

Does Disagreement Facilitate Informed Trading? Evidence from Activist Investors

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Abstract

We study the effect of investor disagreement on informed trading by activist investors using high-frequency disagreement data derived from the investor social network StockTwits. Greater investor disagreement leads to more trading in the subsequent day by privately-informed activists. Disagreement leads to higher prices and improvements in measured liquidity, but these observed valuation and market liquidity differences do not explain the increase in activist trading. Instead, investor disagreement affects activist trading primarily by facilitating trading by non-activist investors. These findings suggest that investor disagreement not only affects trading by uninformed investors, but also facilitates trading by informed market participants who often take actions aimed at changing corporate policies.

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1 Introduction

Investor disagreement and its financial market consequences have received significant attention in the academic literature (e.g., [Karpoff, 1986](#); [Kandel and Pearson, 1995](#); [Hong and Stein, 1999](#); [Antweiler and Frank, 2004](#); [Sadka and Scherbina, 2007](#)). An early result in the literature is that investors cannot agree to disagree without some irrationality by investors ([Aumann, 1976](#)). On this basis, most analyses of disagreement have focused on less sophisticated traders (e.g., [Antweiler and Frank \(2004\)](#)), or have put forth behavioral explanations for why disagreement leads to trading (e.g., [Hong and Stein \(1999\)](#)). Yet, it is important to understand how sophisticated investors react to disagreement because sophisticated investors play an outsized role in determining market outcomes.

In this paper, we provide insights into this question by studying how a particular class of sophisticated investors – activist shareholders on the precipice of an activist campaign – respond to shareholder disagreement. Specifically, we extract from Schedule 13D regulatory filings the precise timing and size of privately informed trades by activists in the run-up period to obtaining beneficial ownership in a firm as part of an activist campaign (e.g., [Collin-Dufresne and Fos \(2015\)](#)). We combine this detailed information on informed trading by activists with novel, high-frequency measures of disagreement, derived from posts about particular stocks on the investor social network StockTwits (e.g., [Cookson and Niessner \(2020\)](#)).

Investor disagreement can affect activist investors through two opposing channels. On one side, investor disagreement can lead to overvaluation because pessimism is not fully incorporated into prices when short selling is limited ([Miller, 1977](#)). Through this *valuation channel*, disagreement could discourage activist trading because activist investors aim to profit from increasing firm value, and therefore are more likely to stay away from overvalued firms. Indeed, [Brav et al. \(2008\)](#) show that activist hedge funds are less likely to target firms with high valuation ratios. On the other side, disagreement can affect liquidity, which is important for the share accumulation process by activist shareholders ([Back et al., 2018](#)). Indeed, activist investors trade strategically in order to reduce price impact of their purchases ([Collin-Dufresne and Fos, 2015](#)). If disagreement improves liquidity (e.g., [Cookson and Niessner \(2020\)](#)), it could encourage shareholder activism through the

liquidity channel.

Using the novel daily link between activist trading and investor disagreement, our core finding is that disagreement leads to greater activist trading during the 60-day window before the activist campaign is disclosed. Specifically, we find that a standard deviation increase in investor disagreement is associated with nearly twice the likelihood of activist trading on a given day (extensive margin). On the intensive margin, we find that a standard deviation increase in investor disagreement is associated with about 4.8% more activist trading on days when activists trade.

As activist purchases are typically kept private during the pre-file period, it is unlikely that investor disagreement is a response to activist trading rather than the other way around. However, both activist trading and investor disagreement could, however, respond to a common variable. We strengthen the causal interpretation of this finding by disaggregating our daily disagreement measure into overnight disagreement versus within-day disagreement. We find a robust link between *overnight* shareholder disagreement and *next day* activist trading, consistent with disagreement affecting activist trading. A standard deviation increase in overnight disagreement is associated with approximately 0.90 percentage point increase in the likelihood of activist trading whereas an increase in contemporaneous (within-day) disagreement bears a smaller and less significant relation to the likelihood of activist trading. We reach a similar conclusion when we consider whether disagreement affects how much activists trade. These findings support our interpretation that activist trading in part reacts to disagreement.

What drives the positive relation between overnight disagreement and activist trading? Our main finding suggests that disagreement improves liquidity and thereby facilitates activism. We perform several tests that evaluate the importance of the valuation channel versus the liquidity channel. In order to shed light on the valuation channel, we examine short-run price reactions to investor disagreement, and how these reactions relate to the timing and extent of activist trading. Relating to a potential valuation mechanism, we have two main findings. First, despite there being a strong and positive contemporaneous relation, we find virtually no relation between overnight disagreement and next-day returns. Second, accounting for stock returns does not explain the empirical link

between overnight disagreement and next-day activist trading. Thus, the relation between investor disagreement and activist trading is not likely to operate through the valuation channel.

We next consider the stock liquidity channel. During the 60-day pre-filing period, we observe a weak empirical relation between disagreement and liquidity measures – Amihud (2002) illiquidity and the bid-ask spread. Further, we find no significant relation between overnight disagreement and next-day liquidity measures during the pre-filing period. Therefore, changes to stock liquidity measures do not offer a compelling explanation for the link between disagreement and activist trading. One potential reason is that in equilibrium, liquidity measures depend on prices, the extent of informed trading, and the extent of uninformed trading (Kyle, 1985). Therefore, if changes in disagreement lead to changes in prices, uninformed trading, and informed trading, the relationship between endogenously determined liquidity measures and disagreement is *ex ante* unclear. Digging deeper into the liquidity mechanism, we next examine non-activist trading as a proxy for uninformed trading. We argue that relative to trades by activist investors who control the timing and the content of activism campaign announcements, non-activist trades are likely to be uninformed about announcements of shareholder activism campaigns, and even less likely to be aware of the exact timing of activist trades. Therefore, if non-activist trading responds to disagreement, it can facilitate activism by easing trading in the firm's shares.

Consistent with non-activist trading providing liquidity that facilitates activist trades, we find that there is a tight link between disagreement and non-activist stock turnover in the 60-day period prior to a Schedule 13D filing. Moreover, the timing of non-activist trades aligns closely with the timing of activist trading. During the 60-day pre-filing period, the relation between overnight disagreement and next day non-activist stock turnover is stronger than the within-day relation between disagreement and non-activist stock turnover. Importantly, we find that the link between overnight disagreement and activist trading is explained by controlling for the amount of non-activist trading, suggesting that the relation between investor disagreement and activist trading is driven by uninformed trading. We do not find the same effect when we control for contemporaneous returns and illiquidity measures.

Further supporting the liquidity channel, we find that stock turnover is more sensitive to disagree-

ment during the 60-day pre-filing period than it is in the full sample. Moreover, within the pre-file period, disagreement leads to more non-activist trading on days when activists trade than on days when they do not trade. Specifically, one standard deviation increase in overnight disagreement leads to 1.02 percentage point increase in non-activist trading on days when activists trade and to 0.128 percentage point increase in non-activist trading on days when activists do not trade. This finding is consistent with activists investors choosing to trade during periods when disagreement generates more uninformed trading, i.e., more liquid periods from the activist's point of view. Overall, these findings indicate that the relation between investor disagreement and activist trading is likely to be driven by uninformed trading, which is encouraged by disagreement.

Our paper contributes to several strands of literature. First, our paper contributes to the literature on effects of investor disagreement on trading environment. Trading by informed investors has traditionally been thought of as being outside of disagreement models (Harris and Raviv, 1993; Kandel and Pearson, 1995; Hong and Stein, 1999). For instance, Harris and Raviv (1993) assume that traders have access to common information, but interpret market information differently. Hong and Stein (1999) assume that the same information diffuses gradually through the marketplace. Neither of these perspectives in the literature considers the actions of purely informed traders, separately from uninformed traders. However, as we show, disagreement has a quantitatively important effect on both the timing and intensity of informed trading, because such disagreement generates trading opportunities for informed investors, through increased trading by uninformed investors. That is, in market equilibrium, uninformed trading induced by investor disagreement leads to more informed trading and therefore facilitates the flow of information into prices. This result implies that it may be important to consider equilibrium responses by informed and sophisticated market participants to investor disagreement in order to fully understand the effects of disagreement on financial outcomes.¹ For instance, the effect of disagreement on stock prices and various liquidity measures depends on the actions of informed traders, as well as on the actions of uninformed traders.

¹By connecting the actions of sophisticated investors to the uninformed trades induced by disagreement, we provide a useful connection between the large disagreement literature and the intuition that sophisticated investors play an outsized role in shaping market outcomes. Related to this latter perspective, Kojen et al. (2020) show that sophisticated investors, particularly hedge funds and small active funds, are the most influential investors in shaping equity market valuations and expected returns.

Second, we provide a new setting in which disagreement can have not only informational, but also real effects. [Bailey et al. \(2018\)](#) show that disagreement can affect real estate prices. [Reed et al. \(2020\)](#) show that disagreement can partially explain the diversification puzzle. Similarly, [Huang et al. \(2020\)](#) show that disagreement affects security prices when held in portfolios. A natural implication of our finding that disagreement facilitates trading by activists is that disagreement facilitates activism itself ([Back et al., 2018](#)). As the existing literature indicates that there are positive long-term effects of activism on their targets (e.g. [Brav et al., 2010](#)), our finding that investor disagreement facilitates shareholder activism indicates a novel, real effect of disagreement.

Third, our results emphasize an important tension between the valuation and liquidity effects of disagreement on informed trading. Specifically, our findings are consistent with disagreement contributing to overvaluation ([Miller, 1977](#)) as well as with the positive effect of disagreement on uninformed trading (e.g., [Cookson and Niessner, 2020](#)). The tension between the two effects arises because activism is facilitated by undervaluation ([Brav et al., 2008](#)) and greater liquidity (e.g., [Collin-Dufresne and Fos \(2015\)](#), [Gantchev and Jotikasthira \(2018\)](#)). Our findings suggest that the liquidity channel is the primarily reason for the relation between investor disagreement and activist trading.

Finally, our work relates to an emerging strand of research using unique features of StockTwits data. The bulk of existing work on StockTwits focuses on the investor beliefs and market behavior of those on StockTwits, potentially as a proxy for a broader set of market participants ([Cookson and Niessner, 2020](#)). For example, existing work has used the fact that geography and social connections are observed on StockTwits to identify different sources of information ([Giannini et al., 2017](#); [Cookson et al., 2020b](#)). Alternatively, other work that uses StockTwits data identifies differences in investment philosophies or other ideology.² We depart from this literature by studying the behavior of identifiably privately-informed investors who are unlikely to express these informed opinions on StockTwits. By economically linking the trading behavior of an important subset of investors to StockTwits disagreement, our findings provide evidence of an important equilibrium mechanism

²[Cookson and Niessner \(2020\)](#) extract individual investor's broad investment philosophies from StockTwits user profiles, and use it to decompose overall disagreement into model-based disagreement versus information-based disagreement. In a complementary vein, [Cookson et al. \(2020a\)](#) identify partisan affiliation in the content of a user's tweets, and show that a significant partisan gap in investor beliefs emerges during the COVID-19 pandemic – namely, partisan Republicans remain substantially more optimistic.

through which investor disagreement can spill over into decisions of other market participants.

2 Data

2.1 StockTwits Data

Our data set to measure investor disagreement comes from a company called StockTwits. StockTwits was founded in 2008 as a social networking platform for investors to share their opinions about stocks. The website has a Twitter-like format, where participants post short messages and use “cashtags” with the stock ticker symbol (e.g., “\$AAPL”) to link a user’s message to a particular company. According to a website analytics tool, Alexa, StockTwits was ranked as the 2,004th most popular website in the US as of May 2015. The users are predominantly male, and the number of users with a graduate school degree is over-represented relative to other websites.

StockTwits provided us with the universe of messages posted between January 1, 2010, until December 31, 2018. In total, there are 144,641,361 messages by 487,265 unique users mentioning 13,248 unique tickers. For each message, we observe a user identifier and the message content. We also observe indicators for sentiment (bullish, bearish, or unclassified), and “cashtags” with tickers that link the message to particular stocks. For more information about the data, please refer to [Cookson and Niessner \(2020\)](#) who also perform a series of validation exercises.

Following prior work on StockTwits sentiment and disagreement, we restrict attention to messages that mention only one ticker to focus on sentiment that can be directly linked to a particular stock. Because it will be useful for our decomposition of disagreement into different types, we retain StockTwits messages by users who select an investment approach, holding period, and experience in their profile information. Further, to facilitate the link to the Schedule 13D filing data, we focus on firms that are headquartered in the United States and thus have regular filings with the SEC to facilitate linking with earnings announcement information. After these sampling restrictions, our final sample contains 22,475,108 messages by 68,284 unique users about 9,306 unique tickers.

We construct the disagreement measure by computing the standard deviation of expressed sentiment across messages for a given $firm \times day$. Because the underlying sentiment variable is binary (-1 for bearish sentiment and 1 for bullish sentiment), the variance of the sentiment measure during a time period t equals $1 - AvgSentiment^2$, where $AvgSentiment$ measures the average sentiment for a given $firm \times day$. Thus our disagreement measure is

$$Disagreement_{it} = \sqrt{1 - AvgSentiment_{it}^2} \quad (1)$$

The $AvgSentiment_{it}$ measure ranges from -1 (all bearish) to $+1$ (all bullish). This disagreement measure ranges from 0 to 1, with 1 being maximal disagreement. We apply the formula to firm-day observations that have non-zero messages. When there are no messages for a particular firm-day-group, the logic for this formula breaks down (i.e., it no longer represents the standard deviation of sentiment). To compute disagreement in this corner case, we maintain the assumption that non-posting means that traders do not wish to buy or sell in the near term. Accordingly, we normalize disagreement in the no-message case to be 0, consistent with latent agreement. This choice of how to normalize the no-message case is consistent with the idea that minimal disagreement should correspond to minimal trading.

2.2 Schedule 13D Trading Data

Rule 13d-1(a) of the 1934 Securities Exchange Act requires investors to file with the SEC within 10 days of acquiring beneficial ownership of more than 5% of a voting class of a company's equity securities registered under Section 12 of the Securities Exchange Act of 1934. We refer to the date when the beneficial ownership crosses the 5% threshold as the "event date" and to the date when the filing is sent to the SEC as the "filing date."

Information on trades executed by Schedule 13D filers is reported in Item 5(c). Item 5(c) of Schedule 13D requires the filer to report the date, price, and quantity of all trades in the underlying security

(common stock) executed during the 60 days that precede the filing date.³

The sample of Schedule 13D filings with information on trades is constructed as follows.⁴ First, we identify all Schedule 13D filings from 2010 to 2018. Next, we check the sample manually and identify events with information on trades. Since the trading characteristics of ordinary equities might differ from those of other assets, we retain only assets whose CRSP share codes are 10 or 11, that is, we discard certificates, ADRs, shares of beneficial interest, units, companies incorporated outside the U.S., Americus Trust components, closed-end funds, preferred stocks, and REITs. We further exclude stocks whose prices are below \$1 or above \$1,000. Finally, we exclude Schedule 13D/A filings (i.e., amendments to previously submitted filings) that are mistakenly classified as original Schedule 13D filings. The final sample comprises the universe of all Schedule 13D filings that satisfy the above criteria from 2010 to 2018, which totals 1,409 events. During the sample period, on average 157 events take place each year.

For each event we extract the following information from the Schedule 13D filings: the CUSIP of the underlying security, transaction date, transaction type (purchase or sell), transaction size, and transaction price. In the vast majority of cases transaction data are reported at a daily frequency. If the transaction data are more frequent than daily, we aggregate them to the daily level. Specifically, for each day we calculate the total change in stock ownership and the average purchase price. The average price is the quantity-weighted average of transaction prices.

2.3 Summary Statistics

Table 1 reports summary statistics of all variables. In Panel A, we report summary statistics for the entire sample, and in panel B we report summary statistics for the same variables during the $[t - 60, t - 1]$ period before Schedule 13D filings. We find that stock turnover during the $[t - 60, t - 1]$ period before Schedule 13D filings (125% turnover rate) is similar to stock turnover in the full sample (132% turnover rate). Similarly, the disagreement among investors is similar during the

³To quote from Item 5(c), filers have to “...describe any transactions in the class of securities reported on that were effected during the past sixty days or since the most recent filing of Schedule 13D, whichever is less...”

⁴See Collin-Dufresne and Fos (2015) for detailed description of the procedure.

$[t - 60, t - 1]$ period compared to the overall sample. However, the number of messages posted on StockTwits is lower during the $[t - 60, t - 1]$ period compared to the overall sample. During the $[t - 60, t - 1]$ period before Schedule 13D filings, activist investors trade on 37% of trading days. Finally, we find that the liquidity measures and stock returns are similar during the two time periods.

Figure 1 presents the average amount of activist investor trading (Panel A) and investor disagreement (Panel B) during the $[t - 60, t - 1]$ period before Schedule 13D filings. The figure indicates that both measures gradually increase as the filing date approaches.

[Insert Figure 1 here]

3 Disagreement and Trading Activity

We begin the empirical analysis by documenting the relation between the investor disagreement and trading activity. We estimate the following panel regression:

$$Y_{it} = \alpha_i + \alpha_t + \beta \text{Disagreement}_{it} + X'_{it} \gamma + \varepsilon_{it}, \quad (2)$$

where Y_{it} is an outcome variable for firm i on day t , Disagreement_{it} is measured from 4pm on day $t - 1$ to 4pm on day t , α_i are firm fixed effects, α_t are date fixed effects, and X is a vector of control variables (contemporaneous and lagged number of messages, lagged disagreement, lagged turnover, and lagged activist turnover). We consider three outcome variables: daily turnover (the ratio of trading volume to the number of shares outstanding), Amihud (2002) illiquidity measure, and the bid-ask spread. The results from estimating this specification are reported in Table 2.

[Insert Table 2 here]

Panel A reports the results for daily turnover. Columns 1 through 4 reveal that there is a strong positive relation between *Disagreement* and *Turnover*. The estimated coefficient is robust to including firm and date fixed effects, as well as time-varying controls. Across specifications, the estimated magnitude ranges from 0.1861 to 0.2224, which implies a one standard deviation increase in *Disagreement* for a given observation ($sd = 0.055$) is associated with between 0.19 and 0.22 percentage points greater *Turnover*. Such a magnitude is approximately one sixth of the average daily turnover, which equals 1.32 percent.

The positive relation between *Disagreement* and *Turnover* could be driven by either a contemporaneous relation or a predictive relation, in which disagreement predicts future trading activity. In order to differentiate between these possibilities, we use the exact timing of the message posts on StockTwits to replace *Disagreement* measure with two sub-daily measures of disagreement (Cookson and Niessner, 2020). These two measures are *Disagreement Night_{it}* and *Disagreement Day_{it}*. *Disagreement Night_{it}* is the standardized average StockTwits message sentiment for messages posted prior to trading on day t (i.e., from 4pm on day $t - 1$ to 9am of day t) about the target of Schedule 13D filing i . *Disagreement Day_{it}* is the standardized average of StockTwits message sentiment for messages posted during trading hours on day t (i.e., from 9am to 4pm on day t) about the target of Schedule 13D filing i . Similarly to the *Disagreement* measure, we replace one of control variables, the number of messages, with the number of messages during the night and the number of messages during the day. This way we make sure that the variation in the *Disagreement* measure is not purely reflecting differences in message posting.

The results in columns 6 through 8 of Table 2, Panel A, indicate that both *Disagreement Day* and *Disagreement Night* are positively and significantly associated with *Turnover*. When we compare the coefficients of *Disagreement Day* and *Disagreement Night*, however, we find the contemporaneous within-day disagreement is associated with roughly twice as much turnover as overnight disagreement (e.g., 0.2204 versus 0.1205 in column 8). Specifically, an F -test that compares these two coefficients rejects the hypotheses they are equal at significance level greater than 0.1%.⁵

⁵Further, we show in column 4 that disagreement at a one-day lag is no longer associated with stock turnover. Thus, we are confident that the estimates do not reflect persistent effects of disagreement and trading from previous days.

Panels B and C in Table 2 report the results for two liquidity measures, Amihud (2002) illiquidity measure and the bid-ask spread. Columns 1 through 3 in both panels show a strong negative relation between disagreement and stock illiquidity, for both Amihud (2002) illiquidity and bid-ask spread. For example, column 3 in Panel B shows that a standard deviation increase in disagreement is associated with a 5% drop in the Amihud illiquidity measure (significant at 1%), and panel C shows that a standard deviation increase in disagreement is associated with 5% reduction in the bid-ask spread (significant at 1%). The change in bid-ask spread corresponds to about 3% reduction relative to the average bid-ask spread in our sample.

The results in columns 6 through 8 of Panels B and C indicate that both *Disagreement Day* and *Disagreement Night* are negatively and significantly associated with measures of illiquidity, suggesting that greater disagreement signals a better trading environment for informed traders. Further, we find that this relationship is more pronounced when we consider the contemporaneous relationship between disagreement and measures of illiquidity, rather than the predictive relationship based on overnight disagreement. Specifically, for both Amihud illiquidity and the bid ask spread, the relationship between day disagreement and illiquidity is stronger than the relationship between night disagreement and illiquidity, and this difference is significant at 1%.

We next consider the relationship between disagreement and stock returns. The results are reported in Table 3. Columns 1 through 4 indicate a positive relation between disagreement and stock returns. Column 1, for example, shows that a standard deviation increase in disagreement is associated with approximately a 9 basis point higher returns. This finding is consistent with Hong and Stein (1999), who posit that disagreement with short-sale constraints should lead to positive price pressure. Columns 6 through 8 indicate that this positive relationship is driven by the contemporaneous relationship between disagreement and returns, rather than the predictive relationship. Specifically, the results indicate that the relationship between day disagreement and stock returns is positive and significant, but the relationship between night disagreement and stock returns is indistinguishable from zero when we include firm fixed effects. The statistical difference between the coefficient on day versus night disagreement is significant at the 1% level. This finding is consistent with either the positive relationship is driven by disagreement reacting to changes in prices, or the relationship

between disagreement and stock returns being very short-lived.

[Insert Table 3 here]

4 Investor Disagreement and Informed Trading

In the overall sample, the results indicate that disagreement is positively and significantly associated with stock turnover and liquidity, indicating that disagreement is likely to facilitate informed trading through the liquidity channel. On the other hand, we also find that disagreement leads to higher stock prices. Since activist shareholders in our sample are primarily purchasing shares, the valuation channel can discourage trading by activist shareholders. In this section, we examine the relationship between disagreement and informed trading by activist investors in more detail.

4.1 Empirical Strategy

In this section, we develop an empirical strategy to measure the response of sophisticated investors to *Disagreement*. We consider a particular class of sophisticated investors – activist shareholders on the precipice of an activist campaign. We extract from Schedule 13D regulatory filings the precise timing and size of privately informed trades by activists in the run-up period to obtaining beneficial ownership in a firm as part of an activist campaign (Collin-Dufresne and Fos (2015)).

Using Schedule 13D trading data combined with sub-daily measures of disagreement, we can measure how activist trades respond to investor disagreement. Specifically, we estimate the following regression:

$$Activist Trade_{it} = \alpha_i + \alpha_t + \beta_1 Disagreement Night_{it} + \beta_2 Disagreement Day_{it} + X'_{it} \gamma + \varepsilon_{it}, \quad (3)$$

where *Activist Trade* is an indicator of days with activist trading on day t during $[t - 60, t - 1]$ period prior to Schedule 13D filing i . All other variables are as described in section 3. We estimate this regression during $[t - 60, t - 1]$ period prior to Schedule 13D filing, meaning that the coefficients are identified based on the within 60-day period variation. By restricting attention to the pre-file period, the estimates do not reflect factors that drive selection of these periods of activism. The estimates from the regression (3) identify the relation between disagreement and trading at the extensive margin (whether an activist trades on a given day). To separately shed light on the intensive margin (how much an activist trades), we estimate regression (3) while restricting the sample only to days when Schedule 13D filers trade (*activist trade* equals one) and replacing the outcome variable with *Activist Turnover_{it}*, which is the fraction of shares outstanding accumulated by the activist on day t .

A useful feature of this setting is that the activist trades are typically unknown to market participants during the pre-filing window ($[t - 60, t - 1]$). The fact that these trades are not public knowledge until the Schedule 13D filing (e.g., Collin-Dufresne and Fos (2015)) mitigates the reverse causality concern that the knowledge that activists are trading leads to disagreement. However, it is still possible that changes in volume and prices, caused by activist trading, lead to more disagreement. Here, we rely on another important aspect of our study – that we measure investor disagreement separately for messages posted prior to the market opening (*Disagreement Night*) and for messages posted during trading hours (*Disagreement Day*). Using this measurement, we can test whether investor disagreement prior to the market open subsequently leads to activist trading ($\beta_1 > 0$). By doing so, we not only establish that investor disagreement is a strong correlate of shareholder activism, but also provide support for a causal relation between investor disagreement and activists' trading strategies.

4.2 Main Findings

Table 4 reports results on the relation between disagreement and activists' trading decisions during $[t - 60, t - 1]$ period prior to Schedule 13D filing. In Panel A, the outcome variable is *Activist Trade*, an indicator of days with activist trading.

[Insert Table 4 here]

Column 1 shows that when investor disagreement increases, activist shareholders are more likely to purchase shares.⁶ A standard deviation increase in disagreement is associated with approximately a 0.9092 percentage point increase in the likelihood that an activist accumulates shares in the target firm on that day. Relative to the average frequency of trading in the pre-file period of 37.24%, this estimate implies an increase of 2.44% in the likelihood that an activist trades at all on a given day. This is an economically meaningful difference in trading activity, and our estimate is statistically significant at the 1% level, clustering the standard errors by firm and date.

Further, the estimates in column 1, control for lagged turnover rate and lagged indicator of activist trading. The estimated coefficients on these control variables show that activists are more likely to trade following days with high turnover. Moreover, the likelihood of activist trading increases by more than 0.46 percentage points following a day with activist trading, suggesting that activists are likely to trade on several consequent days. These estimates provide another useful quantitative benchmark for the estimated coefficient on disagreement, which is roughly twice as large as the estimated coefficient on these other determinants of trading during the pre-file period. Importantly, we find that the coefficient on disagreement and the number of messages remain significant when we include these two control variables in the regression.

Next, we consider the estimates in column 2, which distinguish the role of night disagreement from day disagreement. The coefficients of *Disagreement Day* and *Disagreement Night* indicate that both night and day disagreement measures are significantly and positively related to activist trading decisions. When we compare the coefficient estimates of night and day disagreement measures, we find that the relation between night disagreement and activist trading is stronger than the relation between day disagreement and activist trading (0.887 versus 0.391). Although the estimated coefficient on night disagreement is twice as large as the coefficient of day disagreement, the difference between these two coefficients is not statistically significant. Overall, the evidence is consistent

⁶Activists purchase shares on the vast majority of days when they trade during the pre-file period because this is a period in which they are accumulating a block holding. Thus, we focus exclusively on purchases during this period, and refer to activist purchases, rather than activist trading.

with investor disagreement predicting activist trading, and the fact that disagreement leads activist trading in time mitigates the concern that disagreement emerges because of activist trading. Similar to column 1, the coefficient estimate on night disagreement is roughly twice as large as estimated coefficients on lagged turnover and lagged activist trading.

In Panel B of Table 4, we investigate the intensive margin of the relationship between disagreement and activist trading. Specifically, we restrict attention to the days when the activist makes at least some purchases of the target firm's shares to focus on variation in *how much* the activist purchases. The outcome variable in Panel B is *Activist Turnover*, which is the fraction of shares outstanding purchased by the activist multiplied by 100. The result in column 1 of panel B show that a standard deviation increase in *Disagreement* leads to an intensive margin increase of activist turnover of 0.0455 percentage points, which is nearly a 19% increase in the number of shares purchased by the activist (statistically significant at the 1% level). Further, in column 2, we observe that the intensive margin increase in activist turnover is more tightly linked to overnight disagreement (0.0412 versus 0.0295), a difference that is statistically significant at the 10% level (p-value of 0.054).

4.3 Mechanism

Investor disagreement can affect activist trading through two opposing channels. On the one hand, investor disagreement can lead to overvaluation because pessimism is not fully incorporated into prices when short selling is limited (Miller (1977)). According to this *valuation channel*, disagreement discourages activist trading because activist investors aim to profit from increasing firm value, and thus, tend to stay away from overvalued firms. The evidence in Table 3 suggests that the valuation channel can affect informed trading in this manner. On the other hand, disagreement can affect activist trading through a *liquidity channel* because liquidity is important for the share accumulation process by activist shareholders (Back et al. (2018)). If disagreement improves liquidity (Cookson and Niessner (2020)) and activist investors trade strategically in order to reduce price impact of their purchases (Collin-Dufresne and Fos (2015)), disagreement could facilitate shareholder activism. Supporting this channel, the evidence in Table 2 shows that disagreement improves mea-

asures of stock liquidity. In this section, we perform several tests that evaluate the relative importance of the valuation channel versus the liquidity channel.

We begin by studying the relationship between disagreement and *Ex-activist trading* (trading by non-activist investors). We calculate *Ex-activist trading* by regressing turnover on activist turnover and taking the residual. The results are reported in Table 5, which reports ex-activist turnover as a percentage by multiplying it by 100. In columns 1 and 2, we focus on the period during $[t - 60, t - 1]$ prior to Schedule 13D filing. Column 1 shows that higher investor disagreement leads to higher ex-activist trading. The estimates in column 2, which distinguish the role of night disagreement from day disagreement, reveal that both night and day disagreement measures are significantly and positively related to ex-activist trading activity. When we compare the coefficient estimates of night and day disagreement measures, we find that the relation between night disagreement and activist trading is *stronger* than the relation between day disagreement and activist trading (0.585 versus 0.423). The difference between these two coefficients is statistically significant at 5% level.⁷

[Insert Table 5 here]

Columns 3 through 6 show that the relationship between investor disagreement and ex-activist trading is different between days when activist investors trade and the days they don't trade. In columns 3 and 4, we consider days when activist investors trade and find that the predictive relation between investor disagreement and ex-activist trading is more than twice as strong as during the whole $[t - 60, t - 1]$ period. Specifically, column 4 shows that during activist trading days the predictive relation between night disagreement and ex-activist trading is *stronger* than the relation between day disagreement and activist trading (1.075 versus 0.736). The difference between these two coefficients is statistically significant at 1% level. In contrast, when we consider days when activist investors do not trade, we find that the difference between the coefficients on night disagreement and day disagreement is not statistically significant. Furthermore, when we compare the effect of overall disagreement on ex-activist trading, in columns 3 and 5, we find that the relationship is al-

⁷Table A.1 in the Internet Appendix shows that these results are robust to using an alternative measure of ex-activist turnover: total turnover minus activist turnover.

most 10 times stronger during the days when activist investors trade relative to the days they do not.

Overall, the results are consistent with activist investors trading on days when uninformed investors react especially strongly to investor disagreement. In particular, they are more likely to trade in response to night disagreement when night disagreement leads to higher ex-activist trading activity. Since ex-activist trading activity is by construction the fraction of daily turnover that is uncorrelated with activist trading activity, our findings are consistent with the liquidity channel.

We next consider the relationship between disagreement and stock returns. The results are reported in Table 6. Columns 1 and 2 report the results during $[t - 60, t - 1]$ prior to Schedule 13D filing and indicate a positive relation between disagreement and stock returns. Column 1, for example, shows that a standard deviation increase in disagreement is associated with approximately a 20 basis point higher return. This finding is consistent with [Hong and Stein \(1999\)](#). Interestingly, column 2 indicates that this relationship is driven by the contemporaneous relationship between disagreement and returns, rather than the predictive relationship, similar to what we find in the overall sample in Table 3. Specifically, the results indicate that the relationship between day disagreement and stock returns is positive and significant, but the relationship between night disagreement and stock returns is indistinguishable from zero. The statistical difference between the two is significant at the 1% level.

[Insert Table 6 here]

When we consider days when activist investors trade, we find a similar pattern: the relationship between day disagreement and stock returns is stronger than the relationship between night disagreement and stock returns. Column 4 shows that a standard deviation increase in night (day) disagreement is associated with approximately a 31 (12) basis point higher returns. The difference between these two coefficients is significant at 5% level. Because the link between stock returns and disagreement is driven by the day disagreement while trading is more tightly linked to overnight disagreement, these findings imply that the relation between disagreement and stock returns is not

likely to explain the predictive relation disagreement and activist trading. Instead, the evidence indicates that ex-activist trading, via the liquidity channel, is the most plausible mechanism through which disagreement affects activist trading.

In columns 5 and 6 we consider the relationship between disagreement and stock returns on days when activist investors do not trade. We find that whereas the relationship between day disagreement and stock returns is positive on days when activist investors do not trade, it is smaller than on days when activist investors do trade. For instance, the coefficient on day disagreement is 31 basis points in column 4 and 12 basis points in column 6 (a difference in estimates that is highly statistically significant). This finding is consistent with night disagreement facilitating ex-activist trading and consequently informed trading by activists. When activists trade, their private information is transmitted into prices and therefore leads to positive returns.

We next turn our attention to the relationship between disagreement and two illiquidity measures, [Amihud \(2002\)](#) illiquidity measure and the bid-ask spread. The results are reported in [Table 7](#), where Panel A reports the results for Amihud illiquidity and Panel B shows reports the results for the bid-ask spread. Overall, the results indicate a weak negative relationship between disagreement and illiquidity measures during the $[t - 60, t - 1]$ period. When we consider days when activist investors trade, the relationship between disagreement and Amihud illiquidity measure becomes insignificant, whereas the relation between disagreement and bid-ask spread becomes significant at 1%. For both day and night measures, we observe no significant relationship with disagreement on days when activist investors do not trade. Importantly, when we separately consider day and night disagreement, we find that the relationship is insignificant for measures of illiquidity.

[Insert [Table 7](#) here]

Overall, changes to stock illiquidity measures do not offer a compelling explanation for the link between disagreement and activist trading during the pre-file period. One potential reason is that in equilibrium, liquidity measures depend on prices, the extent of informed trading, and the extent of uninformed trading ([Kyle \(1985\)](#), [Collin-Dufresne and Fos \(2016\)](#)). Therefore, if changes in

disagreement lead to both changes in prices, as well as uninformed and informed trading, the relationship between endogenously determined liquidity measures and disagreement is *ex ante* unclear.

We conclude the analysis of economic mechanisms by investigating the impact of controlling for stock returns, illiquidity measures, and ex-activist turnover in specifications that link disagreement to activist trading. Specifically, we augment equation (3) by including controls for these potential mechanisms. The results of this analysis are reported in Table 8.

[Insert Table 8 here]

In Panel A of Table 8, we examine the role of these variable in explaining the extensive margin, i.e., the relationship between disagreement and the likelihood of activist trading. We perform the analysis by individually controlling for those measures in columns 1 through 4, and then controlling for them together in columns 5 and 6. The results indicate that ex-activist trading is the most powerful explanation for the predictive relation between night disagreement and the extensive margin decision of an activist to trade. Indeed, as we show in columns 1 through 4, the only control that meaningfully affects the estimated coefficients on the disagreement variables is ex-activist turnover (column 4).⁸ When we control for other liquidity measures and stock returns in columns 1 through 3, the estimated coefficients of night disagreement and day disagreement are similar in magnitude to the main tests in Table 4, though their inclusion leads the estimated difference between night and day disagreement to be marginally statistically insignificant. As the results in columns 5 and 6 illustrate, this feature of our results remains when we include all of the other controls in the same specification.

Panel B in Table 8 focuses on the relationship between disagreement and the intensive margin of activist trading. The results, based on the sample of days when activist trade, provide corroborative evidence that ex-activist trading is the main factor that drives the predictive relationship between disagreement and activist trading. Specifically, the results in columns 1, 2, 3, and 5 indicate that when we control for stock returns as well as measures of illiquidity, the relationship between night

⁸Table A.2 in the Internet Appendix shows that these results are robust to controlling for an alternative measure of ex-activist turnover.

disagreement and activist trading remains stronger than the relationship between day disagreement and activist trading. In contrast, columns 4 and 6 show that only when we include ex-activist trading in the regression, the relationship between night disagreement and activist trading becomes similar to the relationship between day disagreement and activist trading. Overall, our findings are consistent with the liquidity channel contributing to the relationship between disagreement and activist trading.

5 Conclusion

In this paper, we study how a particular class of sophisticated investors – activist shareholders on the precipice of an activist campaign – respond to shareholder disagreement. We find that investor disagreement leads to higher likelihood of activist trading on a given day, as well as to more activist trading on days when activists trade. We strengthen the causal interpretation of this finding by disaggregating our daily disagreement measure into overnight disagreement versus within-day disagreement. We find a robust link between overnight shareholder disagreement and the next day activist trading, consistent with disagreement affecting activist trading. Additional analyses indicate that this relation is driven by the liquidity mechanism: disagreement leads to more trading by ex-activist investors, which improves liquidity and thereby facilitates activism.

Our findings show that disagreement has a quantitatively important effect on both the timing and intensity of informed trading, because such disagreement generates trading by uninformed investors, and thus, opening up trading opportunities for informed investors. This mechanism suggests that uninformed trading induced by disagreement may be an important force that facilitates the flow of information into prices. Further, our results indicate that investor disagreement affects trading by an important class of informed investors – activist shareholders. Given that the existing literature indicates that there are positive long-term effects of activism on their targets, our finding that investor disagreement facilitates shareholder activism reveals a novel real effect of disagreement.

Overall, our results suggest that it may be important to consider equilibrium responses by informed

and sophisticated market participants to investor disagreement in order to fully understand the effects of disagreement on financial markets.

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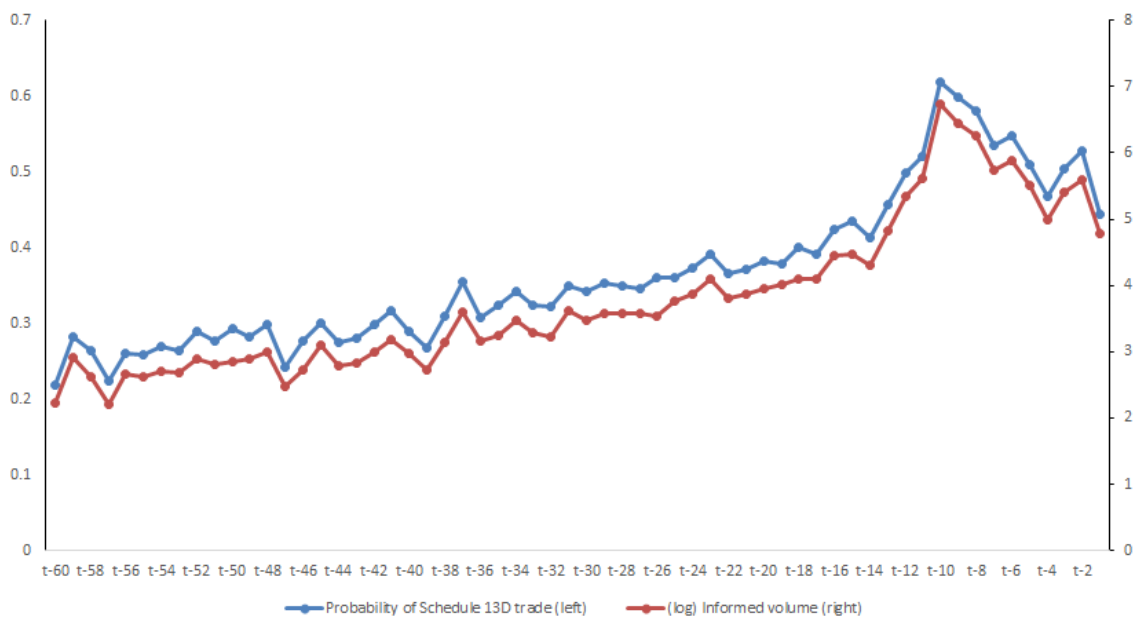
6 Tables and Figures

Figures

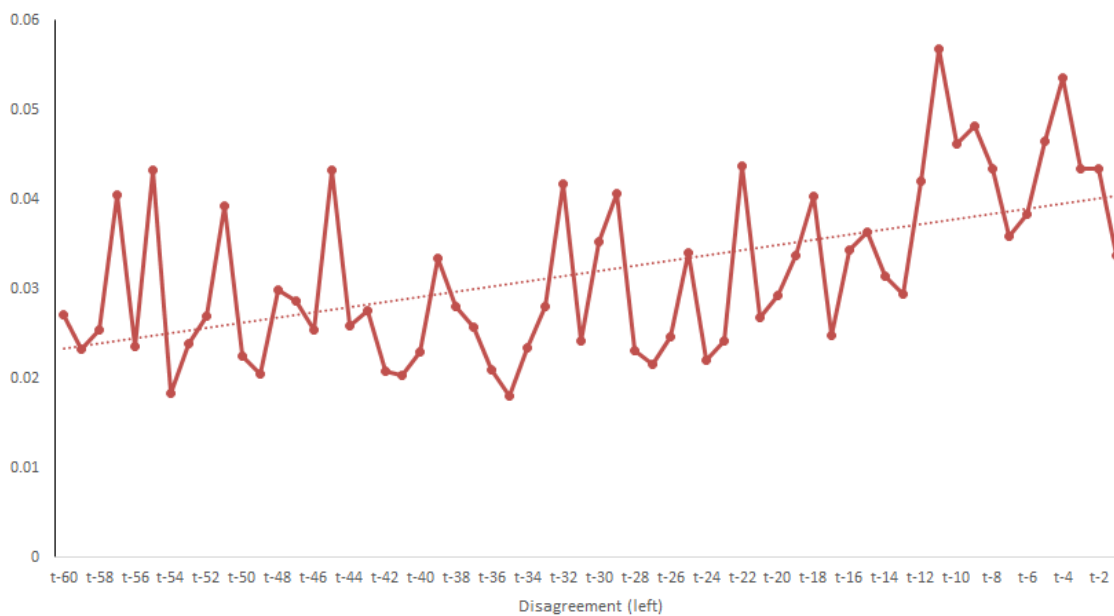
Figure 1: Schedule 13D trading and investor disagreement.

Note: Panel (a) plots the probability of Schedule 13D trade and the (log) Schedule 13D trading volume. Panel (b) plots the investor disagreement from Stock tweet data. The sample covers Schedule 13D target firms from 60 days prior to Schedule 13D filing date to the filing date.

(a) Schedule 13D Trading



(b) Investor Disagreement



Tables

Table 1: Summary Statistics

Note: This table reports summary statistics of firm-day-level variables during 60-day period prior to Schedule 13D filing. The sample covers 2010-2018 period when Stock Tweets data are available. All potentially-unbounded variables are winsorized at 1% and 99% Stars *, **, and *** indicate statistical significance at the 10%, 5% and 1% level respectively.

<i>Firm-day level variables</i>	N (1)	mean (2)	sd (3)	min (4)	25% (5)	50% (6)	75% (7)	max (8)
<i>Panel A: Entire Sample</i>								
Turnover	15,743,897	1.321	4.989	0.000	0.189	0.449	0.966	93.829
Disagreement	15,743,897	0.054	0.215	0.000	0.000	0.000	0.000	1.000
Disagreement - Night	15,743,897	0.025	0.150	0.000	0.000	0.000	0.000	1.000
Disagreement - Day	15,743,897	0.035	0.176	0.000	0.000	0.000	0.000	1.000
Number of messages	15,743,897	1.290	16.667	0.000	0.000	0.000	0.000	5769.000
Number of messages - Night	15,743,897	0.844	11.413	0.000	0.000	0.000	0.000	4237.000
Number of messages - Day	15,743,897	0.446	6.410	0.000	0.000	0.000	0.000	3953.000
Return	15,743,897	0.000	0.027	-0.174	-0.009	0.000	0.009	0.224
Amihud	15,743,897	0.859	10.444	0.000	0.000	0.004	0.034	260.558
Bid-Ask Spread	15,743,897	1.536	3.901	0.000	0.134	0.352	1.124	51.724
<i>Panel B: 60-day period prior to Schedule 13D filings</i>								
Trade Dummy	56,041	37.241	48.345	0.000	0.000	0.000	100.000	100.000
Activist Turnover	56,041	0.107	0.433	0.000	0.000	0.000	0.047	7.423
Ex Activist Turnover	56,041	-0.263	3.919	-1.501	-1.295	-0.981	-0.350	92.327
Turnover	56,041	1.251	3.938	0.000	0.210	0.526	1.166	93.829
Disagreement	56,173	0.055	0.218	0.000	0.000	0.000	0.000	1.000
Disagreement - Night	56,173	0.024	0.149	0.000	0.000	0.000	0.000	1.000
Disagreement - Day	56,173	0.034	0.174	0.000	0.000	0.000	0.000	1.000
Number of messages	56,173	0.895	6.958	0.000	0.000	0.000	0.000	622.000
Number of messages - Night	56,173	0.580	5.177	0.000	0.000	0.000	0.000	512.000
Number of messages - Day	56,173	0.315	2.747	0.000	0.000	0.000	0.000	405.000
Return	56,041	0.001	0.032	-0.174	-0.011	0.000	0.011	0.224
Amihud	55,602	0.576	8.067	0.000	0.001	0.007	0.048	260.558
Bid-Ask Spread	56,044	1.646	3.530	0.000	0.205	0.499	1.522	51.867

Table 2: Investor Disagreement, Turnover, and Liquidity

Note: This table reports the relation between turnover, liquidity measures and disagreement among investors. In Panel A, the dependent variable is turnover on day t multiplied by 100, in Panel B, the dependent variable is the Amihud illiquidity measure (based on Amihud 2002), and in Panel C, the dependent variable is the bid-ask spread. *Disagreement* is measured from 4pm on day $t-1$ to 4pm on day t . *Disagreement Night* is disagreement between 4pm on day $t-1$ and 9am on day t , and *Disagreement Day* is disagreement between 9am and 4pm on day t . All disagreement measures are standardized. The sample covers 2010-2018. All regressions include firm and date fixed-effects where indicated. Heteroskedasticity-robust standard errors are double-clustered at firm and date level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

<i>Panel A: Dependent variable – Turnover</i>							
	(1)	(2)	(3)	(4)	(6)	(7)	(8)
Disagreement	0.2146*** (0.013)	0.1861*** (0.014)	0.2224*** (0.013)	0.2193*** (0.013)			
Number of messages	0.0248*** (0.006)	0.0152*** (0.005)	0.0249*** (0.006)	0.0468*** (0.009)			
Disagreement (t-1)				-0.0001 (0.005)			
Number of messages (t-1)				-0.0316*** (0.006)			
Disagreement - Night					0.1153*** (0.008)	0.0656*** (0.009)	0.1205*** (0.008)
Disagreement - Day					0.2165*** (0.015)	0.1888*** (0.015)	0.2204*** (0.015)
Number of messages - Night					-0.0115*** (0.003)	-0.0200*** (0.005)	-0.0113*** (0.003)
Number of messages - Day					0.0420*** (0.010)	0.0312*** (0.009)	0.0419*** (0.010)
Turnover (t-1)	0.6223*** (0.013)	0.7891*** (0.014)	0.6212*** (0.013)	0.6323*** (0.013)	0.6202*** (0.013)	0.7875*** (0.014)	0.6190*** (0.013)
Activist Turnover (t-1)	-1.3691*** (0.139)	-2.2128*** (0.176)	-1.3262*** (0.138)	-1.3303*** (0.137)	-1.3652*** (0.138)	-2.2035*** (0.175)	-1.3218*** (0.137)
Observations	15,732,372	15,732,377	15,732,372	15,732,372	15,732,372	15,732,377	15,732,372
R-squared	0.680	0.647	0.682	0.686	0.682	0.649	0.684
Dis Night - Dis Day					-0.1012	-0.1233	-0.0999
F-Test					122.72	118.49	122.29
P-value					0.000	0.000	0.000
Dis Night - Dis Day effect size					-7.659%	-9.332%	-7.567%
Mean					1.321	1.321	1.321
Firm FEs	X		X	X	X		X
Date FEs		X	X	X		X	X

<i>Panel B: Dependent variable – Amihud Measure</i>							
	(1)	(2)	(3)	(4)	(6)	(7)	(8)
Disagreement	-0.0633*** (0.005)	-0.1568*** (0.006)	-0.0516*** (0.005)	-0.0436*** (0.004)			
Number of messages	-0.0017 (0.001)	0.0001 (0.000)	-0.0016 (0.001)	-0.0014* (0.001)			
Disagreement (t-1)				-0.0378*** (0.004)			
Number of messages (t-1)				-0.0001 (0.001)			
Disagreement - Night					-0.0241*** (0.004)	-0.0625*** (0.003)	-0.0177*** (0.003)
Disagreement - Day					-0.0489*** (0.005)	-0.1006*** (0.004)	-0.0415*** (0.004)
Number of messages - Night					-0.0009 (0.001)	-0.0001 (0.000)	-0.0008 (0.001)
Number of messages - Day					-0.0018* (0.001)	0.0008*** (0.000)	-0.0017* (0.001)
Turnover (t-1)	-0.0244*** (0.002)	-0.0371*** (0.003)	-0.0256*** (0.003)	-0.0246*** (0.002)	-0.0242*** (0.002)	-0.0371*** (0.003)	-0.0254*** (0.002)
Activist Turnover (t-1)	-0.3606*** (0.064)	-0.5053*** (0.083)	-0.3370*** (0.065)	-0.3289*** (0.065)	-0.3640*** (0.064)	-0.5151*** (0.083)	-0.3393*** (0.065)
Observations	15,326,276	15,326,282	15,326,276	15,326,276	15,326,276	15,326,282	15,326,276
R-squared	0.116	0.002	0.117	0.117	0.116	0.002	0.117
Dis Night - Dis Day					0.0247	0.0381	0.0238
F-Test					125.33	257.94	106.12
P-value					0.000	0.000	0.000
Dis Night - Dis Day effect size					2.881%	4.435%	2.769%
Mean					0.859	0.859	0.859
Firm FEs	X		X	X	X		X
Date FEs		X	X	X		X	X

<i>Panel C: Dependent variable – Bid-ask Spread</i>							
	(1)	(2)	(3)	(4)	(6)	(7)	(8)
Disagreement	-0.0588*** (0.004)	-0.1572*** (0.006)	-0.0501*** (0.003)	-0.0411*** (0.003)			
Number of messages	-0.0018*** (0.001)	0.0001 (0.000)	-0.0017*** (0.001)	-0.0011*** (0.000)			
Disagreement (t-1)				-0.0426*** (0.003)			
Number of messages (t-1)				-0.0006* (0.000)			
Disagreement - Night					-0.0279*** (0.002)	-0.0706*** (0.003)	-0.0229*** (0.002)
Disagreement - Day					-0.0471*** (0.003)	-0.0938*** (0.005)	-0.0417*** (0.003)
Number of messages - Night					-0.0012* (0.001)	-0.0006** (0.000)	-0.0010 (0.001)
Number of messages - Day					-0.0018*** (0.001)	0.0011* (0.001)	-0.0018*** (0.001)
Turnover (t-1)	-0.0165*** (0.001)	-0.0405*** (0.002)	-0.0182*** (0.001)	-0.0170*** (0.001)	-0.0162*** (0.001)	-0.0406*** (0.002)	-0.0179*** (0.001)
Activist Turnover (t-1)	-0.2282*** (0.063)	-0.0657 (0.097)	-0.2059*** (0.063)	-0.1969*** (0.062)	-0.2306*** (0.063)	-0.0755 (0.097)	-0.2076*** (0.063)
Observations	15,732,271	15,732,276	15,732,271	15,732,271	15,732,271	15,732,276	15,732,271
R-squared	0.501	0.011	0.505	0.505	0.501	0.010	0.505
Dis Night - Dis Day					0.0192	0.0232	0.0187
F-Test					185.83	76.22	177.96
P-value					0.000	0.000	0.000
Dis Night - Dis Day effect size					1.249%	2.881%	2.881%
Mean					1.536	1.536	1.536
Firm FEs	X		X	X	X		X
Date FEs		X	X	X		X	X

Table 3: Investor Disagreement and Returns

Note: This table reports the relation between returns and disagreement among investors. The dependent variable, returns, is calculated as the close-to-close return from CRSP. *Disagreement* is measured from 4pm on day $t-1$ to 4pm on day t . *Disagreement Night* is disagreement between 4pm on day $t-1$ and 9am on day t , and *Disagreement Day* is disagreement between 9am and 4pm on day t . All disagreement measures are standardized. The sample covers 2010-2018. All regressions include firm and date fixed-effects where indicated. Heteroskedasticity-robust standard errors are double-clustered at firm and date level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

<i>Dependent variable – Returns</i>							
	(1)	(2)	(3)	(4)	(6)	(7)	(8)
Disagreement	0.0009*** (0.000)	0.0007*** (0.000)	0.0009*** (0.000)	0.0010*** (0.000)			
Number of messages	0.0001*** (0.000)	0.0000*** (0.000)	0.0001*** (0.000)	0.0001*** (0.000)			
Disagreement (t-1)				-0.0003*** (0.000)			
Number of messages (t-1)				-0.0001*** (0.000)			
Disagreement - Night					-0.0000 (0.000)	-0.0002*** (0.000)	-0.0000 (0.000)
Disagreement - Day					0.0011*** (0.000)	0.0009*** (0.000)	0.0011*** (0.000)
Number of messages - Night					-0.0002*** (0.000)	-0.0002*** (0.000)	-0.0002*** (0.000)
Number of messages - Day					0.0002*** (0.000)	0.0002*** (0.000)	0.0002*** (0.000)
Turnover (t-1)	-0.0001*** (0.000)	-0.0001*** (0.000)	-0.0001*** (0.000)	-0.0001*** (0.000)	-0.0001*** (0.000)	-0.0001*** (0.000)	-0.0001*** (0.000)
Activist Turnover (t-1)	0.0046*** (0.001)	0.0047*** (0.001)	0.0048*** (0.001)	0.0049*** (0.001)	0.0046*** (0.001)	0.0048*** (0.001)	0.0049*** (0.001)
Observations	15,732,422	15,732,427	15,732,422	15,732,422	15,732,422	15,732,427	15,732,422
R-squared	0.003	0.107	0.108	0.110	0.006	0.109	0.111
Dis Night - Dis Day					-0.0011	-0.0010	-0.0011
F-Test					216.36	215.18	245.77
P-value					0.000	0.000	0.000
Dis Night - Dis Day effect size					2.881%	2.881%	2.881%
Mean					0.0003	0.0003	0.0003
Firm FEs	X		X	X	X		X
Date FEs		X	X	X		X	X

Table 4: Effect of Investor Disagreement on Activist Trading

Note: This table reports the relation between activist trading and disagreement among investors. *Disagreement* is measured from 4pm on day $t-1$ to 4pm on day t . *Disagreement Night* is disagreement between 4pm on day $t-1$ and 9am on day t , and *Disagreement Day* is disagreement between 9am and 4pm on day t . All disagreement measures are standardized. In Panel A, the dependent variable is an indicator variable equal 100 if there was activist trading for firm i on day t , and zero otherwise. The sample covers the 60-day period prior to Schedule 13D filings during 2010-2018. In Panel B, the dependent variable is activist turnover for firm i on day t , multiplied by 100. The sample covers days with activist trading during the 60-day period prior to Schedule 13D filings during 2010-2018. All regressions include firm and date fixed-effects. Heteroskedasticity-robust standard errors are double-clustered at firm and date level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

<i>Panel A: Dependent variable – Trade dummy</i>		
	(1)	(2)
Disagreement	0.9092*** (0.202)	
Number of messages	0.1440*** (0.026)	
Disagreement - Night		0.8870*** (0.205)
Disagreement - Day		0.3913* (0.212)
Number of messages - Night		0.2719*** (0.088)
Number of messages - Day		0.0676* (0.036)
Turnover (t-1)	0.4079*** (0.063)	0.3947*** (0.064)
Trade Dummy (t-1)	0.4635*** (0.009)	0.4637*** (0.009)
Observations	55,999	55,999
R-squared	0.414	0.414
Dis Night - Dis Day		0.4957
F-Test		2.540
P-value		0.112
Disagreement effect size	2.441%	
Dis Night - Dis Day effect size		1.331%
Mean	37.241	37.241
Firm FEs	X	X
Date FEs	X	X

<i>Panel B: Dependent variable – Activist Turnover</i>		
	(1)	(2)
Disagreement	0.0455*** (0.004)	
Number of messages	0.0025*** (0.001)	
Disagreement - Night		0.0412*** (0.004)
Disagreement - Day		0.0295*** (0.004)
Number of messages - Night		0.0016 (0.001)
Number of messages - Day		0.0017* (0.001)
Turnover (t-1)	0.0017 (0.001)	0.0014 (0.001)
Activist Turnover (t-1)	0.1429*** (0.015)	0.1461*** (0.015)
Observations	20,840	20,840
R-squared	0.429	0.435
Dis Night - Dis Day		0.0117
F-Test		3.720
P-value		0.054
Disagreement effect size	18.828%	
Dis Night - Dis Day effect size		4.826%
Mean	0.242	0.242
Firm FEs	X	X
Date FEs	X	X

Table 5: Effect of Investor Disagreement on Ex-activist Turnover

Note: This table reports the relation between ex-activist trading and disagreement among investors. The dependent variable, *ex-activist turnover*, is calculated by regressing turnover on activist turnover and taking the residual, and is multiplied by 100. *Disagreement* is measured from 4pm on day $t-1$ to 4pm on day t . *Disagreement Night* is disagreement between 4pm on day $t-1$ and 9am on day t , and *Disagreement Day* is disagreement between 9am and 4pm on day t . All disagreement measures are standardized. In columns (1) and (2), the sample covers the 60-day period prior to Schedule 13D filings. In columns (3) and (4) the sample covers days during 60-day period prior to Schedule 13D filings, that have some activist turnover. In columns (5) and (6) the sample covers days during 60-day period prior to Schedule 13D filings, that have no activist turnover. All regressions include firm and date fixed-effects. Heteroskedasticity-robust standard errors are double-clustered at firm and date level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

<i>Dependent variable – Ex-activist Turnover</i>						
	(1)	(2)	(3)	(4)	(5)	(6)
	60-day period		Activist-Trading Days		Non Activist-Trading Days	
Disagreement	0.5436*** (0.058)		1.0271*** (0.104)		0.1280** (0.063)	
Number of messages	0.1820*** (0.030)		0.1677*** (0.031)		0.2130*** (0.050)	
Disagreement - Night		0.5855*** (0.065)		1.0754*** (0.112)		0.1522** (0.059)
Disagreement - Day		0.4237*** (0.056)		0.7369*** (0.102)		0.1326** (0.060)
Number of messages - Night		0.1126* (0.058)		0.1156** (0.055)		0.1461 (0.091)
Number of messages - Day		0.1856*** (0.036)		0.1577*** (0.036)		0.2233*** (0.057)
Turnover (t-1)	0.1746*** (0.020)	0.1674*** (0.021)	0.0435* (0.025)	0.0350 (0.026)	0.2257*** (0.034)	0.2240*** (0.036)
Activist Turnover (t-1)	-0.0287 (0.111)	-0.0273 (0.114)	-0.7123*** (0.173)	-0.6500*** (0.161)	-0.2066 (0.145)	-0.2075 (0.146)
Observations	55,999	55,999	20,840	20,840	35,133	35,133
R-squared	0.358	0.372	0.440	0.465	0.537	0.540
Dis Night - Dis Day		0.1618		0.3386		0.0195
F-Test		5.130		6.990		0.110
P-value		0.024		0.008		0.739
Disagreement effect size	206.303%		462.874%		23.209%	
Dis Night - Dis Day effect size		61.405%		152.577%		3.541%
Mean	-0.263	-0.263	0.222	0.222	-0.552	-0.552
Firm FEs	X	X	X	X	X	X
Date FEs	X	X	X	X	X	X

Table 6: Effect of Investor Disagreement on Stock Return

Note: This table reports the relation between stock returns and disagreement among investors. The dependent variable, returns, is calculated as the close-to-close return from CRSP. *Disagreement* is measured from 4pm on day $t-1$ to 4pm on day t . *Disagreement Night* is disagreement between 4pm on day $t-1$ and 9am on day t , and *Disagreement Day* is disagreement between 9am and 4pm on day t . All disagreement measures are standardized. In columns (1) and (2), the sample covers the 60-day period prior to Schedule 13D filings. In columns (3) and (4) the sample covers days during 60-day period prior to Schedule 13D filings, that have some activist turnover. In columns (5) and (6) the sample covers days during 60-day period prior to Schedule 13D filings, that have no activist turnover. All regressions include firm and date fixed-effects. Heteroskedasticity-robust standard errors are double-clustered at firm and date level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

<i>Dependent variable – Returns</i>						
	(1)	(2)	(3)	(4)	(5)	(6)
	60-day period		Activist-Trading Days		Non Activist-Trading Days	
Disagreement	0.0020*** (0.000)		0.0027*** (0.001)		0.0011*** (0.000)	
Number of messages	0.0002 (0.000)		0.0001 (0.000)		0.0006*** (0.000)	
Disagreement - Night		0.0004 (0.000)		0.0012* (0.001)		-0.0003 (0.001)
Disagreement - Day		0.0021*** (0.000)		0.0031*** (0.001)		0.0012*** (0.000)
Number of messages - Night		0.0001 (0.000)		0.0004* (0.000)		-0.0004 (0.001)
Number of messages - Day		0.0003 (0.000)		-0.0002 (0.000)		0.0009*** (0.000)
Turnover (t-1)	-0.0003*** (0.000)	-0.0003*** (0.000)	-0.0004*** (0.000)	-0.0005*** (0.000)	-0.0004** (0.000)	-0.0004** (0.000)
Activist Turnover (t-1)	0.0045*** (0.001)	0.0045*** (0.001)	0.0006 (0.001)	0.0010 (0.001)	0.0027* (0.001)	0.0027* (0.001)
Observations	55,999	55,999	20,840	20,840	35,133	35,133
R-squared	0.144	0.145	0.252	0.256	0.193	0.196
Dis Night - Dis Day		-0.0017		-0.0019		-0.0015
F-Test		12.890		4.620		4.740
P-value		0.000		0.032		0.030
Disagreement effect size	224.417%		110.321%		3405.573%	
Dis Night - Dis Day effect size		-194.172%		-78.315%		4591.765%
Mean	0.00089	0.00089	0.00245	0.00245	-0.00003	-0.00003
Firm FEs	X	X	X	X	X	X
Date FEs	X	X	X	X	X	X

Table 7: Effect of Investor Disagreement on Liquidity Measures

Note: This table reports the relation between proxies for liquidity and disagreement among investors. In Panel A, the dependent variable, is the Amihud illiquidity measure (based on Amihud 2002). In Panel B, the dependent variable is the bid-ask spread. *Disagreement* is measured from 4pm on day $t-1$ to 4pm on day t . *Disagreement Night* is disagreement between 4pm on day $t-1$ and 9am on day t , and *Disagreement Day* is disagreement between 9am and 4pm on day t . For both Panels, in columns (1) and (2), the sample covers the 60-day period prior to Schedule 13D filings. In columns (3) and (4) the sample covers days during 60-day period prior to Schedule 13D filings, that have some activist turnover. In columns (5) and (6) the sample covers days during 60-day period prior to Schedule 13D filings, that have no activist turnover. All regressions include firm and date fixed-effects. Heteroskedasticity-robust standard errors are double-clustered at firm and date level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

<i>Panel A: Dependent variable – Amihud</i>						
	(1)	(2)	(3)	(4)	(5)	(6)
	60-day period		Activist-Trading Days		Non Activist-Trading Days	
Disagreement	-0.0184*		-0.0185		-0.0179	
	(0.010)		(0.015)		(0.017)	
Number of messages	0.0005		-0.0000		0.0002	
	(0.001)		(0.000)		(0.004)	
Disagreement - Night		-0.0070		-0.0040		-0.0077
		(0.010)		(0.004)		(0.018)
Disagreement - Day		-0.0124		-0.0179		-0.0208
		(0.009)		(0.016)		(0.014)
Number of messages - Night		0.0042*		-0.0001		0.0185***
		(0.002)		(0.000)		(0.007)
Number of messages - Day		-0.0010		0.0002		-0.0046
		(0.001)		(0.000)		(0.005)
Turnover (t-1)	-0.0033	-0.0035	0.0019	0.0019	-0.0180**	-0.0185**
	(0.003)	(0.003)	(0.001)	(0.001)	(0.009)	(0.009)
Activist Turnover (t-1)	-0.3999***	-0.3999***	-0.0674	-0.0685	-0.3311**	-0.3307**
	(0.093)	(0.093)	(0.047)	(0.048)	(0.156)	(0.156)
Observations	55,560	55,560	20,810	20,810	34,723	34,723
R-squared	0.175	0.175	0.372	0.372	0.227	0.227
Dis Night - Dis Day		0.0054		0.0139		0.0131
F-Test		0.200		0.690		0.390
P-value		0.651		0.406		0.533
Disagreement effect size	-3.192%		-11.286%		-2.173%	
Dis Night - Dis Day effect size		0.939%		8.498%		1.589%
Mean	0.576	0.576	0.164	0.164	0.824	0.824
Firm FEs	X	X	X	X	X	X
Date FEs	X	X	X	X	X	X

<i>Panel B: Dependent variable – Bid-ask spread</i>						
	(1)	(2)	(3)	(4)	(5)	(6)
	60-day period		Activist-Trading Days	Non Activist-Trading Days		
Disagreement	-0.0106*		-0.0276***		-0.0007	
	(0.006)		(0.010)		(0.008)	
Number of messages	-0.0008		-0.0002		-0.0022	
	(0.001)		(0.001)		(0.002)	
Disagreement - Night		-0.0067		-0.0131		-0.0068
		(0.007)		(0.011)		(0.009)
Disagreement - Day		-0.0036		-0.0170		0.0087
		(0.006)		(0.011)		(0.009)
Number of messages - Night		-0.0033***		-0.0005		-0.0009
		(0.001)		(0.001)		(0.002)
Number of messages - Day		0.0003		0.0002		-0.0028
		(0.001)		(0.001)		(0.003)
Turnover (t-1)	-0.0073***	-0.0072***	-0.0018	-0.0018	-0.0211***	-0.0213***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.006)	(0.006)
Activist Turnover (t-1)	-0.1898***	-0.1906***	-0.0644	-0.0663	-0.0828	-0.0828
	(0.060)	(0.060)	(0.054)	(0.055)	(0.071)	(0.071)
Observations	55,999	55,999	20,840	20,840	35,133	35,133
R-squared	0.674	0.674	0.686	0.686	0.708	0.708
Dis Night - Dis Day		-0.0031		0.0040		-0.0155
F-Test		0.110		0.050		1.170
P-value		0.745		0.821		0.279
Disagreement effect size	-0.644%		-2.224%		-0.037%	
Dis Night - Dis Day effect size		-0.186%		0.320%		-0.822%
Mean	1.6455	1.6455	1.2412	1.2412	1.8854	1.8854
Firm FEs	X	X	X	X	X	X
Date FEs	X	X	X	X	X	X

Table 8: Effect of Investor Disagreement on Activist Trading with Controls

Note: This table examines whether the relation between activist trading and disagreement among investors changes when we include controls for return, liquidity, or ex-activist turnover. In Panel A, the dependent variable is an indicator variable equal 100 if there was activist trading for firm i on day t , and zero otherwise. The sample covers the 60-day period prior to Schedule 13D filings. In Panel B, the dependent variable is activist turnover for firm i on day t , multiplied by 100. The sample covers only days with activist trading during the 60-day period prior to Schedule 13D filings. *Disagreement* is measured from 4pm on day $t-1$ to 4pm on day t . *Disagreement Night* is disagreement between 4pm on day $t-1$ and 9am on day t , and *Disagreement Day* is disagreement between 9am and 4pm on day t . All disagreement measures are standardized. For both Panels, in columns (1) and (2), the sample covers the time period 2010-2018. In columns (3) and (4), the sample covers the 60-day period prior to Schedule 13D filings. In columns (5) and (6) the sample covers days during 60-day period prior to Schedule 13D filings, that have some activist turnover. All regressions include firm and date fixed-effects. Heteroskedasticity-robust standard errors are double-clustered at firm and date level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

<i>Panel A: Dependent variable – Trade dummy</i>						
	(1)	(2)	(3)	(4)	(5)	(6)
Disagreement - Night	0.8640*** (0.204)	0.8814*** (0.205)	0.8834*** (0.205)	0.1148 (0.195)	0.8554*** (0.204)	0.1280 (0.195)
Disagreement - Day	0.2819 (0.215)	0.3888* (0.212)	0.3896* (0.212)	-0.1672 (0.212)	0.2771 (0.215)	-0.1891 (0.213)
Number of messages - Night	0.2695*** (0.094)	0.2733*** (0.088)	0.2704*** (0.088)	0.1232* (0.071)	0.2697*** (0.095)	0.1283* (0.071)
Number of messages - Day	0.0544 (0.039)	0.0672* (0.036)	0.0678* (0.036)	-0.1772*** (0.061)	0.0539 (0.039)	-0.1729*** (0.062)
Returns	51.0436*** (7.245)				51.5327*** (7.244)	18.4315*** (7.032)
Amihud		-0.1830*** (0.022)			-0.1755*** (0.022)	-0.1728*** (0.022)
Bid-ask			-0.4889*** (0.094)		-0.3580*** (0.104)	-0.3358*** (0.102)
Ex Activist Turnover				1.3188*** (0.083)		1.2681*** (0.084)
Trade Dummy (t-1)	0.4624*** (0.009)	0.4643*** (0.009)	0.4630*** (0.009)	0.4631*** (0.009)	0.4625*** (0.009)	0.4629*** (0.009)
Turnover (t-1)	0.4063*** (0.064)	0.3917*** (0.064)	0.3901*** (0.064)	0.1758*** (0.066)	0.4002*** (0.064)	0.1824*** (0.066)
Observations	55,999	55,560	55,999	55,999	55,560	55,560
R-squared	0.415	0.415	0.414	0.421	0.416	0.422
Dis Night - Dis Day	0.5822	0.4926	0.4937	0.2820	0.5783	0.3171
F-Test	3.490	2.500	2.510	0.900	3.430	1.130
P-value	0.062	0.114	0.113	0.344	0.064	0.288
Dis Night - Dis Day effect size	1.563%	1.323%	1.326%	0.757%	1.553%	0.851%
Mean	37.241	37.241	37.241	37.241	37.241	37.241
Firm FEs	X	X	X	X	X	X
Date FEs	X	X	X	X	X	X

<i>Panel B: Dependent variable – Activist Turnover</i>						
	(1)	(2)	(3)	(4)	(5)	(6)
Disagreement - Night	0.0401*** (0.004)	0.0412*** (0.004)	0.0412*** (0.004)	0.0156*** (0.004)	0.0401*** (0.004)	0.0156*** (0.004)
Disagreement - Day	0.0265*** (0.004)	0.0293*** (0.004)	0.0295*** (0.004)	0.0120*** (0.004)	0.0262*** (0.004)	0.0118*** (0.004)
Number of messages - Night	0.0012 (0.002)	0.0017 (0.001)	0.0016 (0.001)	-0.0011 (0.001)	0.0012 (0.002)	-0.0011 (0.001)
Number of messages - Day	0.0019** (0.001)	0.0017* (0.001)	0.0017* (0.001)	-0.0020* (0.001)	0.0019** (0.001)	-0.0020* (0.001)
Returns	0.9873*** (0.134)				0.9903*** (0.134)	0.0014 (0.129)
Amihud		-0.0028** (0.001)			-0.0029** (0.001)	-0.0027** (0.001)
Bid-ask			-0.0017 (0.002)		-0.0019 (0.002)	-0.0017 (0.002)
Ex Activist Turnover				0.0238*** (0.001)		0.0238*** (0.001)
Activist Turnover (t-1)	0.1452*** (0.015)	0.1455*** (0.015)	0.1460*** (0.015)	0.1616*** (0.014)	0.1444*** (0.015)	0.1610*** (0.014)
Turnover (t-1)	0.0019 (0.001)	0.0014 (0.001)	0.0014 (0.001)	0.0006 (0.001)	0.0019 (0.001)	0.0006 (0.001)
Observations	20,840	20,810	20,840	20,840	20,810	20,810
R-squared	0.441	0.435	0.435	0.494	0.441	0.495
Dis Night - Dis Day	0.0136	0.0119	0.0117	0.0036	0.0138	0.0039
F-Test	5.070	3.870	3.720	0.450	5.270	0.520
P-value	0.025	0.049	0.054	0.502	0.022	0.471
Dis Night - Dis Day effect size	5.609%	4.933%	4.828%	1.491%	5.725%	1.602%
Mean	0.242	0.242	0.242	0.242	0.242	0.242
Firm FEs	X	X	X	X	X	X
Date FEs	X	X	X	X	X	X

Internet Appendix to:

**Does Disagreement Facilitate Informed Trading? Evidence from
Activist Investors**

This Internet Appendix contains a comprehensive set of additional statistics and robustness exercises for our paper, “Does Disagreement Facilitate Informed Trading? Evidence from Activist Investors”

A Appendix Tables and Figures

Table A.1: Effect of Investor Disagreement on Ex-Activist Turnover

Note: This table reports the relation between the disagreement and the number of messages between investors and ex-activist turnover. This table reports estimates of equation (3). The dependent variable is ex-activist turnover. Ex-activist turnover is measured as the number of shares traded on day t minus the number of shares traded by activist investors on date t , divided by shares outstanding. Activist turnover is measured as the number of shares traded by activist investors divided by shares outstanding. All regressions include firm and date fixed-effects. The sample covers 2010-2018. Columns (1) and (2) include the entire sample, whereas columns (3) and (4) are limited to $[-60, t-1]$ period around Schedule 13D filing date. Heteroskedasticity-robust standard errors are double-clustered at firm and date level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

<i>Dependent variable – Turnover minus Activist Turnover</i>				
	(1)	(2)	(3)	(4)
Disagreement	0.2201*** (0.013)		0.2515*** (0.038)	
Number of messages	0.0248*** (0.006)		0.1366*** (0.025)	
Disagreement - Night		0.1187*** (0.008)		0.2551*** (0.040)
Disagreement - Day		0.2187*** (0.015)		0.2281*** (0.039)
Number of messages - Night		-0.0116*** (0.003)		0.0721* (0.038)
Number of messages - Day		0.0419*** (0.010)		0.1511*** (0.036)
Turnover (t-1)	0.6207*** (0.013)	0.6185*** (0.013)	0.1153*** (0.023)	0.1130*** (0.023)
Activist Turnover (t-1)	-0.0055*** (0.000)	-0.0055*** (0.000)	-0.0027*** (0.000)	-0.0027*** (0.000)
Observations	15,731,488	15,731,488	55,997	55,997
R-squared	0.682	0.684	0.362	0.370
Dis Night - Dis Day		-0.1000		0.0270
F-Test		122.270		0.310
P-value		0.000		0.580
Firm FEs	X	X	X	X
Date FEs	X	X	X	X

Table A.2: Effect of Investor Disagreement on Activist Turnover

Note: This table reports the relation between the disagreement and the number of messages between investors and different types of trading volume. This table reports estimates of equation (3). The dependent variable is activist turnover. Activist turnover is measured as the number of shares traded by activist investors divided by shares outstanding. All regressions include firm and date fixed-effects. The sample covers 2010-2018 and is limited to $[t-60, t-1]$ period around Schedule 13D filing date. Heteroskedasticity-robust standard errors are double-clustered at firm and date level. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Dependent variable – Activist Turnover			
	(1)	(2)	(3)
Disagreement - Night	0.3795 (0.311)	0.5377* (0.310)	2.1945*** (0.345)
Disagreement - Day	-0.4679 (0.348)	-0.3552 (0.347)	0.9129** (0.358)
Number of messages - Night	0.1788 (0.128)	0.2032 (0.125)	0.5644*** (0.198)
Number of messages - Day	-0.2995*** (0.100)	-0.2542*** (0.094)	0.3868*** (0.082)
Turnover	2.4020*** (0.155)		
Ex-Activist Turnover		2.1902*** (0.147)	
Turnover minus Activist Turnover			-1.5766*** (0.284)
Turnover (t-1)	0.1838 (0.113)	0.2262** (0.112)	0.7639*** (0.110)
Activist Turnover (t-1)	0.4841*** (0.008)	0.4850*** (0.008)	0.4804*** (0.008)
Observations	55,997	55,997	55,997
R-squared	0.431	0.429	0.424
Dis Night - Dis Day	0.8474	0.8929	1.2816
F-Test	3.140	3.480	6.230
P-value	0.077	0.063	0.013
Firm FEs	X	X	X
Date FEs	X	X	X