} + \beta_2\, RaiseD_{i,t} + \gamma\, Control_{i,t} + \varepsilon_{i,t},$$

The dependent variable is $\Delta Spread_{i,t}$, the CDS spread change for firm *i* during the event window (-7, 7) and (-7,1) days around dividend announcement date *t*. All CDS spreads are in %. The *t*-statistics are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% two-tailed levels, respectively.

Panel A. Univariate analysis

		Full sample			Subsample		
Event window =		(-7,1) days			(-7,1)		
		(4)	(5)	(6)	(10)	(11)	(12)
CDS maturity =		1-Year	3-Year	5-Year	1-Year	3-Year	5-Year
Div. cuts	ΔSpread	0.277***	0.226***	0.165***	0.390**	0.290***	0.249**
	t-stat.	(2.70)	(3.52)	(2.69)	(2.44)	(2.86)	(2.57)
	N	199	207	210	118	122	125
Div. raises	ΔSpread	-0.004***	-0.003**	-0.002	-0.005**	-0.003*	-0.002
	t-stat.	(-2.92)	(-2.21)	(-1.32)	(-2.40)	(-1.66)	(-0.69)
	N	1,997	2,073	2,138	1,102	1,148	1,184
No change	ΔSpread	-0.002	-0.001	-0.001	0.000	0.001	0.003
	t-stat.	(-1.50)	(-0.88)	(-0.51)	(-0.18)	(0.64)	(1.49)
	N	10,975	11,404	11,999	6,496	6,731	7,077

Table IA3, continued

Panel B. Regression analysis with the dependent variable being changes in CDS spreads during the event window (-7, 7) and (-7,1) days

	Full sample			**Subsample**		
	(-7,1)			**(-7,7)**		
	(4)	(5)	(6)	(10)	(11)	(12)
CDS Maturity=	1-Year	3-Year	5-Year	1-Year	3-Year	5-Year
CutD	**0.277*****	**0.226*****	**0.159****	**0.397****	**0.294*****	**0.240****
	(2.58)	**(3.39)**	**(2.53)**	**(2.39)**	**(2.80)**	**(2.40)**
RaiseD	**0.000**	**0.001**	**0.001**	**0.004**	**0.004**	**0.004**
	(0.01)	**(0.35)**	**(0.42)**	**(0.61)**	**(0.85)**	**(0.78)**
EquityRet	-0.412***	-0.494***	-0.503***	-0.423***	-0.471***	-0.496***
	(-6.35)	(-9.94)	(-10.33)	(-4.52)	(-7.13)	(-7.71)
EarnSur	-0.022**	-0.013	-0.014*	-0.022	-0.011	-0.014
	(-1.99)	(-1.53)	(-1.89)	(-1.14)	(-0.85)	(-1.26)
Δ*Earning*	-0.007	-0.005	-0.004	-0.004	-0.006	-0.006
				(-0.68)	(-1.10)	(-1.26)
Fixed Effects		Year, Firm			Year, Firm	
Adjusted R^2	0.065	0.090	0.079	0.093	0.103	0.098
N	12,642	13,086	13,616	7,558	7,831	8,187

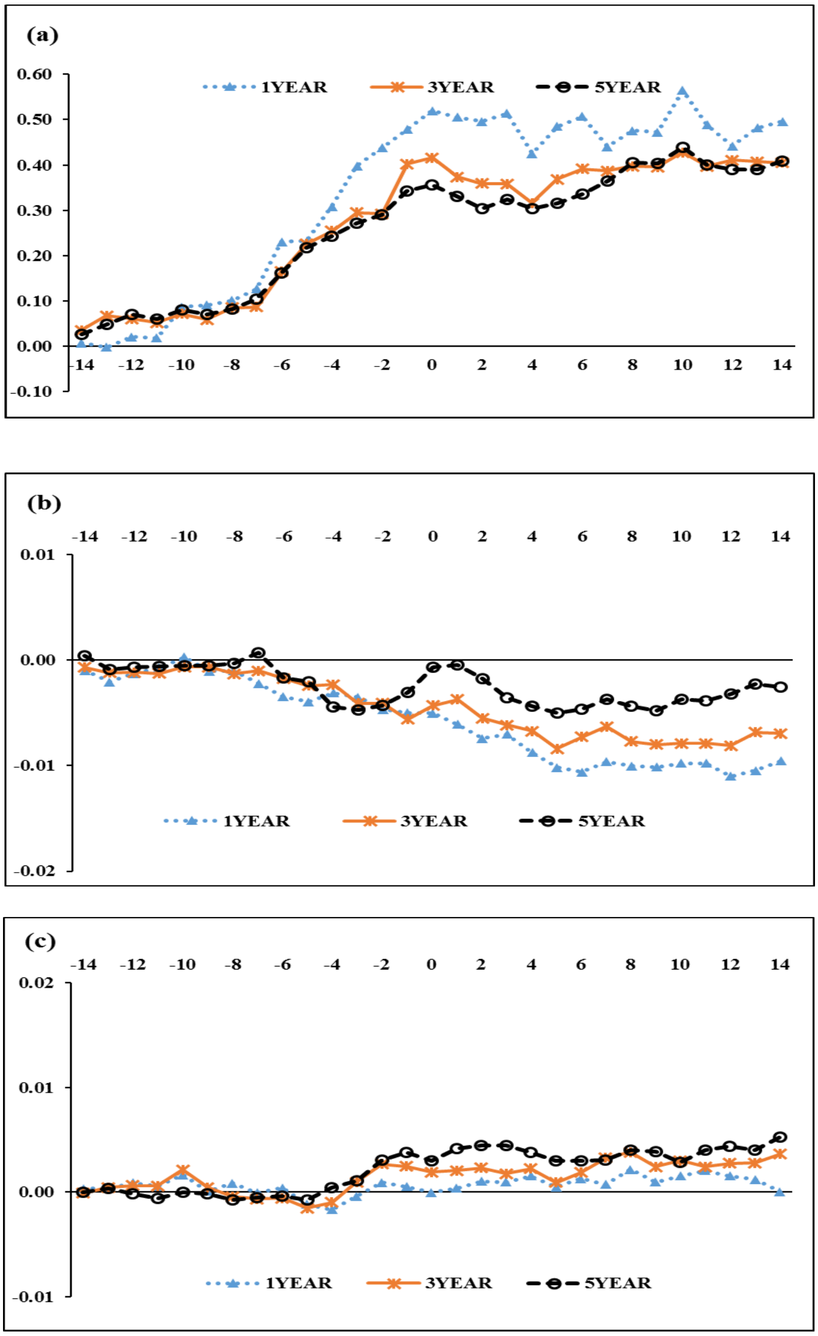

Figure IA1. Cumulative CDS spread changes around dividend announcements in subsample without concurrent earnings announcements

This figure plots the average cumulative changes in (1-Year, 3-Year, and 5-Year) CDS spread over (-7, 7) trading-day window surrounding the dividend announcement dates when there are (a) negative, (b) positive, and (c) zero dividend changes, respectively. The sample is restricted to dividend announcements without concurrent earnings announcements within the (-14, 0) event window.