Dividend Initiations, Information Content and Informed Trading in the Options Market

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Abstract

We find that informed trading in the option market prior to dividend initiation is negatively related to announcement period price reactions. This relation is more prevalent among firms with abnormal trading in call options, higher stock price runup, and higher option liquidity. We also find improvements in stock liquidity following dividend initiation. The improvement in stock liquidity is positively related to the increase in institutional investors' holdings, and negatively related to the relative size of the dividend initiation payment and preannouncement option trading. We further find positive abnormal earnings following dividend initiation. Overall, these findings indicate that dividend initiation conveys information regarding sustainable future earnings and improvements in liquidity, and informed traders are active in the option market prior to dividend initiation.

Keywords: Dividend initiations, options trading, *O/S*, call/put options, volatility surface, abnormal earnings, stock liquidity

JEL classification: G12, G13, G14, G32

1. Introduction

Brav et al. (2005) survey and interview a large number of U.S. company executives and document that 80% of executives believe that the dividend decision does convey information to investors. Moreover, their survey indicates that managers are extremely conservative with respect to their firm's dividend policy, largely because they believe that a dividend policy is significantly more inflexible than a repurchase policy. Kale, Kini, and Payne (2012) argue that this perceived inflexibility makes managers particularly averse to initiating dividends, such that dividend initiation (hereafter DI) is an important stage in the firm's life cycle. Despite the importance of dividend initiation, very little is known regarding whether informed traders exploit their information about forthcoming DI announcements by trading options. The unscheduled nature of DI potentially enhances the profitability of informed trading strategies.[1] Dividends also have a direct impact on option pricing, making the option market particularly attractive for informed traders prior to the announcements of dividend initiations. Accordingly, we extend the prior research by examining informed traders' behavior in the option market immediately prior to the announcement of DI and the impact of this informed trading on the announcement period price reaction.

However, our paper is not restricted solely to the articulation between informed trading and dividend initiations. For example, Brav et al. (2005) document that 58 percent of executives of non-dividend paying firms agree that institutional shareholders have an important influence on DI. Allen, Bernardo, and Welch (2000) assert that institutional investors have superior ability in assessing firm quality and, therefore, higher quality firms are prepared to bear the tax-based costs of dividends to attract these better-informed investors. Kale et al. (2012) show that higher-quality

[1] See, Chae (2005), Graham, Koski, and Loewenstein (2006) for a discussion on the importance of differentiating between anticipated and unanticipated events

firms initiate dividends to attract investor clienteles such as institutional investors who will monitor them and validate their superior future prospects. Brockman, Howe, and Mortal (2008) examine the impact of stock market liquidity on managerial payout decisions and show that dividend initiating firms are less liquid than non-dividend initiating firms. Graham, Koski, and Loewenstein (2006) examine the information flow and liquidity before and after hours of DI announcements and show that spreads widen to almost 10% above normal in the hour after the DI announcement and depth decreases in the three half hours after the DI announcement. They argue that these results are consistent with market makers being surprised by the dividend initiating announcement and reducing liquidity in response. They suggest that it takes longer for the market to adjust to new information when the timing of the information release is a surprise. However, Graham et al. (2006) do not examine the changes in liquidity for longer periods than the hours after the announcement of DI. Considering that Banerjee, Gatchev, and Spindt (2007) show that less (more) liquid firms that have never paid dividends are more (less) likely to initiate dividend payments, we argue that managers of non-dividend paying firms initiate dividends to attract institutional investors in sprit of Brav et al. (2005) and Kale et al. (2012), and therefore improve the firm's stock liquidity. We extend the work of Graham et al. (2006) to examine whether liquidity does improve in a sustained fashion over longer periods after the announcement of DI, and once the market adjusts to the new information.

Brav et al. (2005) document that CFOs of non-dividend paying firms agree that dividends are inflexible, and that this makes them very hesitant to begin paying dividends in the first place. They further document that nearly 58 percent of CFOs of non-dividend payers agree that a sustainable increase in earnings might lead to dividend initiation. Officer (2011) finds that firms with low Tobin's Q and high cash flow have significantly more positive announcement period abnormal returns than do other firms and concludes that this finding supports the hypothesis that reductions in the agency costs of overinvestment at firms with poor investment opportunities and ample cash flow are reflected in higher abnormal returns. Firms with traded options tend to have higher trading volume and larger market capitalization (Mayhew and Mihov (2004)). As such, then, we also investigate whether dividend initiations by firms with traded options have any association with the reduction in the agency costs of free cash flow and whether they experience future sustainable earnings in the subsequent time periods.

Our focus on options trading is motivated by several studies that demonstrate the predictability of options trading for future returns using various informed trading measures: for example, Pan and Poteshman (2006) and Ordu and Schweizer (2015) use options trading volume; Hu (2014) uses options order imbalance; Roll, Schwartz, and Subrahmanyam (2010), Johnson and So (2012) and Ge, Lin and Pearson (2015) use the ratio of option volume to stock volume; Blau, Nguyen and Whitby (2015) use ratios of option volume to stock volume and put volume to total options volume (puts and calls); and Cremers and Weinbaum (2010), Xing, Zhang, and Zhao (2010), An, Ang, Bali and Cakici (2014) and Lin and Lu (2015) use options implied volatility. Roll et al. (2010) examine the trading activity on the option market relative to the stock market (referred to as the O/S ratio, hereafter) and find that the O/S ratio significantly increases immediately prior to earnings announcements. They also suggest that some options traders are executing orders in the right direction for the upcoming earnings surprise and these findings are consistent with informed trading in the options market prior to earnings announcements. Roll et al. (2010, p.16) urge that further research should be carried out to investigate the behavior of the O/S "*around specific corporate announcements such as mergers, repurchases, or equity offerings to obtain further evidence on informed trading in the options market*".

Johnson and So (2012) examine the information content of option and equity volumes when agents are privately informed but trade direction is unobserved, and find that O/S predicts the returns of the options' underlying stocks over a one-week horizon, with high O/S predicting negative returns. They argue that the negative relation between O/S and future returns is driven by the frictions and costs associated with short selling in equity markets, which make option markets an attractive venue for traders with negative news. Ge et al. (2015) argue that the findings and interpretations in Johnson and So (2012) are surprising in the light of previous research showing that option trades that create synthetic long exposures predict positive stock returns. Ge et al. (2015) use data on signed option volume to study which components of option volume predict stock returns and find that purchases of calls that open new positions are the strongest predictors of returns, followed by call sales that close out existing purchased call positions.

We examine the impact of informed trading prior to DI in the options market on three day announcement period abnormal returns (hereafter *CAR [-1, +1]*) using the option to stock volume (O/S) measure. We argue that if informed traders have private information regarding a DI announcement, they will be active in trading options immediately prior to the DI announcement. Therefore, O/S will be significantly higher in the period immediately prior to the announcement date (test period) than the period (benchmark period) where no information is available about dividend initiation. Consequently, in an extension of the methodologies in Roll et al. (2010), Johnson and So (2012) and Ge et al. (2015), we use an abnormal O/S measure (that is, O/S for the preannouncement test period minus O/S for the benchmark period). We predict that a firm with a higher *O/S* ratio during the preannouncement period relative to a benchmark period will experience lower announcement period abnormal returns.

We examine the information content of DI for firms with options, and the impact of abnormal trading activity in the options market on announcement period abnormal returns during the period 1997 to 2012. We show that those firms with a higher abnormal O/S ratio (*AbO/S*, hereafter) or higher abnormal option trading volume (*AbOV*, hereafter) during the preannouncement period experience lower announcement period returns. We observe that this relation is more prevalent among firms with abnormal call options trading, higher preannouncement stock price runup, and more liquid options. We further show via simulations that the abnormal options trading activity has much stronger predictability for DI announcement period returns compared with non-event (pseudo-event) date returns. We also use the abnormal option volatility surface measures for call and put options as alternative proxies for informed trading and find that firms with higher preannouncement abnormal call implied volatility surfaces are significantly and positively related to *CAR [-1, +1]* at the 10% level. The statistical significance of options volatility surfaces in explaining announcement period returns, however, disappears when we control for abnormal call and put options to stock volume ratios.

We further find that stock liquidity improves following DI announcements and that the improvement in liquidity is positively related to the increase in institutional investors' holdings subsequent to DI and that it is negatively related to the relative size of the dividend payment at dividend initiation and to the preannouncement option trading. We also find that abnormal earnings performance is significantly positive during the year of the announcement to two years thereafter. These findings provide support for the survey results reported in Brav et al. (2005) wherein it is documented that CFOs view a sustainable increase in earnings and institutional shareholders as having important influences on the dividend initiation process.

We contribute to the prior literature in several ways. First, prior studies document positive price reactions to dividend initiation announcements (see, for example, Asquith and Mullins (1983), Healy and Palepu (1988), Michaely, Thaler and Womack (1995), Officer (2011) and Kale et al. (2012)), and provide two explanations for this positive price reaction: information signaling (Asquith and Mullins (1983); Healy and Palepu (1988), Michaely et al. (1995) and Kale et al. (2012)); and the lower agency costs of free cash flow (Officer (2011)). We add to this literature by robustly demonstrating that preannouncement informed trading in options has impacts upon the price reactions around DI announcements. We also find that the price reaction is positively related to cash flow and thereby provide support for the free cash flow hypothesis.

Second, our study also complements the growing literature on the information content of options markets prior to firm-specific announcements (see Jin, Livnat, and Zhang (2012) and Roll et al. (2010) for earnings announcements; Cao, Chen, and Griffin (2005), Chan, Ge, and Lin (2014), Ordu and Schweizer (2015) and Augustin, Brenner, and Subrahmanyam (2014) for takeovers; and Hayunga and Lung (2014), and Lin and Lu (2015) for analyst-related events). We extend these studies by documenting evidence of informed trading in the options market prior to DI. Our findings support Easley et al. (1998) who show that option trading contains private information that is incremental to that available in the equity market. Fuller (2003) develops a model that predicts that announcement day returns for a dividend increase are inversely related to measures of informed trading and decreasing in the level of buy demand relative to sell demand. Our work compliments Fuller's (2003) work on dividend increases by providing evidence in support of the inverse relation between announcement period price reaction to DI and informed trading in the option market.

Third, examining the changes in liquidity for a longer period following DI, we show that stock liquidity improves following DI in a sustained fashion. The improvement in liquidity is positively related to the increase in institutional ownership following DI and negatively related to the relative size of the dividend initiation payment and preannouncement option trading. Our study complements prior research on the effect of corporate events on stock liquidity (see, Barclay and Smith (1988) Miller and McConnell (1995), Brockman and Chung (2001), Cook, Krigman and Leach (2004) and Ginglinger and Hamon (2007) for share repurchases; Kothare (1997) and Balachandran, Faff, Theobald and van Zijl (2012) for equity offerings). Finally, we find support for Brav et al. (2005) survey findings that CFOs of non-dividend payers view a sustainable increase in earnings as having important influences in the dividend initiation process.

The rest of the paper is organized as follows. Section 2 presents the data, sample selection procedures, and research design. Section 3 analyzes the impact of abnormal trading in the options market upon market reactions. Section 4 presents the results on changes in stock liquidity subsequent to DI announcements, together with the impact of option trading on liquidity. Section 5 examines post-announcement earning performance. Section 6 concludes the paper.

2. Sampling and sample characteristics

2.1. Data and sample

We collect a sample of DI's from the Center for Research in Security Prices (CRSP) database. Following Officer (2011), a DI is defined as either the first dividend announcement in a firm's history or the resumption of dividend declarations after a hiatus of five years. We require dividends to be ordinary, taxable cash dividends payable at quarterly, semi-annually, annually, or at some unspecified frequency (dividend distribution codes 1232, 1242, 1252, or 1212, respectively) to holders of ordinary common stock listed on the New York Stock Exchange, NASDAQ, or American Stock Exchange. We exclude financial and regulated utility firms from the sample. DI announcements are included in the sample only if they meet the following criteria: 1) firm with DI announcement must have option trading during benchmark and test periods to measure informed trading, 2) firms must have a stock price in CRSP for one calendar year prior to DI announcements, 3) accounting data are available in the Compustat database, and 4) there are no other contaminating announcements or events, such as liquidation, acquisition/reorganization, rights, stocks, or offers/issuance in the period three days before and after the DI announcements. We obtain daily options trading data from OptionMetrics. Since OptionMetrics data start only in 1996, we consider only DI announcements between 1997 and 2012. Our final sample has 321 dividend initiation announcements.

We collect stock return data from CRSP and accounting data from Compustat. We collect the number of analysts following for each stock from the Institutional Brokers' Estimate System. We also use the Thomson Reuters Institutional Holdings (13F) database, available through the Wharton Research Data Services, to collect information on stock holdings by institutional managers with $100 million or more in assets under management. Table 1 presents the information on the year-wise and industry-wise classification of DI announcements. As can be seen in Panel A of Table 1, the number of firms initiating or resuming dividend payments increased substantially in 2003 subsequent to the introduction of the dividend tax cut. However, the number of announcements decreased around the financial crisis period (2007–2009) and then steadily increased thereafter, with 31 announcements in 2010, 39 in 2011, and 44 in 2012. Panel B of Table 1 provides industry classification data for dividend initiation and resumption announcements. Dividend initiation and resumption announcements are predominantly from the business equipment industry, with 76 observations (approximately 24% of the sample), while wholesale and retail (19%) and manufacturing (12%) are also strongly represented.

[INSERT TABLE 1 HERE]

2.2. Financial characteristics

In this section, we discuss the financial characteristics of our sample. We present the mean, median and standard deviation statistics of the main variables used in this study. The variables used are *TA*, total assets for dividend-initiating firms; *MV*, market capitalization one month prior to the DI announcement; *ILLIQ*, stock liquidity, calculated as the average of daily Amihud (2002) illiquidity measures over the period [-200, -5], where, day 0 is the announcement date; *TDTA*, total debt to total assets; *DY*, the ratio of initial dividend per share to the share price at the end of the financial year prior to the initiation announcement; *CFTA*, cash flow from operations to total assets; *CFTAIA*, cash flow from operations to total assets minus the industry (based on Fama & French 48 industry classification) median cash flow from operations to total assets; *RETA*, retained earnings divided by total assets; *Number of Analysts*, the monthly average of the number of analysts with valid estimates in the last year prior to the DI announcement; *IO*, institutional ownership (as a percentage of shares outstanding) in the last quarter before the DI announcement; and *Q*, total assets plus the financial year-end market value of equity minus the book value of equity minus balance sheet deferred taxes, all scaled by total assets. See Table 2 for the detailed definitions of the variables used.

[INSERT TABLE 2 HERE]

Our sample firms' median market capitalization is $1805 million, median total debt to total asset ratio is 14%, median cash flow to total assets is 11.8%, median institutional investors holdings is 79%, median Tobin Q is 1.66, median analysts following is 6.82 and price runup during the period from day -100 to day -11 is 7%.

[INSERT TABLE 3 HERE]

3. Informed trading and market reactions

3.1. Market reactions, Cash flow and Tobin Q

We employ a standard event study framework to examine the impact of DI announcements on share prices. The market model is used as the return-generating process to generate abnormal returns with an estimation period from 250 days prior to the announcement day to 51 days before the announcement day. We use an adjusted standardized residual test statistic (*adj-SRT*) and an adjusted standardized cross-sectional test statistic (*adj-SCST*) to identify the significance levels of the price reactions. The adjusted test statistic accounts for both cross-correlation and event-induced volatility in testing for the mean event effect (Kolari and Pynnonen (2010)). We calculate *CAR*s for the following announcement periods [-1, +1] and [0, +1], where time 0 is the DI announcement date. Table 4 presents the market reactions to DI announcements for these periods.

Consistent with prior studies (Asquith and Mullins (1983), Healy and Palepu (1988), Michaely et al. (1995), Officer (2011), Kale et al. (2012)), we document that the stock market reacts positively to DI announcements. Specifically, the average *CAR*s for the periods [-1, +1] and [0, +1] are 1.28% and 1.12%, respectively, both highly statistically significant at the 1% level. Further, we examine the impact of Tobin Q and cash flow on market reactions to DI announcements, controlling for other firm characteristics within a multivariate framework. We use a cross-sectional regression model analysis in which the dependent variable is the CAR for the period [-1, +1]. Independent variables (defined in Table 2) are *Low Q*, *CFTA*, *CFTAIA*, *LQ*, *LMV*, *DY*, *TDTA*, *ILLIQ*, *RUNUPOP*, *RETA*, *DREPUR*, *LNANAL*, institutional ownership (*IO*), interaction between *Dquartile1Q* and cash flow variables *(CFTA* and *CFTAIA*), and *DLmedianQ* and cash flow variables and *DHmedianQ* and cash flow variables. We also control for year effects and industry effects within our research design. The results are reported using White heteroskedasticity-consistent standard errors.

[INSERT TABLE 4 HERE]

We present the results for this analysis in Table 5. We find that *CAR [-1, +1]* is not statistically significantly related to *Low Q*, a dummy variable indicating firms with Q lower than one (i.e. firms that are likely to be overinvesting) or to the natural logarithm of the Q ratio of dividend-initiating firms. This result is different from those found by Officer (2011) who documents that the market reacts more positively for firms with Q lower than one (i.e. firms that are likely to be overinvesting). The difference can potentially be attributed to the high value of the Q ratio for our sample stocks, with the mean (median) value of 2.0618 (1.6559) and the 25^{th} percentile value of Q ratio of 1.2606, as documented in Table 3. The coefficient estimates for cash flow variables (*CFTA* and *CFTAIA*) are positive and significant, indicating that *CAR [-1, +1]* is higher for firms with higher preannouncement cash flows. Our findings regarding cash flow, then, are consistent with those reported by Officer (2011) and imply that the agency costs of overinvestment at firms with ample cash flow are important in understanding the way in which the market reacts to dividend announcements. Officer (2001) also documents that the effect of cash flow variables on abnormal returns around DI announcements are stronger for firms with lower Q ratios. To investigate further the contrast between the Q-related results and the cash flow variable results, we show in Models (4) and (6), that the interaction variables between cash flow variables and a dummy variable indicating dividend-initiating firms with Q ratios in the lowest quartile of our sample, are not statistically significant. This finding is consistent with our prior results regarding the insignificance of the Q ratio in explaining abnormal returns to DI for our sample firms. We also find that the effect of cash flow variables on announcement period abnormal returns is stronger for firms with Q ratios higher than the sample median Q.

[INSERT TABLE 5 HERE]

3.2. The role of options trading in market reactions

In this section, we investigate the impact of informed trading on market reactions to the DI announcements. Consistent with prior studies that employ abnormal trading measures prior to unscheduled firm announcements (e.g., Chae (2005), Sarkar and Schwartz (2009)), we use two measures of abnormal options trading activity. First, we use *AbO/S*, which is defined as the difference in the daily average *O/S* between the preannouncement test period and the benchmark period, using options with times to maturity between five days and 35 days. Second, we use the abnormal daily options trading volume (*AbOV)*, which is defined as the difference between the average daily natural logarithm of the options trading volumes in the preannouncement test period and the benchmark period, using options with times to maturity of between five days and 35 days.

We consider the window [-10,-2] as our preannouncement test window. Similar to Cao et al. (2005), we use the window [-200, -101] as the benchmark period. These timelines are illustrated in Figure 1.

[INSERT FIGURE 1 HERE]

We present the preliminary results on the relation between preannouncement options trading and announcement period abnormal returns (*CAR [-1, +1]*) in Table 6. Panels A and B present the results when we partition our sample into three (terciles) groups based on preannouncement *AbO/S* and *AbOV*. As can be seen in panels A and B, we find that the mean and median values of *CAR [-1, +1]* decline monotonically when we move from the stocks with lowest preannouncement abnormal option trading (tercile 1) to the stocks with the highest preannouncement trading (tercile 3). The *CAR [-1, +1]* is also significantly higher for stocks with the lowest preannouncement abnormal option trading compared to the stocks with the highest abnormal option trading. We observe an opposite relationship for preannouncement stock price runup over the periods from day -200 to day -11 (*RUNUPLP*) and from day -100 to day -11 (*RUNUPOP).*

[INSERT TABLE 6 HERE]

We next analyze the impacts of preannouncement abnormal options trading (abnormal level of *O/S* or abnormal options trading volume) upon the *CAR*s over the period -1 to +1, controlling for other variables as defined previously in Table 2 within a multivariate research design. We also decompose the daily option to stock volume (*O/S*) ratio into the call option to stock volume ratio (*C/S*) and put option to stock volume ratio (*P/S*) and a similar decomposition is effected for the daily option volume (*OV*) variable. We calculate the abnormal call option trading volume (*AbCV*), call option to stock volume ratio (*AbC/S*), abnormal put option trading volume (*AbPV*), put option to stock volume ratio (*AbP/S*) in a similar way as that for *AbO/S* and *AbOV*.

We present the results in Panels A and B of Table 7. As can be seen in Panels A and B, there is a statistically significant negative relation (at the 5% level) between the preannouncement abnormal options trading variables (abnormal *O/S* and abnormal options trading volume) and the price reactions to the dividend announcement, indicating that firms in which informed traders are active in options trading immediately prior to the dividend announcement compared to the benchmark period experience lower *CAR [-1, +1]* than others. We also observe in Models (1) and (2) of Panel B that abnormal pre-announcement shares trading volume (*AbSHVOL*) is not significantly related to announcement-period abnormal return, potentially indicating the preference of informed traders to trade in the options market rather than the stock market prior to DI announcements.

We also examine the impact of informed trading in all options on *CAR [-1, +1]* and do not find any significant relation between informed trading in all options and *CAR [-1, +1]*. This is potentially indicative of informed traders actively trading in short term options only prior to DI. We also use decile rankings of abnormal *O/S* and abnormal options trading volume to mitigate potential bias issues arising from extreme/outlier values. We obtain results consistent with those already reported; that is, the market reacts less favorably for firms with higher rankings of abnormal *O/S* and abnormal options trading volumes (we do not report this result to conserve space). To further assess the robustness of our results, we also investigate the relation between *CAR [-1, +1]* and the actual, rather than abnormal, options trading activity (the level of *O/S* and the actual average daily logarithm of options trading volume) and do not find any significant relation between the actual options trading activity and price reactions to DI announcements (again, we do not report this result to conserve space). This finding highlights the importance of examining the abnormal rather than actual options trading activity, as articulated by Chae (2005), Graham et al. (2006), and Sakar and Schwartz (2009).

Easley et al. (1998) demonstrate that buying a call or selling a put is a trade that benefits from a rise in stock price and predict that in a pooling equilibrium these trades carry positive information about future stock prices, while selling a call or buying a put carries negative information about future stock prices. The authors empirically show that “positive news” option volumes and “negative news” option volumes have predictive power for stock price movements. Using signed option volume data on the opening and closing of call and put options positions, Ge, Lin, and Pearson (2015) document that purchases of calls that open new positions are the strongest predictors of returns.

Given that the market reacts positively to DI announcements, we also examine the impact of abnormal call and put options trading volume on *CAR [-1, +1]*. When we examine the impact of *AbC/S* on *CAR [-1, +1]*, we find that *AbC/S* is statistically and negatively related to *CAR [-1, +1]*. However, we do not find any significant relation between *AbP/S* and *CAR [-1, +1]*, with or without *AbC/S* as an additional independent variable. When we examine the impact of *AbCV* on *CAR [-1, +1]*, we find that *AbCV* is statistically and negatively related to *CAR [-1, +1]*. However, *AbPV* is significantly and negatively related to the *CAR [-1, +1]* only in those models that exclude *AbCV* as an independent variable.

Overall, the results reported in Panels A and B in Table 7 indicate that the abnormal trading activity in call options contains more information regarding announcement period returns than the abnormal trading activity in put options. This finding provides empirical support for the hypothesis of Easley et al. (1998) that informed traders buy call options immediately prior to the announcement of good news, in the form of a DI announcement in our study. The higher level of abnormal options trading before the announcements facilitates the incorporation of DI information into equity prices and consequently the market reacts less strongly when the DI is eventually announced. Our finding supports the prediction of Easley et al. (1998), that the options volume contains information on future price changes, and also the findings of Roll et al. (2009), that options trading enhances the informational efficiency of the equity market. We analyze this dimension further in section 3.4, below, by investigating the impact of the interaction between abnormal trading and preannouncement runup on *CAR [-1, +1]*.

[INSERT TABLE 7 HERE]

3.3. Pseudo-event analysis

One potential issue concerning the results in Panels A and B of Table 7 is that the abnormal levels of options trading may possess information on future returns even in non-announcement periods. To address this issue, we provide a robustness test to compare our results in Panels A and B of Table 7 against a randomly selected pseudo-event date. Following Jin et al. (2012), for each DI announcement, we randomly select a trading date in the [5, 45] window relative to the dividend announcement date and treat it as our pseudo-event date. We construct the *CAR*s for the period [-1, +1], the abnormal option trading measures for this pseudo-event date in the same fashion as for the DI announcement date.

We pool the observations based on the pseudo-event date with our sample observations based on the DI announcement date and use an indicator variable of *EVENT* to indicate observations in the DI announcement sample. We regress the three-day event window *CAR* [-1, +1] against the abnormal *O/S* (abnormal options trading volume) and the interaction of the *EVENT* variable with the abnormal *O/S* (abnormal options trading volume) measure to capture the incremental predictive ability of the abnormal *O/S* (abnormal options trading volume) before DI announcements relative to those before the pseudo-events. We repeat this process 1,000 times.

Panel C of Table 7 presents the results for the pseudo-event analysis. We document that the coefficient of the interaction terms between the *EVENT* and the abnormal options trading variables and between *EVENT* and abnormal call options trading variables are negative and statistically significant in the majority of trials, indicating stronger informativeness of options trading prior to DI announcements compared to pseudo-events. We do not find any significant results for abnormal put options trading variables. Overall, our finding supports the notion that informed traders have information regarding DI announcements and trade in the option market immediately prior to the announcement of DI. Hence, the market reaction is lower around the announcement period for stocks with higher options (informed) trading.

3.4 Runup and informed trading

In this section, we extend the analysis to investigate the information content of preannouncement period abnormal options trading on *CAR [-1, +1]*, conditional on preannouncement runup. Roll et al. (2010) argue that the relation between announcement period abnormal returns around earnings announcements and *O/S* could be attenuated when the preannouncement period returns are large due to profit taking by informed traders before the announcement. They find a lower predictability of *O/S* for earnings announcement period returns when the preannouncement return is higher.

To investigate this potential attenuation effect, we introduce an interaction variable into the models that is the product of the preannouncement abnormal options trading variables and preannouncement runups. We argue that the preannouncement abnormal options trading has information regarding the DI announcement, resulting in lower announcement-period abnormal returns as a result, in part, of information being incorporated in prices in the preannouncement period. If this is the case, we should expect the effect of preannouncement abnormal options trading on announcement-period abnormal returns to be stronger in the group with higher runup.

We show in Panel D of Table 7 that options trading in the group of firms with higher runups are negatively related to announcement period abnormal returns. Preannouncement abnormal options trading in lower runup firms is related to announcement period abnormal returns only for options trading volume (*AbOV, AbCV*) and not for the ratio of options volume to share volume (*AbO/S,*). The coefficient estimates for all models, except model (3), are also larger for firms with higher runup. In summary, the results reported here are consistent with the results in Table 6 and our argument that preannouncement options trading incorporates information into equity prices, leading to lower announcement period abnormal returns. That is, the results reported in Panel D of Table 7 show that the relation between abnormal options trading activity and announcement period returns is stronger in the subsample of announcements that are characterized by higher pre-event price run-ups.

3.5. Options liquidity, options trading, and market reactions

In this section, we examine how liquidity in the options market affects the information inherent in the abnormal informed trading measures on *CAR [-1, +1]*. Easley et al. (1998) argue that the level of informed trading in the options market will increase if the options are more liquid. Prior microstructure models also suggest that informed traders prefer liquid markets (e.g., Admati and Pfleiderer (1988)). Cremers and Weinbaum (2010) show that the degree of return predictability is substantially larger when option liquidity is high and stock liquidity is low, while there is little predictability when the opposite is true. Chan et al. (2014) find that higher option liquidity strengthens the predictability of implied volatility skew and spread on acquirer announcement period returns. Based on these studies, we would expect the predictive power of the abnormal O/S and abnormal options trading volume regarding announcement period returns to be higher for those firms with more liquid options.

As in the prior literature (e.g., Chan et al. (2014)), we use the options bid–ask spread as a measure of an options illiquidity, with liquidity a negative function of the spread. For each option on each day over the relevant sample frame, we calculate the options bid–ask spread as the difference between the best offer price and the best bid price, scaled by the bid–ask mid-point. We average the bid–ask spread across all non-zero options trading volumes for each firm for each day as a proxy for daily option illiquidity. We calculate the abnormal illiquidity (*AbOPBA*) as the natural logarithm of the ratio of average options bid–ask spreads during the preannouncement period [-10, -2] to those during the benchmark period [-200, -101]. We also create two dummy variables, *HAbOPBA* and *LAbOPBA*, for firms with abnormal options illiquidity above and below the median value of abnormal options illiquidity (*AbOPBA*), respectively. *LAbOPBA* indicates firms that experience increases in options liquidity and *HAbOPBA* indicates firms that experience decreases in options liquidity during the preannouncement period. We then perform a regression analysis with *CAR [-1, +1]* as the dependent variable. Independent variables include interaction terms between abnormal trading measures and *LAbOPBA / HAbOPBA* with other control variables. The results are presented in Panel E of Table 7.

The coefficient estimates for the interaction between *LAbOPBA* and abnormal options trading measures are all statistically significantly negative while the interaction between *HAbOPBA* and abnormal options trading measures are insignificant. This finding implies that the negative relation between abnormal preannouncement trading activity and *CAR [-1, +1]* is mainly driven by the subsample of options that experience increases in option liquidity. Consistent with Easley et al. (1998), Cremers and Weinbaum (2010), and Chan et al. (2014), our finding indicates that informed traders trade more actively in the options market when options are more liquid. Thus the information content of the preannouncement options trading is higher for firms that experience increases in options liquidity during the preannouncement period.

3.6. Impact of option volatility surfaces on market reactions

An et al. (2014) show that stocks with call options that have experienced increases in implied volatilities over a past month tend to have high returns over the next month. They also show that increases in put option volatilities predict decreases in the next-month's stock returns after controlling for movements in call implied volatilities. An et al. (2014) emphasize the advantage that using volatility surfaces avoids the issue of making arbitrary decisions on which strikes or maturities to include when computing an implied call or put volatility for each stock.

We have presented our main results using options trading variables based on O/S and options trading volumes. In this section, we consider informed options trading measures based on an option's implied volatility. Specifically, following An et al. (2014), we examine the information content of innovations in the interpolated implied volatility surface for puts and calls. We use OptionMetrics Volatility Surface data for this analysis. The Volatility Surface data contain interpolated implied volatility surfaces for standardized call and put options with various maturities and deltas.

We examine the impact of the implied volatility surface during the preannouncement period [-10,-2] on market reactions using call and put options' implied volatilities with a delta of 0.5 and an expiration of 30 days similarly to An et al. (2014). As a robustness check, we also use call and put options' implied volatilities with a delta of 0.5 and a time to maturity of 91 days. We present the results in Panel F of Table 7. We find that the abnormal level of the calls' implied volatility is positively related to *CAR [-1, +1]* at the 10% significance level for both 30 day and 91 day maturity options. The abnormal level of the puts' implied volatility is negatively related to *CAR [-1, +1]* but not statistically significant. Our findings that large past innovations in call (put) option implied volatilities are positively (negatively) related to *CAR [-1, +1]* are consistent with the findings of An et al. (2014). The significance level of the call options volatility surface for both 30 and 91 day maturity options disappears when we control for *AbC/S* and *AbP/S*, whereas the significance level of the call options volatility surface for 91 day maturity options disappears when we control for *AbCV* and *AbPV*. Overall, we find that those firms with a higher abnormal O/S ratio or higher abnormal option trading volume during the preannouncement period experience lower announcement period returns. This relation is more prevalent among firms with abnormal call options trading, liquid options and firms with higher price runup.

4. Impact of options trading on post-announcement changes in stock liquidity

In this section, we examine whether options trading, the relative size of the dividend initiation payment and changes in institutional investors' holdings have any impact on changes in stock liquidity after the announcement of DI. Allen et al. (2000) propose a theory that firms have incentives to pay dividends to attract institutions, which have an advantage in detecting high firm quality and ensuring that firms are properly managed. Kale et al. (2012) provide empirical support for this theory by documenting an increase in institutional ownership in the year after the dividend initiating year. Prior studies highlight that institutional investors are informed investors, and their ownership is positively related to future returns and price efficiency (see, among others, Chakravarty (2001), Nofsinger and Sias (1999), Gompers and Metrick (2001), Yan and Zhang (2009), Boehmer and Kelly (2009)). Based on these insights, we predict a positive relation between changes in institutional ownership after the DI announcements and improvement in liquidity.

Roll et al. (2009) emphasize that the enhancement in informational efficiency by having listed options should be higher when the option markets have sufficient volume as informed traders are active in high-volume markets. Building from Roll et al. (2009), we argue that the higher option volume in the pre-announcement period would result in greater incorporation of DI information, resulting in lower post-announcement improvements in stock liquidity. Further, Fuller (2003) predicts that the larger the amount of informed trading, the larger the dividend increase. Consequently, we would anticipate a negative relation between preannouncement option trading and dividend payment at the time of initiation and subsequent improvements in liquidity.

To proxy liquidity, we use the Amihud (2002) illiquidity measure (trade-based proxy) and the stock proportionate bid–ask spread (*SPBA*) measure (order-based proxy). Amihud's illiquidity measure (*ILLIQ*) captures the daily price response associated with one dollar of trading volume (scaled by 10^5). The proportionate bid–ask spread for stocks (*SPBA*) is calculated by scaling the difference between the closing ask and bid prices by the average of the closing ask and bid prices. We present basic descriptive statistics on our proxies for liquidity in Table 8. Two alternative horizons for the preannouncement versus post-DI comparisons (one year and six months) are used to provide insights into the robustness of our results.

[INSERT TABLE 8 HERE]

As can be seen in Panels A and B of Table 8, there are statistically significant reductions in the median Amihud illiquidity and *SPBA* at the 1% level after the DI announcements in the six months and 1 year period following DI. These findings imply that stock liquidity improves after the DI announcements. We further examine the determinants of the improvements in liquidity after the DI announcements relative to the preannouncement period and present the results in Table 9. The dependent variable is the natural logarithm of the ratio of Amihud's illiquidity measure.[2] This ratio represents the illiquidity in the year after the DI, divided by illiquidity in the year prior to the announcement date. As such, positive (negative) values of this variable indicate deterioration (improvement) in liquidity.

We calculate the changes in institutional ownership (ΔIO) as the difference between institutional ownership at the end of the quarter following DI announcements and institutional ownership at the end of the quarter prior to DI announcements. We use various proxies to examine

[2] We find similar results using the natural logarithm of the ratio of *SPBA*. We do not provide the results here to conserve space.

the impact of option trading on post-announcement changes in stock liquidity. They are: the ratio of option volume to share volume, option trading volume, the ratio of call option volume to share volume, call option trading volume, the call implied volatility surface for standardized options with 30 and 91 days to maturity. The coefficient estimate for the ΔIO variable is negative and significant in all models. Thus, firms that experience larger increase in institutional ownership following DI announcement will have lower ratio of illiquidity in the year after the DI divided by illiquidity in the year prior to the announcement date. In other words, the improvement in stock liquidity following DI announcements is greater for firms with larger post-announcement increases in institutional ownership.

More importantly, we find that improvements in stock liquidity are lower for firms with higher preannouncement option (informed) trading. We do not observe any significance for option implied volatility surface in explaining post-announcement changes in stock liquidity. The post-announcement improvement in stock liquidity is also lower for firms with larger initial dividend payments. This result is consistent with informed option traders being more attracted to dividend initiations with greater initial dividend payments and consequently with potentially larger profit opportunities.

Overall, the results reported in this section provide support for the notion that DI announcements improve stock market liquidity for the firms making such announcements. These improvements are stronger for those with lower preannouncement options trading. Further, our finding highlights the importance of changes in institutional ownership following DI announcements in explaining post-announcement changes in stock liquidity. This evidence provides support for the survey findings in Brav et al. (2005) that CFOs of non-dividend payers view institutional shareholders as having an important influence in initiating dividends and Kale et al. (2012) findings that companies initiate dividends to attract investor clienteles such as institutional investors who will monitor them and validate their superior future prospects.

[INSERT TABLE 9 HERE]

5. Long term earnings performance

Brav et al. (2005) document that around 60% of CFOs of non-dividend payers agree that a sustainable increase in earnings might lead to dividend initiation. Healy and Palepu (1988) find that firms that initiate dividends have earnings increases for the year of, and the two years following DI, using earnings changes relative to the prior year and industry adjusted earnings and conclude that these increases appear to be permanent. However, Barber and Lyon (1996) contend that inferences about future performance around corporate events should not be based on levels of performance over time, but rather on an expectations model that incorporates a firm's pre-event performance. They further demonstrate that test statistics are well specified only when sample firms are matched to control firms with similar pre-event performances. Furthermore, Lie (2001) contends that the most reliable test statistics are generated with control firms that have similar prior operating performances and market-to-book ratios; he also shows that it is more important to control for the levels rather than the changes in performance and market-to-book ratios.

Healy and Palepu (1988) did not use pre-event performance matched firms to calculate changes in earnings (abnormal earnings). Following Barber and Lyon (1996) and Lie (2001), we examine the information content of dividend initiation for firms with options trading by calculating abnormal earnings based on the matched pair difference between a firm initiating a dividend and its matched firm. We identify control firms for each firm initiating a dividend based on the pre-event performance, status of option trading, industry classification, firm size and book to market ratio. As our study examines the information content of dividend initiation for firms with options, we select control firms based on the following criteria in order of importance: (a) option trading status: dividend initiators with listed options matched with a non-dividend initiating firm with option; (b) earnings performance ($EBITDA/TA_{t-1}$) for the year immediately prior to the dividend initiation is between 90% and 110% of that of the sample firm; (c) industry classification based on Fama & French 48 industry classification; (d) firm market capitalization is between 70% and 130% of the sample firm (e) book to market ratio is between 70% and 130% of the sample firm (BM).

Details of the procedure employed to select control-sample firms are given in Panel A of Table 10. For each sample firm with option trading status we identify control firms with listed options. We then identify all firms within the same Fama & French 48 industry sector, with earnings within ±10% of sample firm, with market capitalization within ±30% of the sample firm and with BM ratios within ±30% of the sample firm. Then we eliminate the control firms that had dividend initiations during the year before to the year after of the corresponding sample firm dividend initiation. When we find more than one control firm we choose the firm with the closest earnings to the sample firm. If no firms meet the three criteria in (a) to (e), we relax the Fama and French 48 industry classification using the following order: 38 industry classification, 12 industry classification, and 5 industry classification. We find control firms for 79% of firms with options at this stage. Then we disregard the industry criterion but keep the earnings performance, firm size and book to market criterion. We find a further 11% of control firms for firms with options at this stage. We do not find any control firms for 3% of firms with options. As can be seen from Panel B of Table 10 we do not find any significant difference in median earnings ($EBITDA/TA_{t-1}$) between sample firms and control firms.

Panel C of Table 10 provides results on abnormal earnings for the firms with option. We observe significantly positive abnormal earnings during the year of, and over the two year period after, the dividend initiation. The average abnormal earnings over the three-year period following

DI announcement is also positive and statistically significant. The results reported here provide strong support for Brav et al. (2005) survey findings that CFOs of non-dividend payers view a sustainable increase in earnings as having important influences in the dividend initiation process.

[INSERT TABLE 10 HERE]

6. Conclusions

We empirically investigate a number of differing phenomena associated with the initiation of dividends by US companies. Initially, the impacts of preannouncement option trading upon announcement period abnormal returns around dividend initiations are analyzed. We further investigate the impact of dividend initiations with regards to reductions in the agency costs of free cash flow, information content of future sustainable earnings and improvement in stock liquidity. While the dividend initiation and resumption announcements are unambiguously good news, we find that the market reacts more positively to firms with higher cash flows, supporting the implication that such events lead to a reduction in the agency costs of free cash flow. We further document that those firms with higher abnormal levels of options trading activity during the preannouncement period experience lower announcement period abnormal returns. This relation is more prevalent among firms with higher abnormal trading in call options, firms with more liquid options and for firms with higher preannouncement runups.

We provide evidence of stronger post announcement earnings performance following dividend initiations. We also find significant improvements in liquidity, with the stronger liquidity improvements observed for firms with lower preannouncement options trading and larger post-announcement increases in institutional ownership. Our results provide support for the survey findings in Brav et al. (2005) wherein it is documented that CFOs view a sustainable increase in earnings and in institutional shareholders as having important influences in the dividend initiation process.

Overall, we contribute to the literature by providing the first empirical evidence on the relation between options trading and dividend initiation announcement period returns. We argue that the lower price reaction/shock following initiation announcements for firms with higher preannouncement options trading reflects a more efficient pricing mechanism for such stocks deriving from the fuller information set already being incorporated into prices. In our work, then, we not only extend the empirical evidence regarding the impacts of the initiation of dividends upon market prices, liquidity and earnings prospects, we are able to demonstrate that these effects are modified by, and dependent upon, the level of preannouncement options trading activity.

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Table 1: Sample Selection

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

Panel A: Year-Wise Classification	
Year	DI Firms
1997	3
1998	3
1999	8
2000	4
2001	2
2002	10
2003	50
2004	31
2005	29
2006	21
2007	19
2008	13
2009	14
2010	31
2011	39
2012	44
Total	321
Panel B: Industry-Wise Classification	
Industry Classification	DI Firm
Consumer Non-Durables	14
Consumer Durables	10
Manufacturing	38
Energy	11
Chemicals and Allied Products	11
Business Equipment	76
Telephone and Television Transmission	10
Wholesale and Retail	62
Healthcare, Medical Equipment, and Drugs	30
Others	59
Total	321

Table 2: Definitions of the Variables Used in This Study

Variables	Definitions
AbC/S	The difference in the daily average call option volume to stock volume ratio (C/S) between the preannouncement period ([-10, -2] and the benchmark period [-200, -101], using options with time to maturity between five days and 35 days.
AbCV	The difference in the average daily natural logarithm of the call options trading volume between the preannouncement period [-10, -2]) and the benchmark period [-200, -101], using options with time to maturity between five days and 35 days.
AbCVOLA	Abnormal call implied volatility surface, measured as the difference in the daily average call volatility surface between the preannouncement period [-10, -2] and the benchmark period [-200, -101], using standardized options with delta of 0.5 for both 30 days and 91 days to maturity.
AbOPBA	The natural logarithm of the ratio of the average daily option bid–ask spread during the preannouncement period [-10, -2]) to that during the benchmark period [-200, -101]. The options bid–ask spread is defined as the difference between the best offer price and the best bid price, scaled by the bid–ask mid-point. The bid–ask spreads across all non-zero trading volume options for each firm each day are averaged to obtain the daily option bid–ask spread.
AbO/S	The difference in the daily average option volume to stock volume ratio (O/S) between the preannouncement period [-10, -2] and the benchmark period [-200, -101], using options with time to maturity between five days and 35 days.
AbOV	The difference in the average daily natural logarithm of the options trading volume between the preannouncement period [-10, -2] and the benchmark period [-200, -101], using options with time to maturity between five days and 35 days.
AbP/S	The difference in the daily average put option volume to stock volume ratio (P/S) between the preannouncement period [-10, -2] and the benchmark period [-200, -101], using options with time to maturity between five days and 35 days.
AbPV	The difference in the average daily natural logarithm of the options trading volume between the preannouncement period [-10, -2] and the benchmark period [-200, -101], using options with time to maturity between five days and 35 days.
AbPVOLA	Abnormal put implied volatility surface, measured as the difference in the daily average put volatility surface between the preannouncement period [-10, -2]and the benchmark period [-200, -101], using standardized options with delta of 0.5 for both 30 days and 91 days to maturity.
AbSHVOL	The difference in the average daily natural logarithm of the share trading volume between the preannouncement period [-10, -2] and the benchmark period [-200, -101].
CAR [-1, +1]	The cumulative abnormal return (*CAR*) for the three-day window from one day before the announcement date to one day after the announcement date.
CAR [0, +1]	The *CAR* for the two-day window from the announcement date to one day after the announcement date.
CFTA	Cash flow from operations to total assets, where cash flow is calculated as earnings before extraordinary items plus depreciation and amortization minus the working capital of accruals (the change in current assets minus the change in cash

	holdings minus the change in current liabilities plus the change in short-term debt plus the change in tax payable), all scaled by total assets.
CFTAIA	Cash flow from operations to total assets minus the industry/year median cash flow from operations to total assets.
C/Sn200n2	The daily average *O/S* in the preannouncement period [-200, -2]
CVOLAn200n2	Implied call volatility surface, measured as the daily average call volatility surface during the preannouncement period [-200, -2], using standardized options with delta of 0.5 for both 30 days and 91 days to maturity.
DHmedianQ	A dummy variable equals to one if the dividend initiating firm's *Q* is equal to or larger than the median Q of our sample and zero otherwise
DLmedianQ	A dummy variable equals to one if the dividend initiating firm's *Q* is less than the median Q of our sample and zero otherwise
Dquartile1Q	A dummy variable indicating that the Q ratio of the firm is in the lowest quartile in our sample.
DREPUR	A dummy variable equal to one if the initiating firm repurchased stock in the one year prior to the dividend initiation and zero otherwise.
DY	The ratio of the size of initial dividend over the share price at the end of the previous financial year.
Event	A dummy variable indicating the dividend initiation announcements sample.
HAbOPBA	A dummy variable that takes the value of one if *AbOPBA* is greater than the median and zero otherwise.
HRunup	A dummy variable that takes the value of one if *RUNUPOP* is greater than the median and zero otherwise.
ILLIQ	Stock illiquidity, calculated as the average of daily Amihud (2002) illiquidity measures over the period [-200, -5]; the daily illiquidity measure is defined as the ratio of the daily absolute return to the dollar trading volume that day, multiplied by 100,000.
IO	The institutional ownership (as a percentage of shares outstanding) in the last quarter before the dividend initiation announcement.
LAbOPBA	A dummy variable that takes the value of one if *AbOPBA* is lower than the median and zero otherwise.
LMV	The natural logarithm of the market capitalization for the dividend-initiating firm.
LNANAL	The natural logarithm of the monthly average of the number of analysts with valid estimates in the last year prior to the dividend initiation announcement.
LNCVn200n2	The natural logarithm of the daily average options trading volume in the preannouncement period [-200, -2]
LNOVn200n2	The natural logarithm of the daily average options trading volume in the preannouncement period [-200, -2].
Low Q	A dummy variable equals to one if the dividend-initiating firm's Q is less than one and zero otherwise.
LQ	The natural logarithm of Q, where Q is calculated as total assets plus the fiscal year-end market value of equity minus the book value of equity minus balance sheet deferred taxes, all scaled by total assets.
LRunup	A dummy variable that takes the value of one if *RUNUPOP* is lower than the median and zero otherwise.

MV	The market capitalization at one month prior to the dividend initiation announcement for the dividend-initiating firms.
Number of Analysts	The monthly average of the number of analysts with valid estimates in the last year prior to the dividend initiation announcement.
O/S n200n2	The daily average *O/S* in the preannouncement period [-200, -2].
Q	The indication for growth of the firm, where *Q* is calculated as total assets plus the financial year-end market value of equity minus the book value of equity minus balance sheet deferred taxes, all scaled by total assets.
RETA	Retained earnings divided by total assets.
RUNUPLP	The buy and hold raw return from day -200 to day -11.
RUNUPOP	The buy and hold raw return from day -100 to day -11.
TA	Total assets for the dividend-initiating firms at balance sheet date immediately prior to the dividend initiation announcements.
TDTA	Total debt to total assets.
ΔIO	The difference in the institutional ownership (as a percentage) between the next quarter immediately after the dividend initiation announcement and the last quarter before the dividend initiation announcement.

Table 3: Descriptive Statistics

This table presents the mean, median, Quartile 1, Quartile 3 and standard deviation statistics for the main variables used in this study, which are as follows: *TA*, total assets for the dividend-initiating firms; *MV*, market capitalization one month prior to the dividend initiation announcement for the dividend-initiating firms; *ILLIQ*, stock liquidity, calculated as the average of daily Amihud (2002) illiquidity measures over the period [-200, -5]; *TDTA*, total debt to total assets; *DY*, the ratio of the size of dividends to the share price at the end of the previous year; *CFTA*, cash flow from operations to total assets, where cash flow is calculated as earnings before extraordinary items plus depreciation and amortization minus the working capital of accruals (the change in current assets minus the change in cash holdings minus the change in current liabilities plus the change in short-term debt plus the change in tax payable), all scaled by total assets; *CFTAIA*, cash flow from operations to total assets minus the industry/year median cash flow from operations to total assets; *RETA*, retained earnings divided by total assets; *RUNUPOP*, the buy and hold raw return from day -100 to day -11; *RUNUPLP*, the buy and hold raw return from day -200 to day -11; *Number of Analysts*, the monthly average of the number of analysts with valid estimates in the last year prior to the dividend initiation announcement; *IO*, the institutional ownership (as a percentage of shares outstanding) in the last quarter before the dividend initiation announcement; and *Q*, total assets plus the fiscal year-end market value of equity minus the book value of equity minus balance sheet deferred taxes, all scaled by total assets.

	Mean	Median	Quartile 1	Quartile 3	Standard Deviation
TA (in $M)	5473.03	1517.74	593.70	3951.57	17462.85
MV (in $M)	6660.37	1805.49	740.59	4418.64	31544.92
ILLIQ	0.0009	0.0001	0.0000	0.0004	0.0036
TDTA	0.1903	0.1410	0.0034	0.2932	0.2378
DY	0.0089	0.0032	0.0021	0.0056	0.0352
CFTA	0.1307	0.1182	0.0785	0.1655	0.1454
CFTAIA	0.0890	0.0651	0.0184	0.1226	0.1770
RETA	0.2388	0.2789	0.0938	0.4827	0.3958
RUNUPOP	0.0791	0.0727	-0.0644	0.2151	0.2386
RUNUPLP	0.1970	0.1375	-0.0762	0.3967	0.4644
Number of Analysts	7.8589	6.8182	3.5833	10.6667	6.0392
IO	0.7332	0.7907	0.6207	0.8947	0.2262
Q	2.0618	1.6559	1.2606	2.4048	1.2692

Table 4: Univariate Analysis of CARs

This table presents the mean and median abnormal returns for DI firms for the following event windows: [-1, +1], and [0, +1]. Adjusted standardized residual test statistics are given in parentheses. Adjusted standardized cross-sectional *t*-test values are provided in square brackets.

CAR [-1, +1]	Mean	0.0128
	Median	0.0093
	Adj-SRT	(6.76)***
	Adj-SCST	[4.49]***
CAR [0, +1]	Mean	0.0112
	Median	0.0088
	Adj-SRT	(7.41)***
	Adj-SCST	[4.22]***
Sample Size		321

Table 5: Cash Flow, Q, and Market Reaction

This table present results on the factors that explain the market reaction to dividend initiation (DI). The dependent variable is the CAR for the period [-1, +1]. The independent variables are *Low Q*, a dummy variable equals to one if the dividend-initiating firm's *Q* is less than one, and zero otherwise; *Dquartile1Q*, a dummy variable equal to one if the dividend-initiating firm's *Q* is in the lowest quartile of our sample, and zero otherwise; *DLmedianQ*, a dummy variable equals to one if the dividend-initiating firm's *Q* is less than the median Q of our sample, and zero otherwise; *DHmedianQ*, a dummy variable equals to one if the dividend-initiating firm's *Q* is equal to or larger than the median Q of our sample, and zero otherwise; *CFTA*, cash flow from operations to total assets; *CFTAIA*, cash flow from operations to total assets minus the industry/year median cash flow from operations to total assets; *LQ*, the natural logarithm of *Q*; *LMV*, the natural logarithm of market capitalization for the dividend-initiating firm; *DY*, the ratio of the size of dividends over the share price at the end of the previous year; *TDTA*, total debt to total assets; *ILLIQ*, stock liquidity, calculated as the average of daily Amihud (2002) illiquidity measures over the period [-200, -5]; *RUNUPOP*, the buy and hold raw return from day -100 to day -11; *DREPUR*, a dummy variable equal to one if the initiating firm repurchased stock in the one year prior to the dividend initiation and zero otherwise; *LNANAL*, the natural logarithm of the monthly average of the number of analysts with valid estimates in the last year prior to the dividend initiation announcement; *IO*, the institutional ownership (as a percentage) in the last quarter before the dividend initiation announcement; Year effect refers to the dummy variables for each individual year in the sample. Industry effect refers to the dummy variables for each industry in the sample. All the models are estimated using *OLS* regression with White heteroskedasticity-consistent standard errors. N is the number of observations and *t*-statistics are given in the parentheses. The superscripts ***, **, and * indicate significant difference from zero at the 1%, 5%, and 10% levels, respectively.

	1	2	3	4	5	6	7	8	9	10	11	12
Low Q	0.0091	0.0098								0.0058		0.0027
	(0.75)	(0.81)								(0.48)		(0.21)
Dquartile1Q			0.0103	0.0054	0.0106	0.0080						
			(1.44)	(0.45)	(1.48)	(0.96)						
CFTA	0.0648		0.0679	0.0652								
	(3.90)***		(4.24)***	(3.84)***								
Dquartile1Q x CFTA				0.0478								
				(0.49)								
CFTAIA		0.0500			0.0529	0.0505			0.0490	0.0462	0.0458	0.0453
		(3.27)***			(3.57)***	(3.15)***			(3.44)***	(3.50)***	(2.67)***	(2.71)***
Dquartile1Q x CFTAIA						0.0543						
						(0.60)						
DLmedianQ x CFTA							0.0632					
							(1.38)					
DHmedianQ x CFTA							0.0642					
							(3.79)***					
DLmedianQ x CFTAIA								0.0729				
								(1.39)				
DHmedianQ x CFTAIA								0.0477				
								(2.90)***				
LQ									-0.0028		-0.0006	

									(-0.39)		(-0.08)	
LMV									-0.0040	-0.0041	-0.0039	-0.0039
									(-1.40)	(-1.45)	(-1.37)	(-1.39)
DY									0.0305	0.0286	0.0378	0.0368
									(0.41)	(0.39)	(0.49)	(0.48)
TDTA									-0.0005	0.0005	0.0008	0.0010
									(-0.04)	(0.04)	(0.05)	(0.06)
ILLIQ									0.9474	0.9652	1.0818	1.0840
									(1.20)	(1.21)	(1.32)	(1.31)
RUNUPOP									-0.0682	-0.0687	-0.0669	-0.0670
									(-4.89)***	(-4.94)***	(-4.85)***	(-4.85)***
RETA									-0.0059	-0.0063	-0.0066	-0.0067
									(-0.67)	(-0.70)	(-0.75)	(-0.76)
DREPUR									0.0029	0.0030	0.0038	0.0038
									(0.45)	(0.45)	(0.52)	(0.52)
LNANAL									0.0051	0.0051	0.0065	0.0064
									(1.13)	(1.11)	(1.35)	(1.34)
IO									0.0133	0.0142	0.0163	0.0166
									(0.79)	(0.84)	(0.96)	(0.98)
Constant	-0.0014	0.0015	-0.0066	-0.0067	-0.0036	-0.0037	-0.0014	0.0029	0.0095	0.0085	0.0059	0.0053
	(-0.04)	(0.05)	(-0.23)	(-0.23)	(-0.12)	(-0.12)	(-0.04)	(0.09)	(0.32)	(0.28)	(0.16)	(0.14)
Year Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Effect	No	No	No	No	No	No	No	No	No	No	Yes	Yes
R^2	0.0738	0.0709	0.0779	0.0787	0.0751	0.0763	0.0723	0.0697	0.1599	0.1601	0.1750	0.1751
F	2.20	1.76	2.45	2.15	1.93	1.75	2.09	1.63	3.45	3.40	2.90	2.89
Prob>F	0.0045	0.0321	0.0013	0.0046	0.0153	0.0313	0.0073	0.0558	0.0000	0.0000	0.0000	0.0000
N	321	321	321	321	321	321	321	321	321	321	321	321

Figure 1 – Event Windows

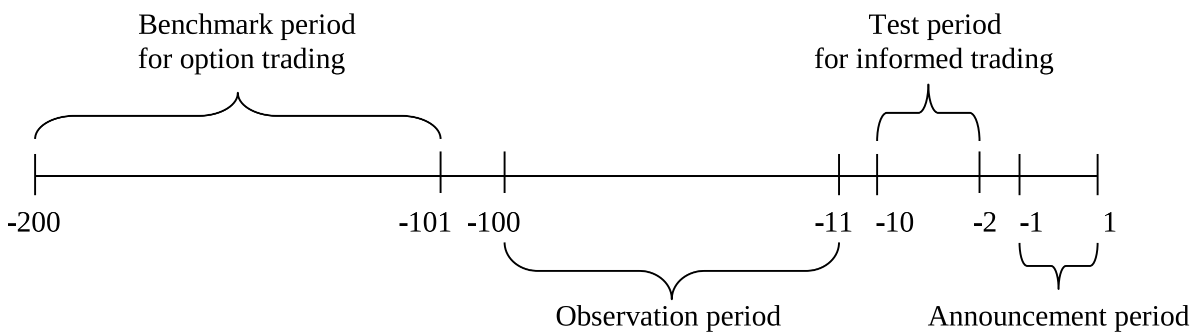

Table 6: Informed Trading and Market Reaction

This table presents the mean and median *CAR [-1, +1]*, *RUNUPLP* and *RUNUPOP* for DI firms. Panel A (B) presents the results for subsamples partitioning the full sample into three groups (terciles) based on *AbO/Sn10n2 (AbOVn10n2)*. *CAR [-1, +1]* is the announcement period abnormal returns for the period [-1, 1]; *RUNUPLP* is the buy and hold raw return from day -200 to day -11; and *RUNUPOP* is the buy and hold raw return from day -100 to day -11, which is the observation period. Adjusted standardized residual test statistics are given in parentheses for *CAR [-1, +1]*. Adjusted standardized cross-sectional *t*-test values are provided in square brackets. The *t*-test statistics for the difference in mean abnormal returns between the two subgroups (lowest tercile group (Q1) and highest tercile group (Q3)) are provided.

		Q1	Q2	Q3	t-statistic Q1 VS Q3	Q1	Q2	Q3	T-statistic Q1 VS Q3
		Panel A – Partition based on *AbO/Sn10n2*				Panel B – Partition based on *AbOVn10n2*			
CAR [-1, +1]	Mean	0.0204	0.0157	0.0023	2.47**	0.0251	0.0131	0.0002	3.09***
	Median	0.0140	0.0123	0.0006		0.0146	0.0105	0.0003	
	Adj-SRT	(5.09)***	(5.58)***	(1.32)		(5.84)***	(4.94)***	(1.52)	
	Adj-SCST	[4.03]***	[3.29]***	[0.87]		[4.06]***	[3.56]***	[0.92]	
RUNUPLP	Mean	0.0817	0.1784	0.3309	-3.74***	0.0733	0.1290	0.3888	-4.78***
	Median	0.0747	0.1392	0.2138		0.0687	0.0891	0.2868	
RUNUPOP	Mean	0.0453	0.0691	0.1229	-2.41**	0.0230	0.0881	0.1262	-3.40***
	Median	0.0475	0.0606	0.1190		0.0314	0.0747	0.1171	
Sample Size		107	107	107		107	107	107	

Table 7: Options Trading and Market Reactions to Dividend Initiation Announcements

This table presents the results for the investigation of the relation between preannouncement abnormal options trading and market reactions to dividend initiation announcements. Panel A present the results using *AbO/S*, *AbC/S* and *AbP/S* as informed trading measures. Panel B present the results using *AbOV*, *AbCV* and *AbPV* as informed trading measures. Panel C presents the results for the pseudo-events analysis. Panel D present the results on how preannouncement runup affects the impact of informed trading on *CAR [-1, +1]*. Panel E presents the results on how liquidity in the options market affects the impact of informed trading on *CAR [-1, +1]*. Panel F provides the results examining the impact of *AbC/S* and *AbP/S;* and *AbCV* and *AbPV* on market reaction controlling for *AbCVOLA* and *AbPVOLA* using standardized options with delta of 0.5 for both 30 days and 91 days to maturity.

The dependent variable is the CAR for the period [-1, +1]. The independent variables are *AbO/S*, the difference in the daily average O/S between the preannouncement period [-10, -2] and the benchmark period [-200, -101]; *AbOV*, the difference in the average daily natural logarithm of the options trading volume between the preannouncement period [-10, -2] and the benchmark period [-200, -101]; *AbC/S*, the difference in the daily average call option volume to stock volume ratio (*C/S*) between the preannouncement period [-10, -2] and the benchmark period [-200, -101]; *AbP/S*, the difference in the daily average put option volume to stock volume ratio (*P/S*) between the preannouncement periods [-10, -2] and the benchmark period [-200, -101]; *AbCV*, the difference in the average daily natural logarithm of the call options trading volume between the preannouncement periods [-10, -2] and the benchmark period [-200, -101]; *AbPV*, the difference in the average daily natural logarithm of the put options trading volume between the preannouncement period [-10, -2] and the benchmark period [-200, -101]. We use options with time to maturity between five days and 35 days for the calculation of *AbO/S*, *AbOV*, *AbC/S*, *AbP/S*, *AbCV*, and *AbPV*. *Event*, a dummy variable indicating observations in the dividend initiation announcement sample; *AbOPBA*, the difference in the natural logarithm of the average daily option bid–ask spread between the preannouncement period and the benchmark period; *LAbOPBA*, a dummy variable that takes the value of one if *AbOPBA* is lower than median and zero otherwise; *HAbOPBA*, a dummy variable that takes the value of one if *AbOPBA* is greater than median and zero otherwise; *HRunup*, a dummy variable that takes the value of one if *RUNUPOP* is greater than median and zero otherwise; *LRunup*, a dummy variable that takes the value of one if *RUNUPOP* is less than the median and zero otherwise; *AbCVOLA* (*AbPVOLA)* abnormal implied call (put) volatility surface, measured as the difference in the daily average call (put) volatility surface between the preannouncement periods [-10, -2] and the benchmark period [-200, -101], using standardized options with delta of 0.5 for both 30 days and 91 days to maturity; We also control for the following variables in the regression analysis: *LMV*, *CFTAIA*, *LQ*, *DY*, *TDTA*, *ILLIQ*, *RUNUPOP*, *RETA*, *DREPUR* and *LNANAL*, and *IO*. Year effect refers to the dummy variables for each individual year in the sample. Industry effect refers to the dummy variables for each industry in the sample. All the models are estimated using *OLS* regression with White heteroskedasticity-consistent standard errors. Here *N* is the number of observations and *t*-statistics are given in parentheses. The superscripts ***, **, and * indicate significant difference from zero at the 1%, 5%, and 10% levels, respectively.

Panel A – Abnormal O/S, Abnormal C/S, Abnormal P/S, and market reaction					
	1	2	3	4	5
AbO/S	-0.2407	-0.1864			
	(-2.84)***	(-2.20)**			
AbC/S			-0.3340		-0.3902
			(-2.51)**		(-2.36)**
AbP/S				-0.1578	0.1379
				(-0.98)	(0.64)
LMV	-0.0048	-0.0039	-0.0040	-0.0039	-0.0041
	(-1.63)	(-1.35)	(-1.39)	(-1.35)	(-1.40)
CFTAIA	0.0571	0.0532	0.0517	0.0488	0.0501
	(3.14)***	(3.06)***	(3.01)***	(2.82)***	(2.86)***
LQ	-0.0017	0.0007	0.0013	-0.0002	0.0012
	(-0.22)	(0.09)	(0.17)	(-0.03)	(0.17)
DY	0.0289	0.0227	0.0102	0.0408	0.0030
	(0.50)	(0.34)	(0.15)	(0.55)	(0.04)
TDTA	-0.0028	-0.0040	-0.0042	-0.0006	-0.0038
	(-0.17)	(-0.25)	(-0.27)	(-0.04)	(-0.24)
ILLIQ	-0.0255	0.7125	0.8728	0.8705	1.0223
	(-0.04)	(0.84)	(1.01)	(1.03)	(1.11)
RUNUPOP		-0.0624	-0.0613	-0.0657	-0.0614
		(-4.46)***	(-4.35)***	(-4.73)***	(-4.35)***
RETA	-0.0076	-0.0067	-0.0066	-0.0065	-0.0066
	(-0.86)	(-0.77)	(-0.77)	(-0.74)	(-0.78)
DREPUR	0.0058	0.0033	0.0031	0.0036	0.0031
	(0.79)	(0.46)	(0.43)	(0.50)	(0.44)
LNANAL	0.0069	0.0061	0.0064	0.0062	0.0067
	(1.42)	(1.27)	(1.34)	(1.29)	(1.42)
IO	0.0086	0.0128	0.0132	0.0149	0.0140
	(0.49)	(0.75)	(0.79)	(0.87)	(0.83)
Constant	0.0292	0.0137	0.0119	0.0100	0.0094
	(0.69)	(0.37)	(0.32)	(0.26)	(0.25)
Year Effect	Yes	Yes	Yes	Yes	Yes
Industry Effect	Yes	Yes	Yes	Yes	Yes
R^2	0.1349	0.1881	0.1931	0.1771	0.1942
F	1.99	3.03	2.96	2.95	2.84
Prob>F	0.0012	0.0000	0.0000	0.0000	0.0000
N	321	321	321	321	321

Panel B – Abnormal option volume, Abnormal call option volume, Abnormal put option volume and market reaction							
	1	2	3	4	5	6	7
AbOV	-0.0044	-0.0032	-0.0051	-0.0038			
	(-2.48)**	(-1.85)*	(-2.97)***	(-2.24)**			
AbSHVOL	-0.0076	-0.0066					
	(-1.19)	(-1.03)					
AbCV					-0.0045		-0.0040
					(-2.56)**		(-1.92)*
AbPV						-0.0034	-0.0010
						(-1.83)*	(-0.46)
CFTAIA	0.0488	0.0469	0.0475	0.0458	0.0439	0.0492	0.0451
	(2.93)***	(2.91)***	(2.81)***	(2.82)***	(2.67)***	(2.97)***	(2.75)***
RUNUPOP		-0.0600		-0.0605	-0.0574	-0.0631	-0.0575
		(-4.28)***		(-4.34)***	(-4.07)***	(-4.46)***	(-4.07)***
All other controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry Effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.1451	0.1937	0.1416	0.1910	0.1971	0.1867	0.1977
F	2.27	3.27	2.21	3.24	3.27	3.16	3.25
Prob>F	0.0001	0.0000	0.0002	0.0000	0.0000	0.0000	0.0000
N	321	321	321	321	321	321	321

Panel C: Abnormal Option Trading and Market Reactions, Pseudo-Event Analysis						
	1	2	3	4	5	6
AbO/S	0.0024					
	(109,121)					
AbO/S x Event	-0.2079					
	(885,0)					
AbC/S		-0.0013	0.0051			
		(53,45)	(55,104)			
AbC/S x Event		-0.3932	-0.3604			
		(944,0)	(968,0)			
AbP/S		0.0118				
		(74,102)				
AbP/S x Event		0.0851				
		(5,34)				
AbOV				-0.0000		
				(46,23)		
AbOV x Event				-0.0045		
				(891,0)		
AbCV					0.0002	-0.0001
					(18,37)	(53,28)
AbCV x Event					-0.0047	-0.0050
					(759,0)	(950,0)
AbPV					-0.0005	
					(65,7)	
AbPV x Event					-0.0006	
					(10,1)	
CFTAIA	0.0291	0.0273	0.0279	0.0251	0.0244	0.0239
	(0,735)	(0,670)	(0,686)	(0,583)	(0,573)	(0,551)
RUNUPOP	-0.0326	-0.0322	-0.0320	-0.0308	-0.0294	-0.0294
	(994,0)	(995,0)	(989,0)	(985,0)	(973,0)	(982,0)
Event	0.0153	0.0156	0.0156	0.0151	0.0155	0.0154
	(0,1000)	(0,1000)	(0,1000)	(0,1000)	(0,1000)	(0,1000)
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry effect	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.1265	0.1329	0.1300	0.1289	0.1363	0.1342

Panel D – Runup, Informed trading and market reaction				
	1	2	3	4
AbO/S x HRunup	-0.3571			
	(-2.86)***			
AbO/S x LRunup	-0.1091			
	(-0.98)			
AbC/S x HRunup		-0.6353		
		(-3.61)***		
AbC/S x LRunup		-0.0945		
		(-0.48)		
AbOV x HRunup			-0.0042	
			(-1.85)*	
AbOV x LRunup			-0.0061	
			(-2.36)**	
AbCV x HRunup				-0.0065
				(-2.76)***
AbCV x LRunup				-0.0054
				(-2.01)**
CFTAIA	0.0586	0.0542	0.0465	0.0456
	(3.32)***	(3.14)***	(2.74)***	(2.70)***
Other Controls	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes
Industry effect	Yes	Yes	Yes	Yes
R^2	0.1411	0.1536	0.1426	0.1539
F	2.11	2.08	2.13	2.19
Prob>F	0.0004	0.0005	0.0003	0.0002
N	321	321	321	321

Panel E –Option liquidity, Informed trading and market reaction				
	1	2	3	4
AbO/S x LAbOPBA	-0.1983			
	(-1.65)*			
AbO/S x HAbOPBA	-0.1667			
	(-1.63)			
AbC/S x LAbOPBA		-0.4165		
		(-2.13)**		
AbC/S x HAbOPBA		-0.2260		
		(-1.40)		
AbOV x LAbOPBA			-0.0046	
			(-1.92)*	
AbOV x HAbOPBA			-0.0025	
			(-1.06)	
AbCV x LAbOPBA				-0.0050
				(-2.00)**
AbCV x HAbOPBA				-0.0037
				(-1.59)
CFTAIA	0.0535	0.0531	0.0468	0.0447
	(3.02)***	(3.04)***	(2.83)***	(2.68)***
RUNUPOP	-0.0623	-0.0610	-0.0597	-0.0571
	(-4.45)***	(-4.33)***	(-4.19)***	(-3.99)***
Other Controls	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes
Industry effect	Yes	Yes	Yes	Yes
R^2	0.1882	0.1946	0.1921	0.1975
F	2.95	2.91	3.16	3.17
Prob>F	0.0000	0.0000	0.0000	0.0000
N	321	321	321	321

Panel F - Informed Trading in Call/Put Options, implied call/put volatility surface and Market Reactions						
	Implied call and put volatility – options with 91 days maturity			Implied call and put volatility – options with 30 days maturity		
	1	2	3	4	5	6
AbC/S		-0.3703			-0.3951	
		(-2.17)**			(-2.36)**	
AbP/S		0.1428			0.1089	
		(0.65)			(0.48)	
AbCV			-0.0038			-0.0039
			(-1.84)*			(-1.88)*
AbPV			-0.0011			-0.0014
			(-0.53)			(-0.67)
AbCVOLA	0.1454	0.1087	0.1203	0.0922	0.0763	0.0924
	(1.96)*	(1.42)	(1.55)	(1.78)*	(1.52)	(1.80)*
AbPVOLA	-0.0936	-0.0605	-0.0546	-0.0535	-0.0335	-0.0347
	(-1.33)	(-0.82)	(-0.73)	(-1.16)	(-0.71)	(-0.73)
CFTAIA	0.0411	0.0439	0.0382	0.0420	0.0453	0.0389
	(2.29)**	(2.41)**	(2.17)**	(2.33)**	(2.51)**	(2.22)**
RUNUPOP	-0.0583	-0.0545	-0.0485	-0.0613	-0.0555	-0.0496
	(-4.04)***	(-3.71)***	(-3.32)***	(-4.24)***	(-3.75)***	(-3.34)***
All other controls	Yes	Yes	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Year Effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry Effect	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.1865	0.2026	0.2081	0.1828	0.2028	0.2071
F	3.88	3.75	3.88	3.47	4.00	3.84
Prob>F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
N	320	320	320	319	319	319

Table 8: Post-Announcement Changes in Liquidity

This table reports the mean and median Amihud (2002) illiquidity and proportionate bid–ask for periods prior to the dividend initiation announcement date and corresponding post-announcement periods. This table also provides the results of a Wilcoxon matched-pairs signed rank (WSRMP) test for the median values between the pre- and post-announcement periods. The superscripts ***, **, and * indicate significance level at the 1%, 5%, and 10% levels, respectively.

	Preann. 1 yr	Post 1 yr	WSRMP Test Pre vs. Post: 1 yr	Preann. 6 months.	Post 6 mos.	WSRMP test Pre vs Post: 6 months.
Panel A: Pre versus Post Amihud's Illiquidity						
Mean	0.001178	0.000937		0.001503	0.001136	
Median	0.000126	0.000085	4.79***	0.000110	0.000091	4.62***
Panel B: Pre versus Post Bid–Ask Spread						
Mean	0.003106	0.002457		0.002897	0.002526	
Median	0.001196	0.000918	8.26***	0.001101	0.000938	7.23***

Table 9 Post-Announcement Changes in Liquidity, Institutional Ownership and Options Trading

This table provides regression results on the factors that determine the improvement in liquidity after the dividend initiation announcements. The dependent variable is the natural logarithm of the ratio of the average Amihud (2002) illiquidity for a year after the announcement date to the year prior to the announcement date. The independent variables are *O/Sn200n2*, the daily average *O/S* in the preannouncement period [-200, -2]; *LNOVn200n2*, the natural logarithm of the daily average options trading volume in the preannouncement period [-200, -2];*C/Sn200n2*, the daily average *O/S* in the preannouncement period [-200, -2]; *LNCVn200n2*, the natural logarithm of the daily average options trading volume in the preannouncement period [-200, -2]; *CVOLAn200n2*, implied call volatility surface, measured as the daily average call volatility surface during the preannouncement period [-200, -2], using standardized options with delta of 0.5 for both 30 days and 91 days to maturity and ΔIO, the difference in the institutional ownership between the next quarter immediately after the dividend initiation announcement and the last quarter before the dividend initiation announcement. We also control for the following variables in the regression analysis: *LMV*, *CFTAIA*, *LQ*, *DY*, *TDTA*, *ILLIQ*, *RUNUPOP*, *RETA*, *DREPUR*, and *LNANAL*. Year effect refers to the dummy variables for each individual year in the sample. Industry effect refers to the dummy variables for each industry in the sample. All the models are estimated using *OLS* regression with White heteroskedasticity-consistent standard error. Here *N* is the number of observations and *t*-statistics are given in parentheses. The superscripts ***, **, and * indicate significant difference from zero at the 1%, 5%, and 10% levels, respectively.

	1	2	3	4	5	6
O/S n200n2	1.3960					
	(2.55)**					
LNOV n200n2		0.0232				
		(1.80)*				
C/S n200n2			1.4708			
			(2.21)**			
LNCV n200n2				0.0233		
				(1.81)*		
CVOLA n200n2 (30 days)					-0.1273	
					(-0.32)	
CVOLA n200n2 (91 days)						-0.0599
						(-0.14)
DY	2.1527	2.1427	2.1243	2.1588	2.2547	2.2626
	(4.31)***	(4.06)***	(4.21)***	(4.10)***	(4.54)***	(4.60)***
ΔIO	-0.8542	-0.8445	-0.8672	-0.8422	-0.8908	-0.8907
	(-2.21)**	(-2.20)**	(-2.24)**	(-2.18)**	(-2.26)**	(-2.27)**
All Other Controls	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.4296	-0.2921	-0.4533	-0.2901	0.9947	0.9259
	(-1.31)	(-0.82)	(-1.39)	(-0.81)	(1.83)*	(1.67)*
Year Effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry Effect	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.4147	0.4124	0.4124	0.4123	0.4035	0.4033
F	12.14	10.87	11.84	10.96	10.39	10.55
Prob>F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
N	321	321	321	321	320	320

Table 10: Post Announcement Earnings, and Dividend Payments

Panel A of this table provides details of the procedure employed to select control firms to calculate abnormal earnings performance. We identify control firms for dividend initiating firms using option trading status, industry classification, firm size and book to market ratio. Panel B provides mean and median earnings (EBITDA/TA_{t-1}) for the year prior to the dividend initiations for sample firms and control firms. Panel C provides abnormal earnings performance for the year of the dividend initiation and each year of three years after the dividend initiation. Abnormal earnings are calculated as the difference in EBITDA/TA between sample firms and control firms. Wilcoxon signed rank test statistics is reported to test whether median abnormal earnings is different from zero. The superscripts ***, **, and * indicate significance level at the 1%, 5%, and 10% levels, respectively.

Panel A – Matching Criteria

Matching criteria	Sample Firms
Performance±10%, Fama-French 48 industry classification, Size±30%, and BM ± 30%	104
Performance±10%, Fama-French 38 industry classification, Size±30%, and BM ± 30%	51
Performance±10%, Fama-French 12 industry classification, Size±30%, and BM ± 30%	54
Performance±10%, Fama-French 5 industry classification, Size±30%, and BM ± 30%	44
Performance±10%, Size±30%, and BM ± 30%	35
Performance±10%, Fama-French 48 industry classification, and Size±30%	5
Performance±10%, Fama-French 38 industry classification, and Size±30%	1
Performance±10%, Fama-French 12 industry classification, and Size±30%	3
Performance±10%, Fama-French 5 industry classification, and Size±30%	3
Performance±10% and Size±30%	6
Performance±10%, Fama-French 48 industry classification	2
Performance±10%, Fama-French 38 industry classification	1
Performance±10%, Fama-French 12 industry classification	1
Performance±10%, Fama-French 5 industry classification	2
Performance±10%	0
No matching	9
Total	321

Panel B – EBITDA/TAt-1 for sample and control firms

		Sample Firms
Sample firm	Mean (%)	17.78
	Median (%)	15.76
Matching firm	Mean (%)	17.77
	Median (%)	15.83

Panel C - Abnormal Earnings performance

	Year 0	Year 1	Year 2	Year 3	Average across year 1 to year 3
Mean (%)	1.25	1.01	1.32	1.14	1.16
Median (%)	0.09	1.02	1.52	1.01	1.27
WSR	(3.09)***	(2.29)**	(2.08)**	(1.21)	(2.34)**
Sample size	307	290	274	219	219
Number of Companies disappeared	5	21	36	48	
Number of firms with matching data or earnings data not available	9	10	11	54	