CLUSTERED DISCLOSURE UPON SCHEDULED MACRO NEWS ANNOUNCEMENTS: A REAL-OPTION BASED APPROACH

HU XIAOLI

(*Master in Accounting; NANJING UNIVERSITY, CHINA*)

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Supervisors:
Professor Oliver Zhen Li, Main Supervisor
Dr Yupeng Lin, Co-Supervisor

Examiners:
Professor Ke Bin
Dr Seo Hojun
Associate Professor Mei Cheng, University of Arizona

DECLARATION

I hereby declare that this thesis is my original work and it has been written by me in its entirety. I have duly acknowledged all the sources of information which have been used in the thesis.

This thesis has also not been submitted for any degree in any university previously.

Hu Xiaoli

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In Memory of My Father

To My Mother

With Love and Eternal Appreciation

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Clustered Disclosure upon Scheduled Macro News Announcements: A Real-option Based Approach

1. *Introduction*

In a world of uncertainty, firms strategically make contingent decisions. In this regard, a firm can be viewed as a portfolio of real options. Prior studies in finance and economics have shown that real option is a significant factor in corporate investment decisions (e.g., Bernanke, 1983; McDonald and Siegel, 1986; Dixit, 1992; Quigg, 1993; Guiso and Parigi, 1999; Kellogg, 2014). Recently, some researchers begin to incorporate real-option analysis into corporate disclosure studies (Acharya, DeMarzo, and Kremer, 2011; Arif, Marshall, and Yohn, 2016). In this paper, I adopt the real-option perspective and examine how scheduled macro news announcements shape the strategic timing of management voluntary disclosure.

When a manager receives some private information, he/she discloses this information only when it is beneficial to the stock price if he/she seeks to maximize market value of the firm. Now assume that there will be a macro news announcement in the future. In awareness of the upcoming macro news, the manager faces a real-option problem. First, macro news will have a price impact on the firm, which adds to the uncertainty in the payoff from a disclosure decision. Second, the disclosure of private information is irreversible because the manager cannot recall what has been disclosed to the market.[1] Third, the manager has the

[1] Irreversibility is an important assumption in the real-option theory. When the real-decision is about investment, it is easy to understand that once an investment is made, it is hard to stop/ has a sunk cost. As for disclosure decisions, one may argue that a manager can always make a new announcement to update the belief of the market. In this sense, the disclosure decision does not seem to be "irreversible". However, though making a new announcement to revise markets' beliefs (when the private information is not changed) seems to have very low direct cost, it can impose other significant costs, such as reputation loss and higher chance of lawsuits, etc. Such cost can be very high when the forecast horizon is short because it will be difficulty for managers to attribute the forecast error to their own uncertainty about the firm performance. In addition, once the

option to disclose immediately or to wait until the realization of the macro news to decide whether to disclose the private information. If a manager chooses to disclose the private information before the macro news announcement because it is temporarily good for the stock price, the manager faces a risk that after the macro news announcement, conditional on the macro news, the stock price may be higher if the private information is not disclosed to the market (but the manager cannot recall the private information). As a result, the option of waiting has value because the manager will have more information about how market will respond to a given piece of private information in the post macro news announcement stage if he/she chooses to wait and see.

A notable feature of macro news announcements is that most of the announcements are pre-scheduled (Savor and Wilson, 2013). In addition, the timing of macro news announcements is exogenous to individual firms in an economy. According to Acharya, DeMarzo, and Kremer (2011), if the macro news is pre-scheduled, the option value of waiting will increase dramatically when it approaches the macro news announcement. As a result, managers will find it too costly to disclose private information before the macro news announcement. Once the macro news arrives, the real option matures, and the value of waiting drops to zero. The net value of private information disclosure will thus increase, resulting in a positive probability of immediate disclosure. Since macro news affects all firms in the economy, this will induce many firms to simultaneously disclose private information after macro news arrives. As a result, corporate disclosure will cluster after scheduled macro news announcements.

I use U.S. monetary policy announcements (known as FOMC meetings) to test

manager discloses the information, they reveals their endowment of information, which they cannot hide from the market again.

the real-option based prediction discussed above. I choose FOMC meetings for two reasons. First, FOMC meetings are regular meetings with schedules disclosed to the public in advance. Second, monetary policy has a prevailing impact on the stock market among all macroeconomic news. A vast body of finance and economic literature documents a significant price impact of monetary policy on capital markets and the real economy (Hardouvelis, 1987; Cutler, Poterba, and Summers, 1989; McQueen and Roley, 1993; Kuttner, 2001; Ehrmann and Fratzscher, 2004, to list a few). Anecdotal evidence also suggests that investors view monetary policy as one of the most important factors in decision making. For example, when discussing stock market in an interview, the prominent investor Warren Buffett emphasized the importance of interest rate over all other valuation-related variables:

> "*Every number has some degree of meaning. It means more sometimes than others. … And both of the things that you mentioned get bandied around a lot. It's not that they're unimportant. … They can be very important. Sometimes they can be almost totally unimportant. …* ***The most important thing is future interest rates.***"[2]

Due to the above two features of FOMC meetings, I expect that corporate disclosure will cluster after FOMC meetings. Note that, one assumption in the real-option story is that, managers receive the private information before the macro news announcement so that the managers do have the option to wait.[3] Thus, in the empirical analysis, I mainly focus on short horizon management guidances issued during the last month or even after the forecasted period end. It is reasonable to assume that for such short-horizon management guidances, managers already have enough information about the firm performance. Using a

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[2] https://finance.yahoo.com/news/warren-buffett-everything-valuation-gets-back-interest-rates-140328844.html

[3] On the contrary, if the macro news arrives before managers' private information, Acharya, DeMarzo and Kremer (2011) show that the macro news announcement should not affect the timing of managers' private information disclosure.

Cox Duration model, I provide evidence on the clustering of short horizon management guidances following FOMC announcements. Specifically, I show that managers are 14.26% more likely to issue quarterly management guidances during the [1, 3] trading day window after FOMC announcements than on adjacent days. The clustering effect remains evident after controlling for other confounding factors such as firms' own 8-k fillings, industry peers' management guidances, and industry peers' earnings announcements.

In order to substantiate the inference that the observed clustering of management guidances results from the reduction in the option value, I conduct a set of tests. First, I narrow down the estimation sample to short periods ([-10, 10], [-7,7] and [-5,5] trading day windows) around FOMC meetings to examine whether the clustering effect following FOMC announcements still holds. The results suggest that even during such short periods, the probability of management voluntary disclosure is significantly higher in the window following FOMC announcements. These results confirm that there is a discontinuity in disclosure probability around FOMC meetings as predicted by the real-option theory. Second, the option value of waiting should be positively related to the policy uncertainty regarding FOMC meetings. As such, I expect a stronger clustering effect when ex-ante policy uncertainty is high. I examine two types of policy uncertainty: the policy uncertainty faced by the entire market and the idiosyncratic uncertainty about monetary policy faced by individual managers. To measure the market-level policy uncertainty, I use the volatility of surprise in interest rate change as well as the dispersion of market expectation in interest rate change. I find that the clustering effect is more pronounced when there is higher ex-ante monetary policy uncertainty faced by the entire market. To measure managers' idiosyncratic uncertainty about monetary policy, I regress the change in a firm's performance

on a set of macro variables and use the R-square of this model to proxy for managers' idiosyncratic uncertainty. I show that the clustering effect is stronger when managers face higher idiosyncratic uncertainty about monetary policy. Third, according to prior studies, equity price responds negatively to the surprise in interest rate change of FOMC announcements. When the stock price drops after an FOMC announcement, managers are more likely to find it beneficial to disclose private information. I expect the clustering effect to increase with the surprise in interest rate change. Consistent with this expectation, I show that there is a monotonically increasing pattern in the clustering effect of management guidances when surprise in interest rate change increases. Fourth, prior studies suggest that firms facing high litigation risk have less incentive to withhold private information because the potential litigation cost of delaying disclosure will be high. I thus expect that the clustering effect to be lower for firms in high litigation risk firms. Accordingly, I show that, firms in high litigation risk industries disclose management guidances significantly earlier than other firms. And more importantly, I do not find a clustering of management guidances immediately after FOMC meetings for these high litigation risk firms. Finally, in the real-option story, managers have incentive to "wait and see" because such a strategy may potentially results in a higher stock price in the post FOMC period. However, the inflated stock price can only hold temporarily because in the end the true earnings will be disclosed to the market. If a FOMC meeting is scheduled shortly before the deadline of earnings announcement, then the value of the real option will be much lower and managers do not have much incentive to take the "wait and see" strategy. Following this logic, I divide FOMC meetings into two groups according to the length between the meeting and the beginning of the forecasted quarter. I show that, for FOMC meetings that take place in an earlier stage, the clustering effect

of management guidances is much stronger than that for FOMC meetings in later stage.

One may note that the decline in the option value of waiting may not be the only driver for the observed clustering of voluntary disclosure after FOMC announcements. First of all, in the real option story, managers' private information is not affected by the public news. However, in reality, the target interest rate change will affect the investment, financing cost, future cash flow, and ultimately the performance of a firm. If managers update their own belief regarding the firm performance after FOMC announcement and disclose the updated information immediately, we may still observe a clustering of voluntary disclosure. However, the fact that I mainly focus on short horizon management guidances helps mitigate this concern. For these short horizon guidances, the forecasted period (almost) finished when the guidances are issued, and thus the performance of the forecasted period are less likely to be affected by the change in the target interest rates in the future. The observed clustering of management guidances after FOMC meetings in such a sample is not likely to be driven by the updated private information story. To further rule out the new private information story, I show that, there is no significant difference in the accuracy/ error of management guidances issued right before and issued right after FOMC meetings in my sample. Overall, the research design which focus on the short horizon management guidances, together with the forecast accuracy/ error evidence suggest that, the observed clustering effect after FOMC meetings in my sample is due to managers' strategic behavior rather than their timely updating of new private information. Second, other incentives may also motivate managers to strategically disclose private information after FOMC announcements. For example, prior studies document that agency problems and career concerns also incentivize strategic disclosure (Nagar, Nanda, and Wysocki,

2003; Tse and Tucker, 2010; Pae, Song, and Yi, 2016). Managers with career concerns may prefer to disclose bad news following FOMC meetings because it is easier for them to attribute their own firms' poor performance to that of the entire economy during such periods. However, several cross-sectional tests suggest that career concern is unlikely a first order factor for the observed clustering effect. First, if career concern is the first order effect, one would expect the clustering effect to be more pronounced when there is a negative surprise in interest rate change because it indicates an unsatisfying macroeconomic condition in general. However, my analysis suggests the opposite. Second, managers in possession of bad news are more likely to issue management guidances after FOMC meetings if career concern is their main incentive. However, I find that the clustering effect is more pronounced for Walk-up management guidances (Forecasted EPS higher than analyst forecasts) than Walk-down management guidances. I then test the career concern hypothesis directly. Managers subject to severe labor market competition may have stronger incentives to disclose private information following FOMC meetings if career concern is their main incentive. In contrast, the results show that the clustering effect of management guidances during FOMC meetings is less pronounced for managers in industries with lower than median number of peer firms (which means higher labor market competition for managers). Overall, these results suggest that career concern is not likely the first-order factor driving the clustering of management voluntary disclosure after FOMC announcements.[4]

[4] Note that, these results do not mean that career concern is not important in shaping managers' disclosure decision in response to monetary policy news. Rather, it only suggests that career concern is not the driving factor for management guidances issuance during the narrow event window ([-1, 1]) in this study. During such a short window, I expect the impact of decline in option value to play a more important role. On the contrary, managers who want to bundle private information to macro news announcement to reduce their responsibility for firm performance can still disclose bad news during a longer period after the event window. In some un-tabulated results, I do find increased likelihood of management disclosure for Walk-down guidances but not for Walk-up guidances on an extended window after the event window. However I do not further explore the extended window since this is not the main focus of my paper.

This paper contributes to the literature in several ways. First, this paper contributes to the growing literature on the applications of real-option theory in corporate disclosure decisions. A large body of literature in finance and economics focuses on the real-option problem in investment and capital expenditure decisions (e.g., Bernanke, 1983; McDonald and Siegel, 1986; Dixit, 1992; Quigg, 1993; Guiso and Parigi, 1999; Kellogg, 2014). Very few accounting paper has incorporated the real-option analysis into corporate disclosure studies. One exception is a recent paper by Arif, Marshall, and Yohn (2016), which views accounting accruals as a form of investment and examines the relation between accruals and volatility on a real-option basis. Note that, theoretically, Acharya, DeMarzo, and Kremer (2011) have provided a solid economic foundation for the real option problem in voluntary disclosure decisions and its impact on the timing of disclosure. My paper contributes to this strand of literature by providing empirical evidence on how the real-option problem shapes the timing of voluntary disclosure when managers face a pre-scheduled macro news announcement.

Second, this paper contributes to the literature on the timing of management guidances. Many studies find that managers strategically time management guidances for different incentives (Skinner, 1997; Aboody and Kasznik, 2000, Cheng and Lo, 2006; Cheng, Luo, and Yue, 2013; Bergman and Roychowdhury, 2008; Tse and Tucker, 2010). However, few papers focus on the clustering of management guidances, though the clustering of corporate disclosure is a notable phenomenon in reality (Acharya, DeMarzo, and Kremer, 2011; Agarwal and Kolev, 2016). One exception is Tse and Tucker (2010), which documents that managers time warnings with industry peers' warnings, which leads to an industrial clustering of earnings warnings. In this paper, we show that the clustering effect can be driven by a common exogenous shock which affects all firms simultaneously.

Third, this paper contributes to the literature on the interaction between firm-level and macro-level information. Prior studies mainly focus on the interaction of the contents of these two types of information (Anilowski, Feng, and Skinner, 2007; Konchitchki and Patatoukas, 2014; Li, Richardson, and Tuna, 2014; Aobdia, Caskey, and Ozel, 2014). This study advances the discussion by examining the interaction between the timing of macro news announcements and private information disclosure. Kim, Pandit, and Wasley (2016) investigate how macroeconomic uncertainty affects the likelihood to issue management forecasts. Note that Kim, Pandit, and Wasley (2016) focus on how the cost of providing managerial forecast regarding forecast precision affects the probability of issuing managerial forecasts. In contrast, this paper relies on the real-option theory and examines the effect of option value of waiting on the strategic timing of managerial voluntary disclosure.[5]

Finally, this paper also contributes to the literature on the impact of macro news announcements. Prior studies mainly focus on the contents of macro news and its impact on security prices. Some recent studies start to pay attention to the scheduled feature of macro news and the related macroeconomic risk. For example, Savor and Wilson (2013) document that the stock market average excess return before important scheduled macro news announcements is 10 times of that on other days (11.4 bps versus 1.1 bps). Lucca and Moench (2015) show that the U.S. stock market exhibits significantly positive excessive return during the 24 hours prior to the scheduled FOMC meetings. My paper contributes to this strand of literature by showing that firms, in addition to investors, also respond to the risk related to the scheduled macro news announcements. What is more, my study may

[5] Kim, Pandit, and Wasley (2016) focus on the likelihood of management forecast. In contrast, this paper employs a duration model to investigate the timing problem conditioning on issuing monument guidances.

help substantiate the understanding of some prior studies. For example, Lucca and Moench (2015) find that the large pre-FOMC excess returns hold only for equity market but not for U.S. Treasury market or for monetary futures market. They face challenges in explaining such results. The findings in my paper may help reconcile their results because while all these markets are exposed to the monetary policy risk before FOMC meetings, only the equity market is exposed to the risk related to the increased firm-level information disclosure following FOMC meetings.

The most relevant paper in the existing literature can be Sletten (2012). Sletten (2012) documents that a negative shock to a firm's stock price following industrial peers' restatement will induce the firm to issue management forecasts favorable to the stock price after the negative shock but was not favorable before the shock. The evidence in Sletten (2012) supports the argument that managers care about the potential impact of their private information on the stock price when deciding on whether to disclose the private information, which is the starting point of the real-option story of this paper. While FOMC announcements also cause exogenous shock to the stock price of firms in my setting, the pre-scheduled feature of FOMC meetings and the real-option problem generate different theoretical implications. The key difference is that, with the option value of waiting, managers may choose to withhold private information even if disclosing the information is favorable to the stock price temporarily before FOMC announcements because the strategy of "wait and see" can help them to make decisions to generate higher firm value for the post FOMC stage. Without the real-option problem, according to Sletten (2012), one can still expect a clustering of management guidances following positive surprise in the interest rate change, which usually causes stock price to drop. However, such a clustering should not be observed when the FOMC

announcements does not contains any surprise to the market. On the contrary, due to the option value of waiting, even if FOMC announcements do not cause stock price to change, we may still expect a clustering of corporate disclosure, resulting from managers releasing good news which were previously held. Consistent with the real-option argument, I find that, there is a considerable level of clustering effect of management guidances after zero surprise FOMC meetings (marginal effect = 12.94%). In addition, without the option value of waiting, managers only consider the impact of their private information on the current stock price and we would not expect the clustering effect to vary with the ex-ante uncertainty of the monetary policy. To conclude, while both Sletten (2012) and this paper assume that managers care about stock price when making disclosure decisions, this paper goes one step further by considering a real-option problem managers face due to pre-scheduled external events and provides evidence on how managers will respond in disclosure decisions when facing such a problem.

The rest of this paper is organized as follows. Section 2 reviews the literature and develops the hypothesis. Section 3 discusses research design. Section 4 discusses empirical results. Section 5 concludes.

2. *Literature Review and Hypothesis Development*

A large body of literature in economics and finance analyzes firms' investment decisions on a real-option basis and provides evidence consistent with the real-option theory (e.g., Bernanke, 1983; McDonald and Siegel, 1986; Dixit, 1992; Quigg, 1993; Guiso and Parigi, 1999; Kellogg, 2014). The key idea in these studies is that managers have the option to wait when making investment decisions. Because managers face uncertainty in investment decisions, the option of waiting has value as managers can get more information by postponing the investment. In general, the real-option analysis is a tool for decision-making under uncertainty and can be

applied to other corporate decisions. Recently, some researchers begin to adopt the real-option approach in corporate disclosure studies (Acharya, DeMarzo, and Kremer, 2011; Arif, Marshall, and Yohn, 2016).

Acharya, DeMarzo, and Kremer (2011) first incorporate the real-option analysis into their model. They start with the partial disclosure framework by Dye (1985). Dye (1985) assumes that managers target on maintaining high stock price and that investors do not know when and whether managers receive private information.[6] Under these assumptions, a manager only discloses the private information if the underlying firm value exceeds the firm value with no information disclosure, which he refers to as the disclosure threshold. Acharya, DeMarzo, and Kremer (2011) then introduce a public news announcement into the model. The public news represents a noisy signal with price implication for a firm. Managers in awareness of an upcoming public news announcement have the option to disclose the private information immediately or to wait until the public news announcement. I use Figure 1 as a simplified example to illustrate the value of waiting. In Figure 1, at $t = 0$, both investors and the manager have not received any information about firm type and the market value of firm under non-disclosure is V_0. At $t = t_1$, the manager receives private information suggesting a firm value of V_p. It is known that at a future time t_2, there will be a public news announcement. *If* V_p is lower than V_0, the manager will have no incentive to disclose the private information, so I only discuss the case when V_p is higher than V_0. In this case, the manager can choose to disclose the private information immediately at t_1 or to wait until t_2 to decide. If the manager discloses the private news immediately, the stock price will be V_p ever since and will not be affected by the public news because public

[6] The idea that managers in general want to keep high stock price when making disclosure decisions are supported by empirical studies (Kothari, Shu, and Wysocki, 2009; Sletten, 2012).

news is a less precise signal compared with the private information. If the manager waits until t_2, then during t_1 *to* t_2, the stock price will be V_0. When the public news arrives, the stock price without private information disclosure will be V_T. If V_T turns out to be V_{TH}, which is higher than V_p, then the manager can keep silent and let the stock price stay high. If V_T turns out to be V_{TL}, which is lower than V_p, then the manager can disclose the private information and the stock price will increase to V_p. As such, for the manager who waits until t_2, the cost of waiting is the lower stock price (V_0 vs. V_p) from t_1 to t_2 and the potential gain is the higher stock price (V_{TH} vs. V_p) from t_2 if the public news turns out to be V_{TH}. The net value of waiting equals the potential gain minus the cost. Acharya, DeMarzo, and Kremer (2011) demonstrate that, if the exact time of t_2 is known in advance, when t_1 is close enough to t_2, the cost of waiting approaches to zero, and the net value of waiting grows quickly. As a result, the disclosure threshold before public news arrival will be the dashed line, which is close to V_0 long before the public news announcement and increases quickly when it approaches t_2, and becomes very high shortly before t_2. Once the public news is announced, the disclosure threshold will become V_{TH} (V_{TL}). The disclosure threshold always declines after the public news announcement. Due to this property, Acharya, DeMarzo, and Kremer (2011) predict that, there will be a blackout period before t_2 when all managers keep silent whatever private information they have. In addition, immediately after the public news announcement, the decline of disclosure threshold will trigger some managers to disclose private information.

FOMC meetings are pre-scheduled meetings (Savor and Wilson, 2013; Lucca and Moench, 2015) and have been documented to have significant impact on stock price in the asset pricing literature (Hardouvelis, 1987; Cutler, Poterba, and Summers, 1989; McQueen and Roley, 1993; Flannery and Protopapadakis, 2002;

Ehrmann and Fratzscher, 2004; Chulia, Martens, and Dijk, 2010). Due to these two features, I view FOMC meetings as the scheduled public news announcement in Achary, DeMarzo, and Kremer (2011). Accordingly, I expect that managers will hold up information disclosure during a short period before FOMC meetings. Once FOMC decision is announced, some managers will be triggered to issue private information. Given that monetary policy affects all firms in the economy, this will induce many firms to simultaneously disclose private information after FOMC meetings. Based on these analyses, I hypothesize that:

> *H*1: *There will be clustering of corporate disclosure in a short window following FOMC announcements.*

Note that, in the above analysis, there is an assumption that managers should receive private information before the FOMC meetings. If a FOMC meeting comes before managers receive private information, then managers do not have the option to wait and thus I do not expect a clustering effect after FOMC meetings in such a situation. In this sense, whether we can observe a clustering effect of corporate disclosure after FOMC meetings is an empirical question. In the research design, I choose a setting in which this assumption is reasonably held and thus more likely for me to observe the clustering effect of corporate disclosure.

The model in Acharya, DeMarzo, and Kremer (2011) also provides insights into cross-sectional differences in the clustering of management voluntary disclosure with regard to the ex-ante policy uncertainty and ex-post policy surprise of FOMC meetings. I propose two hypotheses based on these insights. Empirical evidence consistent with such hypotheses will help substantiate that the clustering effect of management voluntary disclosure after FOMC meetings is triggered by the reduction in the option value of waiting following FOMC announcements.

First, as shown in Figure 1, the option value of waiting comes from the

uncertainty in the realization of the public news. Higher ex-ante uncertainty in monetary policy will lead to a larger reduction in the option value of waiting after FOMC announcements and thus triggers more managers to disclose private information. I accordingly propose the second hypothesis:

> *H*2: *The clustering of corporate disclosure following FOMC announcements increases with the ex-ante policy uncertainty regarding FOMC meetings.*

Second, the clustering effect will vary with the ex-post surprise of FOMC announcements. As is shown in Figure 1, a lower ex-post non-disclosure stock price will lead to a larger drop in disclosure threshold, which is more likely to trigger managers to disclose private information. Prior studies show that stock market responds negatively to the surprise in interest rate change (Kuttner, 2001, Bernanke, and Kuttner, 2005). Accordingly, I expect that the higher the surprise in interest rate change is, the lower the stock price after FOMC announcement will be, and the more likely a manager will find it necessary to disclose their information. And I propose the third hypothesis:

> *H*3: *The clustering of corporate disclosure following FOMC announcements increases with the surprise in interest rate changes.*

3. Data and Research Design

3.1. Federal Open Market Committee meetings

FOMC holds 8 scheduled meetings every year. Unscheduled meetings are less frequent and are usually through teleconference calls (Lucca and Moench, 2015). FOMC mainly makes decisions on the Federal Reserve Target Interest rate. Starting from February 1994, FOMC announces their decision on the last

day of each meeting.[7] But it is until January 2000 that FOMC explicitly clarified that they would issue a statement immediately after each regular meeting regardless of whether the target interest rate will be changed (Jung, 2016). So in this paper, I mainly focus on the period starts from 2000 because when the timing of FOMC announcements can be best expected by the market. Lucca and Moench (2015) and Bernile, Hu, and Tang (2016) provide a detailed description of the timing of each FOMC announcement (for scheduled meetings). Before April 2011, the announcement time is 14:15. After 2011, the announcement time can be 12:30, 14:00 or 14:15.

Table 1 shows summary information for all the scheduled FOMC meetings in my sample period (2000 – 2015). There are 128 scheduled meetings during this period. 21 of the meetings announced an increase in target interest rate and 18 announced a decrease. Appendix A shows the detailed information for each meeting. Column 1, Appendix A reports the dates of these meetings. A typical scheduled meeting lasts for one or two days. If a meeting has two days, FOMC announces monetary policy on the second day of the meeting. As such, I use the last day of each FOMC meeting as the event day (day 0). Column 2 shows the announced change in Federal Reserve target interest rate (*Int_Change*). The change is a multiple of 25 basis points. Though the real change in target interest rate is determined by FOMC, market forms expectation of potential interest rate change before FOMC announcements. Krueger and Kuttner (1996) propose using Federal Funds Future Rates to estimate the market expectation of potential target interest rate change before FOMC meetings.[8] Following their methodology, I

[7] Prior to 1994, FOMC did not explicitly announce their decision regarding the target interest rate. Investors then could infer policy changes the next day after a FOMC meeting through open market operations.

[8] Several studies follow this method to decompose realized target interest rate change into expected part and surprise part (Krueger and Fortson, 2003, Kuttner, 2001, Bernanke and Kuttner, 2005, Bernile, Hu and Tang, 2016, etc.).

calculate the expected and surprise parts in interest rate changes for each FOMC meeting. I discuss the estimation procedure in Appendix B. Columns (3) and (4) in Appendix A report the calculated surprise (*Int_Surprise*) and expectation (*Int_Expected*) of target interest rate changes.

3.2. Management Voluntary Disclosure

In Section 2, I hypothesize that corporate disclosure will cluster during a short window after FOMC meetings. While the argument will hold as long as managers receive private information before FOMC meetings and have some discretion in the timing of disclosure, voluntary disclosure can be a better setting to test my hypothesis because there is more room for managers to make strategic decisions. Empirically, I mainly examine the timing of management guidance, which is an important source of voluntary disclosure of a firm. I derive management guidance data from the I/B/E/S Management Guidance database. The forecast horizon of management guidance varies from several years in advance to a few days before earnings announcements. In this study, I use the quarterly management guidance issued shortly before or after the forecasted quarter end. Specifically, I focus on management guidance for EPS issued during the following period [Forecasted quarter end – 31, Earnings announcement for the forecasted quarter-3). If a firm issues more than one management guidances for a quarter during this period, I keep the first management guidance.[9] Figure 2 shows the timeline of the management guidances in this study. I focus on short-horizon management guidances for four reasons. First of all, as discussed above, the option value of waiting only matters when managers receive private information before FOMC meetings. For short horizon management guidances, it

[9] More than 90% of firm-quarters in I/B/E/S management guidance database only has one guidance in this window in each quarter.

is reasonable to assume that managers already get information about firm performance and have the option to wait. Second, because managers sometimes issue guidances with different horizons together, limiting the sample to such guidances can avoid having multiple guidances on one day. Third, prior studies show that a high proportion of managerial guidances are bundled with earnings announcements (Anilowski, Feng, and Skinner, 2007). It is hard to tell whether the timing of such bundled management guidances reflect the timing of management guidances or the timing of earnings announcements. In addition, Rogers and Buskirk (2013) argue that for bundled management guidances, it is hard to measure what is the surprise in such guidances to the market. The management guidances in my sample are free from the bundling issue. Lastly, as I use a duration model to test the impact of FOMC meetings on management guidances, I need a start point for each management guidance. The duration period, which is the period between the start point and a management guidance, should not overlap with the duration of other guidances of the same firm. Management guidances in my sample satisfy such requirements for the duration model.[10] In my main results, I further limit the sample to management guidances issued by firms that have fiscal quarters ending in March, June, Sep or December. This helps to make sure that all firms are playing on the even ground because for a specific FOMC meeting, the timing of the meeting relative to a given quarter end will be the same for all firms in that quarter.[11]

3.3. Research Design

I assume that everyday managers make decisions about whether to issue

[10] In a study by Tse and Tucker (2010), they also employ a duration model and constraint the the sample to be issued during a similar period.

[11] The results are qualitatively the same when I include firms with fiscal quarters ending in other months.

voluntary disclosure until they finally decide to disclose their private information. I estimate a semi-parametric Cox duration model to test whether management voluntary disclosure clusters following FOMC announcements:

$$h(t_i) = h_0(t_i) * \exp[\beta_0 Window(t)_i + \beta_1 Short(t)_i + \beta_2 File8K(t)_i + \beta_3 Trading\_Day(t)_i + \beta_4 Abs\_News_i + \beta_5 Size\_Rank_i + \beta_6 Analyst\_Rank_i + \beta_7 * Saleshare_i + \beta_8 * Past_i + \beta_9 * Past\_Time_i + \beta_{10} Lead + \beta_{11} Leadtime + \beta_{12} Indtime + \beta_{13} Peer + \beta_{14} Industry + \beta_{15} Year + \beta_{16} Month + \beta_{17} Weekday] \quad (1)$$

Figure 2 shows an example of the timeline of the duration model for a management guidance. T1 is the first day of Quarter q and T2 is the last day of Quarter q. EA is the earnings announcement date for Quarter q. MF represents a management guidance for Quarter q. I require the guidance to be issued between [T2 – 31, EA - 3). t measures the number of days between T2 – 31 and a specific day. The duration of a management guidance is measured as the number of days between T2-31 and the announcement day. Using T2-31 as the starting point is also consistent with the assumption that managers already received private information at the beginning of the observation. $h(t_i)$ is the hazard ratio, which measures the probability of management voluntary disclosure on Day t for Firm i. $h_0(t)$ is the baseline hazard rate. The Exp[*] component in Model (1) measures the marginal effects of time variant and invariant variables on the hazard rate.

In Model (1), $Window(t)_i$ is my main variable of interest. It is an indicator which equals 1 if Day t falls into the [1, 3] trading day window following FOMC meetings and equals zero otherwise.[12] $Short(t)_i$ is an indicator variable that equals 1 if Day t falls into the [-10, 10] trading day window relative to an FOMC meeting. Without $Short(t)$, a positive coefficient on $Window(t)$ would indicate that managers are more

[12] For a two-days meeting, Day 0 is the second day of the meeting. I do not include Day 0 in the window in the main results because the announcements are usually made in the afternoon when more than half of the day has passed.

likely to issue management guidances during the [1, 3] window following FOMC announcements than on all the other days outside the window. However, this is not enough to conclude that FOMC meetings affect the timing of management guidances. For example, prior studies show that management guidances are not evenly distributed over the time (Tse and Tucker, 2010). If FOMC meetings coincide with the peaks during the entire period, one would expect a positive coefficient on *Window*(*t*) even if managers do not care about the timing of FOMC meetings at all. Instead, according to Acharya, DeMarzo, and Kremer (2011), if the real option argument holds, we would expect a discontinuity in disclosure probability before and after FOMC announcements during a short period around FOMC meetings. When I include *Short*(*t*) into the model, it captures the average level of disclosure probability during the shot period ([-10,10]) around FOMC meetings relative to other days, and the coefficient on *Window*(*t*) now measures the additional probability of management guidance issuance during the [1,3] window relative to adjacent days. I do not have expectation for the sign of the coefficient on *Short* (*t*). But I expect that after controlling for *Short*(*t*), the coefficient on *Window*(*t*) is positive and statistically significant, which can be interpreted as a jump in the disclosure probability after FOMC announcements from the real-option based predictions. For other control variables, I first control for material events of Firm *i* as reported in 8-K fillings. $File8K(t)_i$ is an indicator which equals 1 if Firm *i* files an 8-K within [-3, 3] days relative to a day *t*. I expect the coefficient on $File8K(t)_i$ to be positive as managers may need to update their forecasts when there are some material events taking place in the firm. Following Tse and Tucker (2010), I further control for the following variables. Abs_News_i is the magnitude of earnings news (absolute value of earnings surprise relative to the last consensus (mean) analyst forecasts before the management guidance

scaled by stock price at the beginning of forecasted period). I do not have a specific prediction for the sign of the coefficient on Abs_New_i. $Size\_Rank_i$, is the industry rank of Firm i's market capitalization and $Analyst\_Rank_i$ is the industry rank of Firm i's analyst following. Both $Size\_Rank_i$ and $Analyst\_Rank_i$ proxy for the information environment of a firm. The higher the two variables, the better the information environment of a firm, and thus the more difficult for a firm to withhold information. So I expect the coefficients on $Size\_Rank_i$ and $Analyst\_Rank_i$ to be positive, which indicate that firms with higher market capitalization and more analyst following in general will issue management guidance earlier. [13] $Saleshare_i$ is Firm i's market share of sales based on SIC two-digit industries. It captures the impact of product market competition on the disclosure probability. In Tse and Tucker (2010), they expect that the coefficient on the market share of the firm to be positive as these firms are more likely to be the leader in an industry to issue earnings warninsg. In this paper, however, the management guidance sample contains both earnings warnings and good news. How the market competition affect the issuance of good news is not clear ex-ante. As such, I do not have a specific expecation for the sign of the coefficients on $Saleshare_i$. $Past_i$ is an indicator which equals 1 if Firm i issued a management guidance in the prior quarter. I expect the coefficient on $Past_i$ to be positive, as firms may rutinely issue short horizon management guidance. $Past\_Time_i$, is the average duration for Firm i's past 4 quarters' management guidances. If a firm issued management guidances at relatively late stages in the past, the firm may also delay the management guidance at current stage. Thus I expect the coefficient on $Past\_Time_i$ to be negative. I also control for peer firm's management guidance features. *Leader*

[13] To facilitate the interpretation of the coefficients on *Size_Rank* and *Analyst_Rank*, I standardize the ranks to the [0, 1] scale.

is an indicator which equals 1 if a firm is the first to issue a management guidance in that quarter in the SIC two-digit industry. By definition, the management guidance marked as *Leader* will be issued earlier than other peer firms, so the coefficient on *Leader* should be positive. *Leadtime* is the duration of the management guidance of the first firm that issues management guidance in that quarter in the SIC two-digit industry. If the first management guidance issued in an industry is relatively late, then management guidance issued in this industry will be relatively late compared with other industries. And I expect the coefficient on *Leadtime* to be negative. *Indtime* is an indicator which equals 1 if Day *t* is within [-2, 2] days relative to the industry median time of management guidances. Following Tse and Tucker (2010) I predict a positive coefficient on *Indtime*. *Peer* is the number of management guidances issued by industry peers within [-5, 0) days relative to Day *t*. Firms are more likely to issue management guidances following industry peers and I predict a positive coefficient on *Peer*. I control for several fixed effects. *Industry* represents SIC two-digit based industry indicators. Because most management guidances are announced on trading days, I control for *Trading_Day*, an indicator which equals 1 if Day *t* is a trading day and equals 0 otherwise.[14] A majority of management guidances are issued on trading days, so I predict a positive coefficient on *Trading_Day*. Finally, I include *Year, Month* and *Weekday* indicators to control for any year, month and weekday related pattern of management guidances.

Model (1) is the baseline model to test Hypothesis 1. To examine the cross-sectional difference in management guidance following FOMC announcements, I replace $Window(t)_i$ with interactions of $Window(t)_i$ and several classification indicators, which I will discuss in the empirical analysis.

[14] I normalize $Size\_Rank_i$, and $Analyst\_Rank_i$, to be between 0 to 1 for easier interpretation.

4. Empirical Results

4.1. Sample selection and summary statistics

As is mentioned above, my sample focus on quarterly management guidance for EPS. I start with the I/B/E/S management guidance database. There are initially 153,085 management guidances for EPS in the database from 2000 to 2015. I delete the following management guidances:

1) Management guidances for annual EPS;

2) Management guidances for firms with non-USD currency;

3) If I/B/E/S have multiple versions for a management guidance (for the same forecast period issued on the same day), I keep the first version;

4) Management guidances that do not have actual EPS or earnings announcement information in I/B/E/S Actual File.

After these screening, there are 60,063 quarterly management guidances in the sample. I then keep management guidances issued between [Forecasted quarter end – 31, Earnings announcement day – 3). This results in 16,747 management guidances. 92% of the firm-quarters in this sample only have one management guidance.[15] If a firm-quarter has more than one management guidances, I keep the first one. This step results in 15,430 management guidances, among which 13,432 guidance can be linked to a Compustat Gvkey and are for firms listed on NYSE, AMEX or NASDAQ. I also delete management guidances that have a duration longer than 75 days as such guidances are extremely late. After this step 13,432 management guidances remain in the sample. I further delete management guidances for firms in the financial industry since assets of such firms are very sensitive to changes in interest rate. Finally, I delete

[15] This further confirms that for most firms they will not issue management guidance later on to revise these short-horizon forecasts and thus it is reasonable to say that the issuance of short horizon management guidance can be viewed as irreversible.

management guidances with missing control variables and firms with fiscal quarter end not in March, June, September or December, which results in 9,018 management guidances. Table 2 provides a detailed description of the sample selection procedure.

Table 3 reports the summary statistics for the control variables in Model (1), each management guidance is counted once in the summary statistics sample and time-variant variables are based on the disclosure date. Panel A Table 3 reports the mean, standard deviation, minimum, p25, median, p75 and maximum value of each variable. Panel B reports the mean of these variables for management guidances issued during FOMC windows and for management guidances issued on normal days. Among the 9,018 management guidance events, 800 are reported during the [1, 3] trading day window following FOMC announcements. On average, management guidances issued in the [1, 3] trading day window have larger market capitalization, more analyst following and larger magnitude of the earnings news on the disclosure day.

In Figure 3, I draw the mean of daily abnormal number of management guidance on the [-5, 5] trading day window relative to FOMC meetings, where the abnormal number of management guidance is the year-month-weekday mean adjusted number of management guidance in each day.[16] This figure shows some univariate pattern in management guidance around FOMC meetings. For the period before FOMC announcements ([-5,-1]), there is negative abnormal number of management guidance. The abnormal number of management guidance jumps up on *Day* 0 and stays positive from *Day* 0 to *Day* 4. This figure suggests that managers reduce management guidance issuance for the period before FOMC

[16] In this figure, I include all management guidances issued during [forecasted quarter end – 31, forecasted quarters' earnings announcement-3).

meetings (consistent with the "blackout period") and increase management guidance issuance after FOMC announcements (consistent with the triggering effect). As a result, management guidances cluster during the window following FOMC announcements.

4.2. Regression analysis

4.2.1. Clustering of management voluntary disclosure after FOMC announcements

In this part, I estimate Model (1) to test whether management voluntary disclosure clusters after FOMC announcements. For the 9,018 management guidances in my sample, there will be $\sum_{n=1}^{9,018} t_n$ observations when I estimate Model (1), where t_n is duration of Management Guidance n. Table 4, Panel A reports the Cox Model regression coefficients using Efron estimation. In Panel B, Table 4 I report the corresponding marginal effect on disclosure probability if an independent variable is increased by 1 unit. The marginal effect is calculated as Hazard Ratio – 1, where Hazard Ratio equals *Exp*(Coefficient). In Column (1), I do not include *Trading_Day*, in Column (2) I drop the year, month and weekday indicators and in Column (3) I include all time-variant indicators. While including trading day, year, month and weekday indicators does not change the sign and statistical significance of the coefficients on other independent variables, the magnitudes of the coefficients on *Window* are different in the three columns. The comparison of coefficients on *Window* in Columns (1) to (3) confirms the necessity of including time-variant indicators. So I mainly discuss results reported in Column (3). In Column (3), the coefficient on *Short* is positive and significant at the 1% level (0.1113, z = 3.95). This means that, compared with other days, managers are more likely to disclose private information during the short period ([-10, 10]) around FOMC meetings. This justifies including *Short* in

the model to control for the general pattern of management guidance issuance. More importantly, the coefficient on *Window* is positive and significant at the 1% level (0.1333, z = 3.22). This means that, managers are more likely to issue voluntary disclosure after FOMC announcements than on adjacent days, suggesting that there is a clustering of voluntary disclosure in the [1, 3] window after FOMC announcements. The economic magnitude of the clustering effect is also significant as the marginal effect is 14.26%. The coefficient on *File8K* is positive and significant at the 1% level (1.7777, z = 76.05, marginal effect = 4.9162). As expected, managers are more likely to issue voluntary disclosure when there are material events going on for the firm. The coefficient on *Abs_News* is negative and significant at the 5% level (-1.3546, z = -3.06, marginal effect = -0.7419), suggesting that the larger the magnitude of the news the later it will be disclosed. The coefficient on *Past* is positive and significant at the 1% level (0.1809, z = 6.44, marginal effect = 0.1983). Consistent with the prediction, if a firm issued a management guidance in the prior quarter, it will issue management guidance earlier in the current quarter. The coefficient on *Past_Time* is negative and significant at the 1% level (-0.0009, z = -3.28, marginal effect = -0.0009), suggesting that the later a firm issued management guidance in prior periods the later the firm will issue management guidance in the current period. The coefficient on *Lead* is positive and statistically significant (1.5192, z = 37.18, marginal effect = 3.5686), which is consistent with the prediction. The coefficients on *Leadtime*, *Indtime*, and *Peer* are qualitatively similar as those reported in Tse and Tucker (2010), confirming industry peers' impact on a firm's voluntary disclosure. More importantly, after controlling for the timing of industry peers' management guidances, the coefficients on *Window* is positive and significant, suggesting that the observed clustering effect of voluntary

disclosure after FOMC announcements is not driven by the impact of industry peers' voluntary disclosure.

Overall, the results in Table 4 confirm that there is clustering of management guidances after FOMC announcements.

4.2.2. Controlling for peer firms' earnings announcements

Though I require that all the management guidances in my sample to be issued at least 3 days before the firms' own earnings announcement, other firms' earnings announcements are also likely to trigger firms to disclose private information. In this part, I use two methods to control for the impact of peer firms' earnings announcements. First, I add two variables to control for industry peers' earnings announcement events. *Lead_EA* is an indicator which equals 1 if day *t* is within the [0, 3] day period relative to the earnings announcement day of the first firm that issues earnings announcement in an industrial quarter. *Peer_EA* is the number of earnings announcements issued by industry peers within the [-3, 0] day period relative to Day *t*. The results are reported in Table 5, Column (1). The coefficient on *Lead_EA* is positive and significant at the 5% level (0.0890, $z = 1.96$, marginal effect = 0.0931), suggesting that a manager is more likely to issue a management guidance following the initial earnings announcement in an industry-quarter. The coefficient on *Peer_EA* is insignificant(-0.0003, $z = -0.30$). After controlling for peer firms' earnings announcement events, the coefficient on *Window* is positive and significant at the 1% level (0.1315, $z = 3.18$). The economic significance of *Window* (marginal effect = 0.1405) is similar as in Column (3), Table 4, suggesting that the clustering of management guidances after FOMC announcements is not likely to be driven by peer firms' earnings announcements. In Column (2), Table 5, I drop management guidances that are issued within the [0, 3] day period following a peer firm's

earnings announcement in the same SIC three-digit based industry and estimate Model (1) using the new sample. The coefficient on *Window* is positive and significant at the 5% level (0.1296, z = 2.46, marginal effect = 0.1384). Overall, these results suggest that peer firms' earnings announcements are not likely the driving effect of the observed clustering of management guidances following FOMC announcements.

4.2.3. Local period around FOMC meetings

In Model (1), I include *Short* in the regression to control for the average probability of management guidance issuance during a short period ([-10, 10]) around FOMC meetings. In this part, I only keep observations within a short period around FOMC meetings to estimate the Cox Model. The results are reported in Table 6. In Columns (1) to (3), I keep observations with t falls into the [-10, 10], [-7, 7] and [-5, 5] period around FOMC meetings respectively. The coefficients on *Window* are all positive and significant at the 1% level (0.1530, z = 3.58, marginal effect = 0.1653 in Column (1), 0.1594, z = 3.51, marginal effect = 0.1728 in Column (2) and 0.1628, z = 3.14, marginal effect = 0.1768 in Column (3)). Note that, the marginal effects of *Window* in these samples are a bit higher than the marginal effect of *Window* in Column (3), Table 4 when we use all observations. These results further help to confirm that there is a clustering of management guidances immediately after FOMC announcements.

4.2.4. Ex-ante policy uncertainty

In this session, I test whether the clustering of management guidances is stronger during periods when there is high policy uncertainty regarding FOMC meetings.

4.2.4.1. Policy uncertainty faced by the entire market

I first measure the policy uncertainty faced by the entire market. I use three proxies to measure the policy uncertainty. First, I use the variation in the surprise of interest rate change. In Figure 5, I portrait the surprise in interest rate change (*Int_Surprise*) for the 128 FOMC meetings over time. There are two periods when *Int_Surprise* is more volatile (from 2000 to 2003 and from 2007 to 2009). Thus, I define the two periods as the high policy uncertainty period and other periods as the low policy uncertainty period. I define *HighUncertain1* as an indicator which equals 1 if day *t* falls in 2000 to 2003 or in 2007 to 2009, and *LowUncertain1* as an indicator which equals 1 if day *t* falls in other years. I interact *Window* with the two indicators to capture FOMC meetings' different impact on management voluntary disclosure when there is high vs. low monetary policy uncertainty. Because the high policy uncertainty period overlaps with the 2001 recession and 2008 financial crisis, I further control for the indicator of *HighUncertain1* in the regression. The results are reported in Column (1) Table 7. The coefficient on *Window* · *HighUncertain1* is positive and statistically significant at the 1% level (0.1489, $z = 2.99$) but the coefficient on *Window* · *LowUncertain1* is not statistically different from zero (0.1044, $z = 1.55$). Next, I use the volatility of *Int_Surprise* of the past 8 FOMC meetings to measure policy uncertainty. I define *HighUncertain2* as an indicator which equals1 if the standard deviation of *Int_Surprise* of the past 8 FOMC meetings is higher than sample median and *LowUncertain2* as an indicator which equals 1 if the standard deviation is lower than sample median. Interactions of *Window* with *HighUncertain2* and *LowUncertain2* captures the different impact of FOMC meetings on management voluntary disclosure. The results are reported in Table 7, Column (2). The coefficient on *Window* · *HighUncertain2* is positive and statistically significant at the 1% level (0.1664, $z = 3.55$) but the coefficient on

Window · *LowUncertain2* is insignificant (0.0411, $z = 0.54$). Finally, I use the dispersion of market expectation in target interest rate change to measure the policy uncertainty. In Figure 6, I draw all the changes in interest rate over the years. As I have discussed above, each time the change in interest rate is a multiple of 25 bps. In this sense, if the expected interest rate change is close to the mid-points between every two consecutive potential changes (the shaded area in Figure 6), it suggests that there is a higher level of disagreement among investors regarding the up-coming interest rate change, and thus indicates higher uncertainty regarding the monetary policy. As such, I define *HighUncertain3* as an indicator which equals 1 if the expected interest rate change is within the (-8bps, 8bps) range relative to the mid-points between every two consecutive potential interest rate changes and *LowUncertain2* as an indicator which equals 1 for other expected interest rate changes. I interact *Window* with *HighUncertain3* and *LowUncertain3* and report the results in Column (3), Table 7. The coefficients on *Window* · *HighUncertain3* and *Window* · *LowUncertain3* are both positive and statistically significant (0.1817, $z = 2.62$ for *Window* · *HighUncertain3* and 0.1116, $z = 2.29$ for *Window* · *LowUncertain3*). More importantly, the marginal effect of *Window* · *HighUncertain3* (0.1993) is about 68% higher than the marginal effect of *Window* · *LowUncertain3* (0.1181).

To conclude, the results in Table 7 show that, the higher the monetary policy uncertainty faced by the entire market, the stronger the clustering effect of management voluntary disclosure following FOMC announcements.

4.2.4.2. Managers' idiosyncratic uncertainty about monetary policy

Acharya, DeMarzo, and Kremer (2011) argue that managers can use their private information to predict the realization of the public news. If managers can perfectly

predict the public news, the option value of waiting can be relatively low. In other words, managers face idiosyncratic uncertainty regarding monetary policy conditional on their own private information. Following this idea, in this part, I measure the idiosyncratic uncertainty managers face in monetary policy and examine whether the clustering effect increases with this type of uncertainty. To measure the idiosyncratic uncertainty, I first regress the change in firm-level private information (firm performance) on the change in a series of macroeconomic variables related to monetary policy decisions. The model is as follows:

$$Dif\_Roa_{i,q} = a_0 + \boldsymbol{a_1'Dif\_Macro_q} \quad (2)$$

where $Dif\_Roa_{i,q}$ is the change in *Roa* for Firm *i* from Quarter *q*-4 to Quarter *q* while $\boldsymbol{Dif\_Macro_q}$ represents the change in a set of macroeconomic factors from Quarter *q* -4 to Quarter *q*. Arguably, the R-square of Model (2) represents the co-movement between firm-level information and macroeconomic information. Since FOMC makes monetary policy decisions mainly to maintain stable price and sufficient employment, monetary policies are most likely to be related to interest rate, price, and employment. I thus employ several macroeconomic variables related to these three factors. I adopt 3 variables related to interest rate: Dif_AAA_q, the change in the AAA corporate bond yield from Quarter *q*-4 to Quarter *q*, Dif_GS10_q, the change in 10-year Treasury yield from Quarter *q*-4 to Quarter *q* and Dif_TB3MS_q, the change in three month Treasury yield from Quarter *q*-4 to Quarter *q*. I use $Dif\_CPIAUCNS_q$, the change in the consumer price index for urban consumers from Quarter *q*-4 to Quarter *q* as a price related factor. And I include Dif_UNRATE_q, the change in unemployment rate from Quarter *q*-4 to Quarter *q* as an unemployment related factor. I estimate Model (2) for each firm-quarter using data of the past 40 quarters prior to the current quarter. I then use R-square to proxy for managers' idiosyncratic uncertainty regarding monetary policy because higher R-square means it is easier to use

private information to predict the realization of monetary policy. I construct four indicators, *G1*, *G2*, *G3* and *G4* if a firm's R-square from Model (2) falls in the first, the second, the third and the fourth quartile among all firms in that quarter. I then replace *Window* with *Window* * *G1*, *Window* * *G2*, *Window* * *G3* and *Window* * *G4* in Model (1). Because I require a firm to have at least 30 quarters of observations before the current quarter to estimate Model (2), the sample size is reduced. The results are reported in Table 8. The coefficients on *Window* * *G1*, *Window* * *G2*, *Window* * *G3* and *Window* * *G4* are all positive but only statistically significant for *Window* * *G1*. More importantly, the general trend of marginal effect is decreasing from *G1* to *G4* (0.1963, z = 1.94, marginal effect = 0.2169 for *Window* * *G1*, 0.1141, z = 1.14, marginal effect = 0.1209 for *Window* * *G2*, 0.0761, z = 0.78, marginal effect = 0.0791 for *Window* * *G3* and 0.0823, z = 0.90, marginal effect = 0.0858 for *Window* * *G4*). The results in Table 8 suggest that the clustering of management voluntary disclosure during FOMC meetings increases when a manager's ability to use private information to predict macro news decreases.

4.2.5. Ex-post policy surprise

In this session, I examine whether the clustering of management voluntary disclosure increases as the surprise in interest rate (*Int_Surprise*) change increases. I first divide *Int_Surprise* into three groups: positive surprise, zero surprise, and negative surprise. I define *Pos_Sup* as an indicator which equals 1 if *Int_Surprise* is positive, *Zero_Sup* as an indicator which equals 1 if *Int_Surprise* is zero and *Neg_Sup* as an indicator which equals 1 if *Int_Surprise* is negative. In Column (1) Table 9, I replace *Window* with *Window* · *Pos_Sup*, *Window* · *Zero_Sup,* and *Window* · *Neg_Sup*. The magnitude and statistical significance of the coefficients on these three variables drop monotonically (0.2333, z = 3.50 for

Window · *Pos_Sup*, 0.1294, z = 2.17 for *Window* · *Zero* and 0.0135, z = 0.17 for *Neg_Sup*). Managers are more likely to issue voluntary disclosure after FOMC announcements when there is a positive surprise in interest rate change than when there is a negative surprise. One concern about the results in Column (1) is that *Pos_Sup* and *Neg_Sup* may simply capture the periods when there is high uncertainty in interest rate changes. However, if this is the case, I would expect that both *Window* · *Pos_Sup* and *Window* · *Neg_Sup* have a similar effect on the timing of voluntary disclosure. But the results in Column (1) shows an asymmetric effect for the two groups. To further reduce this concern, I divide *Int_Surprise* by the standard deviation of *Int_Suprise* in the past 8 FOMC meetings to get *Rel_Surprise*. I further divide *Rel_Suprise* into three groups: *High_RelSup*, *Mid_RelSup,* and *Low_RelSup*, where *High_RelSup* is an indicator which equals 1 if *Rel_Surprise* is higher than 1, *Mid_RelSup* is an indicator which equals 1 if *Rel_Suprise* is within [-1, 1] and *Low_RelSup* is an indicator which equals 1 if *Rel_Surprise* is lower than -1. I further replace *Window* with *Window* · *High_RelSup*, *Window* · *Mid_RelSup,* and *Window* · *Low_RelSup*. The results are reported in Column (2), Table 9 and are qualitatively similar as in Column (1). Specifically, the coefficient on *Window* · *High_RelSup* is positive and significant at the 1% level (0.3185, z = 4.05), the coefficient on *Window* · *Mid_RelSup* is positive and significant at the 10% level (0.0958, z =1.91), and the coefficient on *Window* · *Low_RelSup* is statistically insignificant (0.0141, z = 0.13).

Overall, Table 9 suggests that the clustering effect increases as the surprise in interest rate change increases.

4.2.6. Other cost and benefit factors

In this part, I explore the impact of two additional factors that are not

considered in the model of Acharya, DeMarzo and Kremer (2011) but can also affect the cost and benefit of the value of waiting and thus the clustering of management voluntary disclosure after FOMC meetings.

First, I consider the impact of litigation risk. Prior studies document that firms facing high litigation risk have higher incentive to quickly issue bad news to avoid negative earnings surprise (Skinner, 1994, Kasznik and Lev, 1995). In other words, for such firms, the cost of waiting will be higher due to the high litigation risk of delaying disclosure. If firms cannot afford to wait until FOMC meetings to make disclosure decisions, then there will be lower level of clustering of voluntary disclosure. To test the impact of litigation risk on the clustering of voluntary disclosure after FOMC meetings, I divide the sample firms into high litigation risk firms and low litigation firms according to Francis, Philbrick and Schipper (1994). I define *High_Lit* as an indicator which equals 1 if a firm belongs to a high litigation risk industry and *Low_Lit* as an indicator which equals 1 if a firm belongs to a low litigation risk industry. In Column (1) Table 10, I replace *Window* with *Window* · *High_Lit* and *Window* · *Low_Lit*. I also include *High_Lit* in the model. The coefficient on *High_Lit* is positive and statistically significant (0.0813, $z = 2.18$), which is consistent with the expectation that for firms with high litigation risk they are less likely to delay information disclosure. More importantly, the coefficient on *Window* · *High_Lit* is negative and statistically significant (-0.1254, $z = 2.01$, marginal effect = -11.79%) while the coefficient on *Window* · *Low_Lit* is positive and statistically significant (0.3343, $z = 6.54$, marginal effect = 0.3970). While for firms with low litigation risk there is a strong and significant clustering of management voluntary disclosure immediately after FOMC meetings, firm in high litigation risk industries are even less likely to issue voluntary disclosure immediately after FOMC meetings than adjacent days. This is consistent with my

expectation that high litigation risk increases the cost of waiting, which leads to more timely disclosure and lower degree of clustering after FOMC meetings. In Column (2), I further replace *Window* · *Low_Lit* with *Window* · *Low_Lit* · *WU* and *Window* · *Low_Lit* · *WD* and *Window* · *High_Lit* with *Window* · *High_Lit* · *WU* and *Window* · *High_Lit* · *WD*, where *WU* is an indicator which equals 1 if the management forecasted EPS is higher than the last consensus of analyst forecasts (Walk-up guidances) and *WD* is an indicator which equals 1 if the management forecasted EPS is lower than the last consensus of analyst forecasts (Walk-down guidances). Aa Walk-down management guidances are more likely to lead to litigation risk, I expect the impact of litigation risk on the clustering effect is more pronounced for the Walk-down guidances. Consistent with my expectation, I show that the coefficient on *Window* · *High_Lit* · *WU* is positive but statistically insignificant (0.0848, z = 0.59) while the coefficient on *Window* · *High_Lit* · *WD* is negative and statistically significant (-0.1752, z = -2.26). The coefficients on *Window* · *Low_Lit* · *WU* and *Window* · *Low_Lit* · *WD* are both positive and statistically significant (0.2328, z = 1.83 for *Window* · *Low_Lit* · *WU* and 0.3423, z = 5.50 for *Window* · *Low_Lit* · *WD*). Overall, the results in Table 10 suggest that the cost of waiting is positively related with litigation risk faced by a firm, which reduces the clustering effect of voluntary disclosure.

Next, I consider the impact of the potential length of the post FOMC periods on the clustering effect. In the real-option story, managers have incentive to "Wait and See" because such a strategy may potentially results in a higher stock price in the post FOMC period. However, because in the end earnings information will be disclosed to the market due to the mandatory disclosure requirement, the inflated stock price can only held temporarily. In other words, if a FOMC meeting takes place very shortly before the deadline of mandatory earnings announcement, the

option of waiting will be less valuable, and accordingly, there will be lower level of clustering of management guidances. To test this argument, I divide FOMC meetings into two groups according to the length of the period between the FOMC meeting and the beginning of the forecasted quarter and examine the clustering of management guidances around the two groups of FOMC meetings. The results are reported in Table 11. I replace *Window* with *Window* · *Early_FOMC* and *Window* · *Late_FOMC*, where *Early_FOMC* is an indicator which equals 1 if the length of the period between the FOMC meeting and beginning of the forecasted quarter is shorter than the 25 percentile of the sample and *Late_FOMC* is an indicator which equals 1 if the length of the period is longer than the 25 percentile of the sample. In addition, I replace *Short* with *Short* · *Early_FOMC* and *Short* · *Late_FOMC* as well because I use *Short* mainly to control for the time related pattern of management guidance issuance. In Table 11, the coefficient on *Short* · *Early_FOMC* is 0.2485 (z = 4.85, marginal effect = 0.2821) while the coefficient on *Short* · *Late_FOMC* is 0.0849 (z = 2.87, marginal effect = 0.0886). The difference in the magnitude of the two coefficients confirms the necessary to examine the impact of the *Short* measure on the disclosure probability separately for the early scheduled FOMC meetings vs the late scheduled FOMC meetings in this test. More importantly, after controlling for *Short* · *Early_FOMC* and *Short* · *Late_FOMC*, the coefficients on *Window* · *Early_FOMC* and *Window* · *Late_FOMC* are both positive and statistically significant, but the magnitude of the clustering effect relative to adjacent days for early issued FOMC meetings is more than 3 times the magnitude for late issued FOMC meetings (0.2796, z = 2.93, marginal effect = 32.26% for *Window* · *Early_FOMC* and 0.0923, z = 2.00, marginal effect = 9.67%). These results confirm the argument that, when the potential period during which managers can inflate the stock price using the

wait and see strategy becomes shorter, the clustering effect of management guidances decreases.

To conclude, the tests in this part show that other factors that will affect the cost and benefit of the "wait and see" strategy have impact on the clustering effect of management voluntary disclosure in a predicated way.

4.3. Robustness Tests

4.3.1. Alternative definitions of *Window*

In this part, I examine whether the clustering of management voluntary disclosure during FOMC windows are sensitive to the definition of *Window*. I replace *Window* with alternative indicators that equal 1 for days in the [1, 2], [0, 2] and [0, 3] trading day windows relative to FOMC meetings respectively. I re-estimate the results in Table 4 Column (3) using these alternative event windows. The results are reported in Table 12 Panel A. To save space I only report the coefficients on *Window*. The coefficients on *Window* in Columns (1) to (3) are positive and statistically significant for all the alternative event windows.

4.3.2. Alternative sample selection criteria

In this part, I use different criteria for sample selection. The results are reported in Table 12, Panel B. In Column (1), I drop management guidances that have a duration longer than 60 days. In Column (2), I limit the sample to management guidances that are issued before the forecasted quarter end. In Column (3), I limit the sample to management guidances that are issued after the forecasted quarter end. In Column (4), I include management guidances for firms that have fiscal quarter end not in March, June, September or December. In Columns (5) and (6), I extend the sample to 1996, when I/B/E/S/ starts to cover a considerable number of management guidances in the database. Specifically, in

Column (5) the sample is limited to firms with fiscal year end in March, June, September or December and in Column (6) I include firms with fiscal year end in all months. Using these alternative samples I estimate Model (1) and report the coefficients on *Window*. In all these 6 samples, the coefficients on *Window* are positive and statistically significant.

Overall, the results in Table 12 suggest that my analyses are not sensitive to alternative definitions of event window or to different sample selection criteria.

4.3.3. Short-horizon annual management guidance

In my main tests, I focus on quarterly management guidances. I do not mix quarterly guidances with annual guidances because some of the control variables are based on the past management guidances issuance behaviour of a firm and mixing the annual guidances with quarterly guidances would make it difficult to calculate such control variables. And I choose quarterly guidances rather than annual guidances because the former have more observations. However, I expect the clustering of short-horizon management guidances after FOMC meetings also exists for annual guidances sample. In this part, I use short-horizon annual management guidances to see whether the similar clustering effect holds. Unsurprisingly, in the unprinted results, the coefficient on *Window* for the annual management guidances sample is positive and statistically significant (0.2917, z = 3.57, marginal effect = 33.87%).

4.3.4. Placebo tests

In the sample period (2000 to 2015), I randomly select 8 trading dates each year and define *Window* as the [1, 3] trading day window and *Short* as the [-10, 10] trading day relative to these placebo events and re-estimate Model (1). I repeat this procedure for 1,000 times and draw the distribution of the coefficients on

placebo *Window* in Figure 7. The red line in Figure 7 represents the coefficient on *Window* defined based on FOMC meetings (the results in Column (3), Table 4). The mean of all the coefficients from the 1000 tests is -0.00029 and the standard deviation is 0.0552. The coefficient on *Window* defined based on FOMC meetings is about 2.4 times the standard deviation away from the mean of the distribution. The results further confirm that there is a significant clustering effect of management voluntary disclosure following FOMC announcements.

4.3.5. Non-Scheduled FOMC meetings

Acharya, DeMarzo and Kremer (2011) emphasizes the importance of the pre-scheduled feature of the external announcement in their model. If the macro news announcement is not scheduled in advance, managers do not have the option of waiting because they do not know when the event will take place. In this sense, I expect the clustering effect of management voluntary disclosure to be smaller (if not insignificant) for FOMC meetings that are not pre-scheduled. FOMC sometimes hold conference calls that are not on their scheduled calendar. From 2000 to 2016, there are 25 unscheduled FOMC meetings. I use these unscheduled FOMC meetings to examine whether management guidance also cluster after such meetings. Some of these unscheduled meetings were close to other unscheduled meetings. To avoid the overlap of the [-10, 10] trading day window for these events, I keep the first unscheduled meeting if several meetings were held continuously within a short period. After this screening, 16 unscheduled meetings are kept.[17] I estimate Model (1), in which now *Short* equals 1 for the [-10, 10] trading day

[17] These meetings are conference calls held on 3-Jan-01, 11-Apr-01, 13-Sep-01, 25-Mar-03, 10-Aug-07, 6-Dec-07, 9-Jan-08, 10-Mar-08, 24-Jul-08, 29-Sep-08, 16-Jan-09, 3-Jun-09, 9-May-10, 15-Oct-10, 1-Aug-11 and 28-Nov-11 respectively. Except for the first meeting, the other meetings do not report any change in the target interest rate.

window and *Window* equals 1 for the [1, 3] trading day window relative to the unscheduled meetings. In the untabulated results, the coefficient on *Short* is positive and significant (1.0721, z = 1.78), while the coefficient on *Window* is positive but insignificant (1.0591, z = 0.69). There is no significant clustering of management guidances after unscheduled FOMC meetings.

4.4. Strategic Disclosure or Timely Disclosure?

While I am examining the clustering effect of corporate disclosure from a strategic disclosure perspective, one critical concern is that the observed clustering effect can also result from timely disclosure. In the model of Acharya, DeMarzo and Kremer (2011), they assume that managers' private information won't change due to the macro news information. Only the market's response to a certain piece of private information changes due to the macro news. In reality, it may not be the case. Monetary policy is one of the most important macro forces that affects the economy. FOMC's policy change can affect the investment plan, financing costs, future cash flows and performance of a firm. In this sense, when FOMC announces a policy change, managers may need to update their estimation of future performance of the firm accordingly. If managers always disclose new private information timely, the updated estimation of firm performance due to FOMC news may also lead to a clustering of management guidance after FOMC meetings. While generally it is difficult to rule out the impact of the updated private information story, the way I construct the management guidance sample can help mitigate this concern. I restrict my sample to quarterly management guidances issued when the forecasted quarter (almost) ends. For such a sample, the change in future interest rate is not likely to have significant impact on the performance of the current fiscal quarter. I also delete financial firms, because value of assets/ liability of financial firms can be sensitive to interest rates, which leads to the

update of private information of firm performance. In this part, I directly test whether the forecast accuracy/ error of management guidances issued right before the FOMC meetings is significantly different from those issued after FOMC meetings. I estimate the following model:

$$\begin{aligned} Accuracy = {} & \beta_0 + \beta_1 Post + \beta_2 \text{Analyst Following} + \beta_3 Horizon + \\ & \beta_4 Lag\_Lmval + \beta_5 Lag\_Mbt + \beta_6 Loss + \beta_7 Dispersion + \\ & \beta_8 Mf\_Surprise + \beta_9 Beta + \beta_{10} Earvol + \\ & Industry\ Fixed\ Effects + Year\ Fixed\ Effects \end{aligned} \quad (2)$$

in which *Accuracy* is the absolute value of the difference between a management guidance and the actual EPS scaled by the stock price at the beginning of the forecasted quarter. Following prior studies, I control for *Analyst Following* , which is the number of analysts that follows a firm, *Horizon*, the forecast horizon, *Lag_Lmval*, the natural logarithm of market value at the beginning of the forecasted period, *Lag_Mtb*, the market to book ratio at the beginning of the forecasted period, *Loss*, an indicator variable which equals 1 if the forecasted quarter finally has a negative earnings before extraordinary items, *Dispersion*, the dispersion of analyst forecasts, *Mf_Suprise*, the surprise of the management guidance relative to the last consensus analyst forecast scaled by the stock price at the beginning of the quarter, *Beta*, the market model beta coefficient for the forecasted quarter, *Earvol*, the earnings volatility of the past five quarters. I restrict the sample to short horizon management guidances that are issued within the [-5, 5], [-7, 7] and [-10, 10] window relative to FOMC meetings respectively. My main variable of interest is *Post*, which equals one if a management guidance is issued on the day or after a FOMC meeting and equals 0 otherwise. If management guidance issued after FOMC meetings are mainly driven by updated private information, I expect that the coefficient on *Post* to be negative and statistically

significant. I report the results in Table 13. In Table 13, Columns (1) to (3), the coefficients on *Post* are all insignificant (0.0004, t = 0.63 for the window [-5, 5], 0.0001, t = 0.17 for the window [-7, 7], and 0.0000, t= 0.04 for the window [-10, 10]). I further estimate the results using FOMC meetings with non-zero surprise. Still, the coefficients on *Post* are all insignificant (Columns (4) to (6)). In Columns (7) to (12) of Table 13, I replace the dependent variable with *Error*, which equals (actual EPS – forecasted EPS)/ stock price at the beginning of the forecasted quarter. Again, the coefficients on *Post* do not load in all the six Columns. Overall, these results suggest that, for the short horizon management guidances I am examining in this study, there is no significant difference in the forecast accuracy / error for management guidances issued right before vs right after the FOMC meetings. This evidence helps to further alleviate the concern that the observed clustering of management guidances are driven by managers' updated private information.

4.5. Option Value Effect or Career Concern?

The prior analyses have confirmed the clustering of management voluntary disclosure during FOMC meetings. And the cross-sectional tests are useful to substantiate that the observed clustering effect is likely due to the decline in the option value of waiting. One caveat about the option value argument is that other incentives such as agency problem and career concerns can also lead to strategic disclosure after FOMC meetings. Tse and Tucker (2010) document the herding of industry-level management warnings. They argue that managers disclose warnings following industry peers' warnings because it is easier for managers to attribute the unsatisfying firm performance to external factors when other industry peers also disclose warnings. Similarly, career concerns can incentivize managers to issue management guidances after FOMC meetings to help attribute

firm performance to external factors such as the underlying macroeconomic conditions that lead to FOMC decisions. The cross-sectional tests regarding the surprise in interest rate changes (Table 9) can help alleviate this concern. Specifically, the target of FOMC is to maintain high employment and stable price. In this regard, a positive surprise in interest rate change would mean that the macroeconomy is in good condition in general while a negative surprise in interest rate change would mean that the macroeconomy is unsatisfying. If career concern is the first order effect which leads to the clustering of management guidances after FOMC announcements, one would expect that managers are more likely to issue management guidance when there is a negative surprise in interest rate change because managers can easily attribute firm performance to the poor macroeconomic condition. However, I show in Table 9 that the clustering effect increases with the surprise in interest rate changes.

In this part, I further endeavor to show that career concern is not the main driver for the observed clustering of management guidances following FOMC announcements.

4.5.1. Walk-up vs. Walk-down management guidances

First, if career concern drives the clustering of management guidances, we would expect the effect mainly holds for bad news because managers with bad news have higher incentive to attribute firm performance to external factors. I define management guidances with forecasted EPS higher (lower) than latest consensus of analyst forecast as Walk-up (Walk-down) management guidances. Walk-down management guidances are usually defined as bad news (warnings) in prior studies (Tucker, 2007, Tse and Tucker, 2010). Managers in possess of walk-down private information thus should have higher incentive to issue management guidances following FOMC meetings if career concern is the main driver for the

observed clustering effects. I define *WU* as an indicator which equals 1 if the point estimation or the lower-bound of a range estimation of forecasted EPS in a management guidance is higher than latest consensus (mean) of analyst forecasts, and *WD* as an indicator which equals 1 if the point estimation or the upper-bound of a range estimation of EPS reported in a management guidance is higher than latest consensus (mean) of analyst forecast.[18] I use interactions of *Window* with *WD* and *WU* to measure the impact of FOMC meetings on Walk-up vs. Walk-down management guidances. The results are reported in Column (1), Table 14. I replace *Leader*, *Leadtime*, *Indtime* and *Peer* with *Type_Leader*, *Type_Leadtime, Type_Indtime* and *Type_Peer*, which have similar definitions as the original variable but are calculated based on the Walk-up (Walk-down) group for Walk-up (Walk-down) management guidances. Since not all management guidances can be classified as Walk-up or Walk-down, the sample in Table 14 is smaller than the sample in Table 4. The results suggest that, the clustering effect holds for both type of management guidances (0.1703, $z = 1.74$ for *Window* · *WU*, marginal effect = 18.57%, 0.1305, $z = 2.59$, marginal effect = 13.94% for *Window* · *WD*). The results suggest that both Walk-down and Walk-up management guidances cluster in the short window after FOMC announcements and the clustering effect is even higher for the Walk-up management guidances. This finding is inconsistent with the career concern argument.

4.5.2. High career concern managers vs. low career concern managers

To further substantiate the inferences on the underlying driver of the clustering effect, I directly test the career concern argument, by replacing *Window*

[18] A management guidance is defined as a point estimation if IBES variable *RANGE_DESC* is coded as "02", "14" or "09", and is defined as a range estimation if IBES variable RANGE_DESC is coded as "01".

in Model (1) with *Window* · *HighConcern* and *Window* · *LowConcern*. If career concern is the main driver for the observed phenomenon, I expect that managers with high career concern are more likely to issue management guidance during FOMC windows. Following Deng and Gao (2013) and Gao, Luo, and Tang (2016), I use the number of firms in the same industry as a proxy for managers' career concern. The higher the number of firms in the same industry, the more external opportunities a manager has and the lower his career concern will be. I define *HighConcern* as an indicator which equals 1 if the number of firms in the same SIC two-digit industry is below sample median and define *LowConcern* as an indicator which equals 1 if the number of firms in the same SIC two-digit industry is above sample median. The results are reported in Column (1), Table 15. In Column (1), the coefficient on *Winow* · *HighConcern* is negative but insignificant while the coefficient on *Window* · *LowConcern* is positive and significant at the 1% level (-0.0163, z = -0.14 for *Window* · *HighConcern* and 0.1522, z = 3.51 for *Winow* · *LowConcern*). I further interact *WU* and *WD* with *Winow* · *HighConcern* and *Winow* · *LowConcern* in Column (2), Table 15. For both Walk-up management guidances and Walk-down management guidances, the clustering effect is more pronounced for managers with low career concerns. These findings contrast to the predictions based on the career concern argument.

Overall, the cross-sectional tests suggest that career concern is not likely to be the first-order incentive for the observed clustering effects in my findings. Note that, these results do not mean that career concern is not important in shaping managers' disclosure decision in response to monetary policy news. Rather, it only suggests that career concern is not the driving factor for management voluntary disclosure during the narrow event window ([1, 3]) in this study. During such a short window, I expect the impact of decline in option value to play a more important role. On the contrary, managers who want to bundle private information to macro news announcements to

reduce their responsibility for firm performance can still disclose bad news during a longer period after the event window. In some un-tabulated results, I do find increased likelihood of management disclosure for Walk-down guidances but not for Walk-up guidances on an extended window after the event window. However, I do not further explore the extended window since this is not the main focus of my paper.

4.6. External Validity

In Section 2 the hypothesis development, the real-option theory predicts the clustering of corporate disclosure after FOCM meetings as long as managers receive private information before FOMC meetings. Empirically, the analysis of this paper is limited to short-horizon management guidances. While using such a sample gives a clear setting to identify the real-option based story, the readers may also be interested to know whether there is clustering of other types of corporate disclosure around FOMC meetings. In this part, I examine the timing of another two sets of voluntary disclosure around FOMC meetings.

First, I look at quarterly management guidances that are issued in the first two month of the forecasted quarter. These guidances have longer horizon than the guidances I examine in the main tests. For such long-horizon management guidances, it is hard to decide whether the assumption that managers receive private information before FOMC meetings is satisfied. If the assumption holds, then I expect a similar clustering effect after FOMC meetings for these long-horizon management guidances. If the assumption does not hold, based on Acharya, DeMarzo and Kremer (2011), the timing of management guidances should not be affected by the timing of FOMC meetings. However, on the other hand, in this situation, managers may update their private information regarding future firm performance after the FOMC announcements. If managers immediately update their private information and disclose the new private information timely, we may

still observe a clustering of management guidances after FOMC meetings for this longer horizon sample. Given this discussion, if we observe a post FOMC clustering effect, it is hard to decide whether it is due to the real-option story or the updated private information story. However, if we do not observe a clustering effect after FOMC meetings, then it suggests that generally managers do not receive private information before FOMC meetings so they do not have the real-option of waiting and that managers also do not update date private information and disclose the updated information immediately. When using these longer horizon management guidances, the starting point of the observation is the beginning of the forecasted quarter. I report the results in Table 16. The coefficients on *Window* is positive but statistically insignificant (0.0041, z = 0.17). The clustering effect is not observed for the longer-horizon management guidances, which suggests that 1) the updated information story does not hold, and 2) for this sample of management guidances, managers do not necessarily have private information before FOMC meetings.

Next, I examine the timing of 8-K fillings. Firms are required to file 8-K within a short period after some material events, In some studies, 8-K filings are also treated as a type of voluntary disclosure of a firm. Due to the nature of 8-K fillings, one can not specify the forecast horizon of 8-K fillings. However, to make the results comparable to the main findings of the paper, I also limit the 8-K fillings sample to the first 8-K filling of a firm issued between [T2-31, EA-2) and estimate the Cox Duration Model with the observation period starts at T2 – 31. The results are reported in Table 17. The coefficients on *Window* are positive and statistically significant (0.0536, z = 3.85, marginal effect=5.51%). However, what drives the clustering of 8-K filings after FOMC meetings is not clear in this sample. On the one hand, it can be that the material events take place before FOMC meetings and

the clustering of 8-K filling mainly reflect the timing of 8-K filings.[19] On the other hand, it can also be the case that the clustering effect of 8-K fillings reflect a firms' timing of making material decisions.

5. *Conclusion*

I consider the disclosure decision as a real option problem when managers face scheduled macro news announcements. When managers are uncertain about macro news and its price implication, they have incentive to wait until the realization of macro news to make disclosure decisions. If macro news announcements are pre-scheduled, the option value of waiting will increase dramatically when it approaches the scheduled time and prevent managers from disclosing information. Once the macro news arrives, the option value of waiting drops to zero and managers who find it beneficial will disclose private information. Since macro news affects all firms in the economy, corporate disclosure will cluster after the scheduled macro news announcements.

Based on the setting of scheduled FOMC meetings, I test whether managers time voluntary disclosure in the predicted way of the real-option theory. Using a Cox Duration model, I document the clustering of management voluntary disclosure during the [1, 3] trading day window following scheduled FOMC meetings. Managers are 14.26% more likely to issue management voluntary disclosure during this window than on adjacent days. The clustering effect still exists after controlling for industrial peers' earnings announcements. Further analyses confirm that the clustering effect is likely driven by real-option problem in disclosure decision. Specifically, I find that the clustering effect holds for a short period around FOMC meetings and is more pronounced when ex-ante policy

[19] A firm is usually required to file for an 8-K within 4 business day when a material event happens. As such, the managers still have some discretion in the timing of 8-K filings during a short period.

uncertainty faced by the entire market is higher, when the idiosyncratic uncertainty about monetary policy faced by individual managers is higher, when surprise in interest rate change is higher, when the cost of waiting is lower, and when the period during which the stock price can be potentially overvalued is longer.

I also show that the clustering effect is more pronounced for Walk-up management guidances and for firms whose managers facing fewer career concerns. These results suggest that career concern is not likely the first order effect in the observed clustering of voluntary disclosure.

Reference

Aboody, D. and R. Kasznik. 2000. CEO Stock Option Awards and the Timing of Corporate Voluntary Disclosures. *Journal of Accounting and Economics*, 29, 73 - 100.

Acharya, V. V., P. DeMarzo and I. Kremer. 2011. Endogenous Information Flows and the Clustering of Announcements. *The American Economic Review*, 101, 2955 - 2979.

Agarwal, R and J. Kolev. 2016. Strategic Corporate Layoffs. IMF Working Paper Series.

Ajinkya, B., S. Bhojraj and P. Sengupta. 2005. The Association between Outside Directors, Institutional Investors and the Properties of Management Earnings Forecasts. *Journal of Accounting Research*, 43: 3, 343 - 376.

Anilowski, C., M. Feng and D. J. Skinner. 2007. Does Earnings Guidance Affect Market Returns? The Nature and Information Contents of Aggregate Earnings Guidance. *Journal of Accounting and Economics*, 44, 36 - 63.

Aobdia, D., J. Caskey and N. B. Ozel. 2014. Inter-industry Network Structure and the Cross-predictability of Earnings and Stock Returns. *Review of Accounting Studies*, 19, 1191 - 1224.

Arif, S., N. Marshall and T. L. Yohn. 2016. Understanding the Relation between Accruals and Volatility: A real options-based Investment Approach. *Journal of Accounting and Economics*, 62, 65 - 86.

Bergman, N. K and S. Roychowdhury. 2008. Investor Sentiment and Corporate Disclosure. *Journal of Accounting Research*, 46, 1057 - 1083.

Bernanke, B. S. 1983. Irreversibility, Uncertainty, and Cyclical Investment. *The Quarterly Journal of Economics*, 98, 85-106.

Bernile, G., J. Hu and Y. Tang. 2016. Can Information be Locked Up? Informed Trading Ahead of Macro-news Announcements. *Journal of Financial Economics*, 121, 496 - 520.

Cheng, Q. and K. Lo. 2006. Insider Trading and Voluntary Disclosure. *Journal of Accounting Research*, 44, 815 - 848.

Cheng, Q., T, Luo and H. Yue. 2013. Managerial Incentives and Management Forecast Precision. *The Accounting Review*, 88, 1575 - 1602.

Chulia, H., M. Martens and D. van. Dijk. 2010. Asymmetric Effects of Federal Funds Target Rate Changes on S&P100 Stock Returns, Volatilities and Correlations. *Journal of Banking and Finance*, 34, 834 - 839.

Culter, D. M., J. M. Poterba and L. H. Summers. 1989. What Moves Stock Prices? NBER Working Paper Series.

Dixit, A. 1992. Investment and Hysteresis. *Journal of Economic Perspective*, 6, 107-132.

Ehrmann, E. and M. Fratzscher. 2004. Taking Stock: Monetary Policy Transmission to Equity Markets. *Journal of Money, Credit, and Banking*, 36, 719 - 737.

Flannery, M. J and A. A. Protopapadakis. 2002. Macroeconomic Factors Do Influence Aggregate Stock Returns. *The Review of Financial Studies*, 15, 751-782.

Francis, J., D. Philbrick and K. Schipper. 1994. Shareholder Litigation and Corporate Disclosures. *Journal of Accounting Research*, 32, 137-164.

Guiso, L. and G. Parigi. 1999. Investment and Demand Uncertainty. *Quarterly Journal of Economics*, 114, 185-227.

Hardouvelis, G. A. 1987. Macroeconomic Information and Stock Prices. *Journal of Economics and Business*, 39, 131 - 140.

Jung, A. 2016. Have FOMC minutes helped markets to predict FED funds rate changes? European Central Bank Working Paper Series.

Kasznik, R and B. Lev. 1995. To Warn or Not to Warn: Management Disclosure in the Face of an Earnings Surprise. *Accounting Review*. 70, 113 - 134.

Kellogg, R. 2014. The Effect of Uncertainty on Investment: Evidence from Texas oil drilling, *The American Economic Review*, 104, 1698 - 1734.

Kim, K., S. Pandit and C. E. Wasley. 2016. Macroeconomic Uncertainty and Management Earnings Forecasts. *Accounting Horizons*, 30, 157 - 172.

Konchitchki, Y and P. N. Patatoukas. 2014. Accounting Earnings and Gross Domestic Product. *Journal of Accounting and Economics*, 57, 76 - 88.

Kothari, S. P., S. Shu and P. D. Wsocki. 2009. Do Managers Withhold Bad News? *Journal of Accounting Research*, 47, 241 - 276.

Kuttner, K. 2001. Monetary Policy Surprises and Interest Rates: Evidence from the Fed Funds Futures Market. *Journal of Monetary Economics*, 47, 523 - 544.

Li, N., S. Richardson and I. Tuna. 2014. Macro to Micro: Country Exposures, Firm Fundamentals and Stock Returns. *Journal of Accounting and Economics*, 58, 1 - 172

Lucca, D. O. and E. Moench. 2015. The Pre-FOMC Announcement Drift. *Journal of Finance*, 70, 329 - 371.

McDonald, R. L. and D. Siegel. 1986. The Value of Waiting to Invest. *Quarterly Journal of Economics*, 101, 707-727.

McQueen, G. and V. V. Roley. 1993. Stock Prices, *News and Business Conditions. The Review of Financial Studies*, 6, 683 - 707.

Nagar, V., D. Nanda and P. Wysocki. 2003. Discretionary Disclosure and Stock-Based Incentives. *Journal of Accounting and Economics*, 34, 283 - 309.

Pae, S., C. J. Song and A. C. Yi. 2016. Career Concerns and Management Earnings Guidance. Contemporary Accounting Research, 33, 1172 - 1198.

Quigg, L. 1993. *Empirical Testing of Real Option-Pricing Models. Journal of Finance*, 48, 621-640.

Rogers, J. L and A. V. Buskirk. 2013. Bundled Forecasts in Empirical Accounting Research. *Journal of Accounting and Economics*, 55, 43 - 65.

Savor, P. and M. Wilson. 2013. How Much Do Investors Care About Macroeconomic Risk? Evidence from Scheduled Economic Announcements. *Journal of Financial and Quantitative Analysis*, 48, 343 - 375.

Skinner, D. 1994. Why Firms Voluntarily Disclose Bad News. *Journal of Accounting and Economics*. 23, 249 - 282.

Skinner, D. 1997. Earnings Disclosures and Stockholder Lawsuits. *Journal of Accounting and Economics*, 23, 249 - 282.

Sletten, E. 2012. The effect of stock price on discretionary disclosure. *Review of Accounting Studies.* 17, 96-133.

Tse, S. and J. Tucker. 2010. Within-Industry Timing of Earnings Warnings: Do managers Herd? *Review of Accounting Studies*, 15, 879 - 914.

Figure 1:

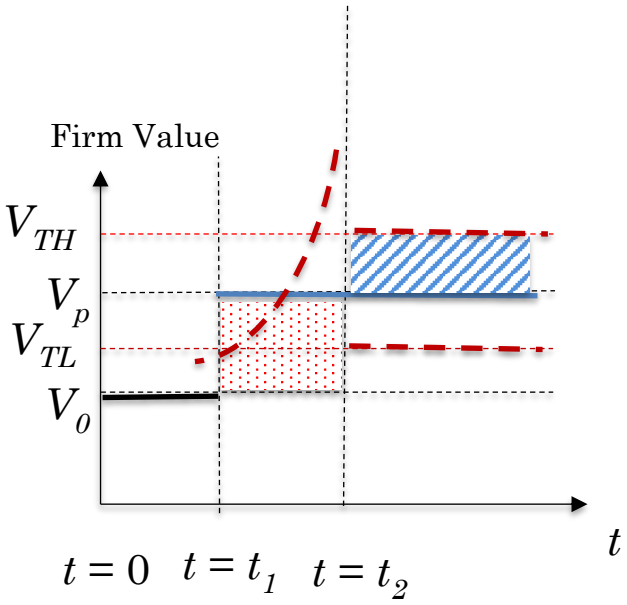
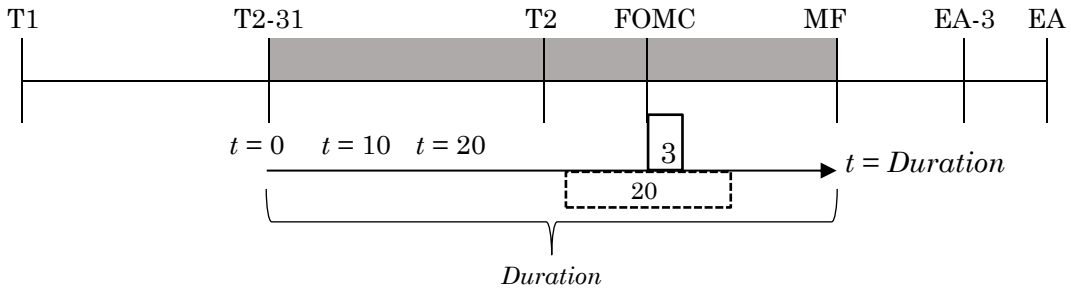


Figure 2: Timeline of Management Fuidance



This figure shows the timeline of management guidances in my sample. For a Quarter q, T1 is the first day of Quarter q and T2 is the last day of Quarter q. EA is the earnings announcement day for Quarter q. MF_q represents a management guidance for Quarter q. For each quarter, I examine the first MF_q issued between T2 – 31 to EA – 3. t is the number of days between T2-31 to the specific day. *Duration* measures the number of days from T2 – 31 to management guidance announcement day. The Cox Model analysis tests whether the probability of management guidance issuance on day t is significantly higher during the 3 day window after FOMC meetings relative to other days in a short period (20 day window) around FOMC meetings.

Figure 3: Mean of Daily Abnormal Number of Management Guidance on the [-5, 5] Trading Day Window Relative to FOMC Meetings.

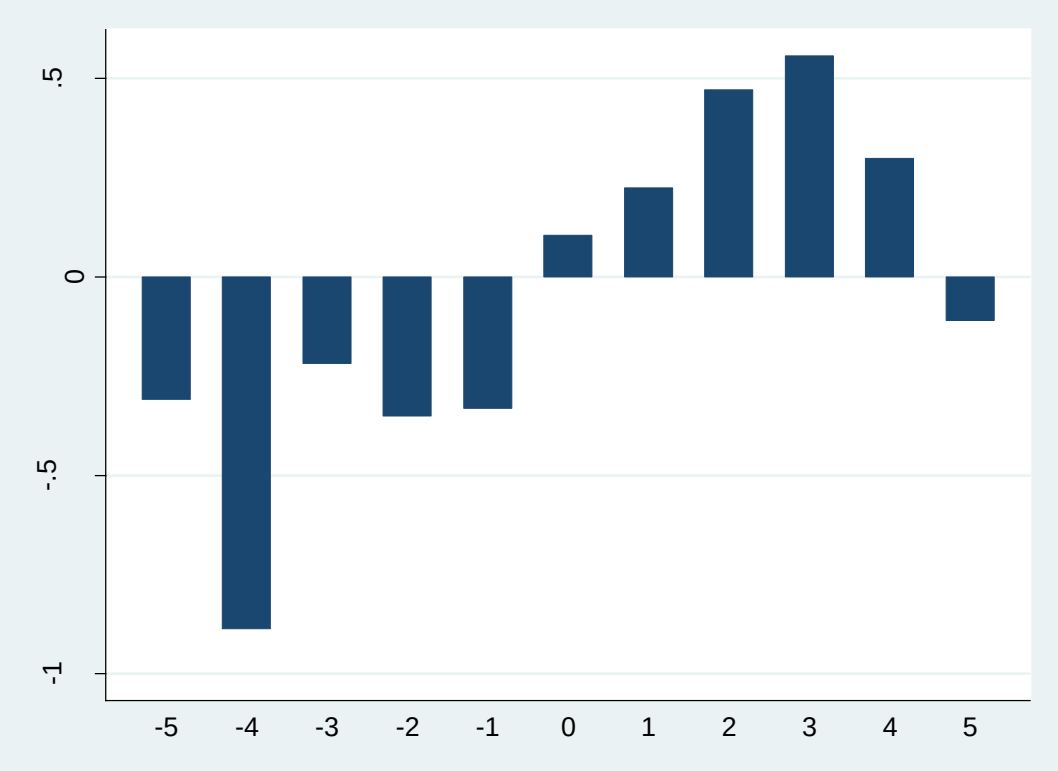
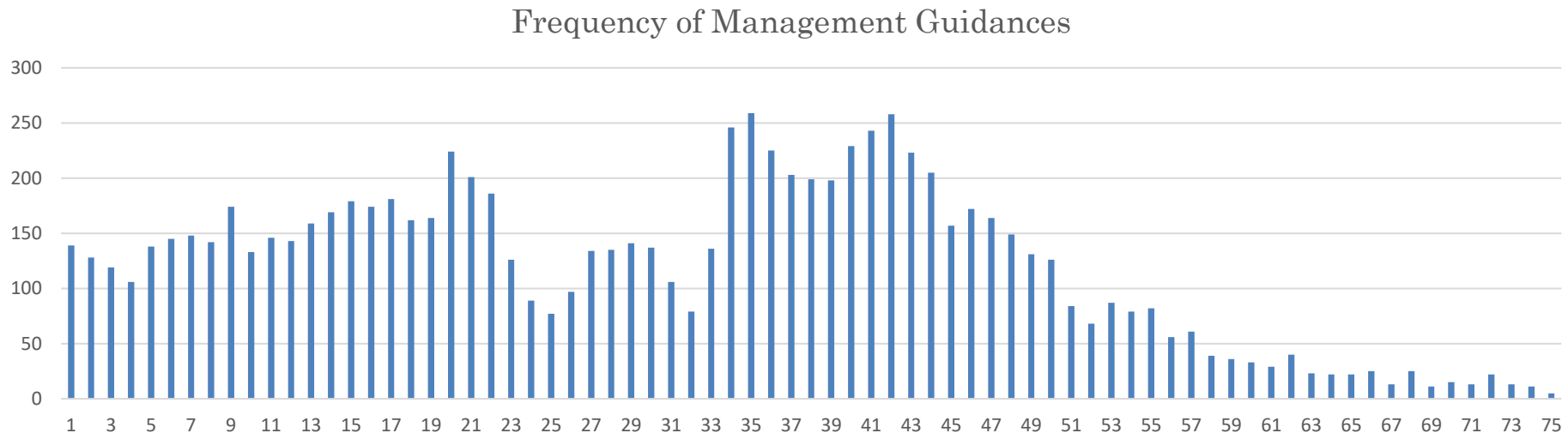


Figure 4: Distribution of the Duration of Management Guidances.



This figure shows the distribution of the duration of management guidances in the regression sample. X-axis is the duration of management guidances. Y-axis represents the frequency of management guidances.

Figure 5: Surprise in Interest Rate Change (*Int_Surprise*) Over the Years

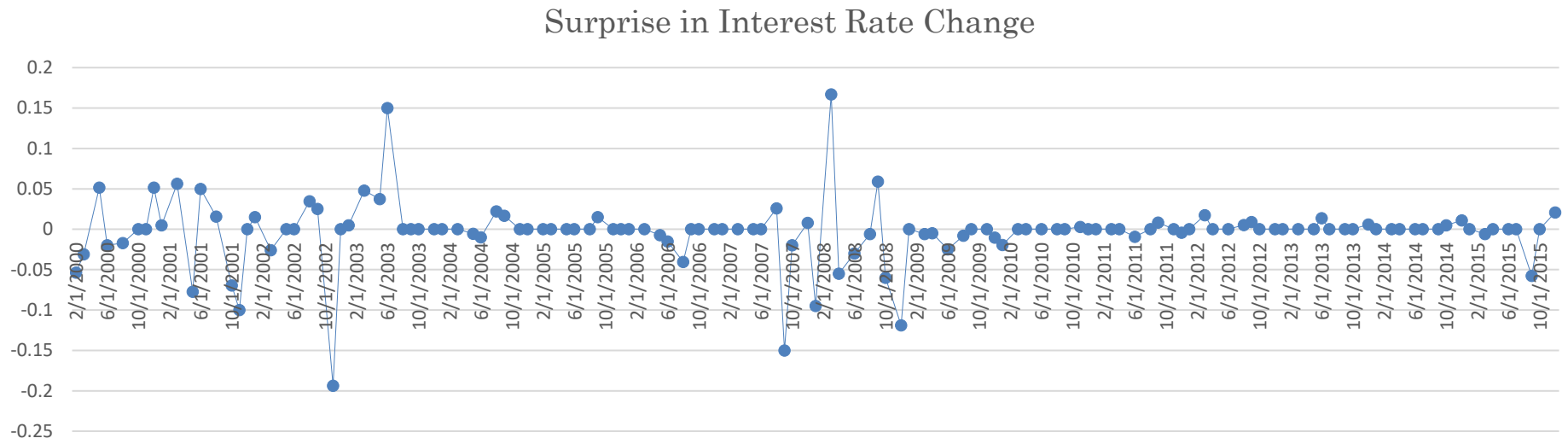


Figure 6: Change in Interest Rate

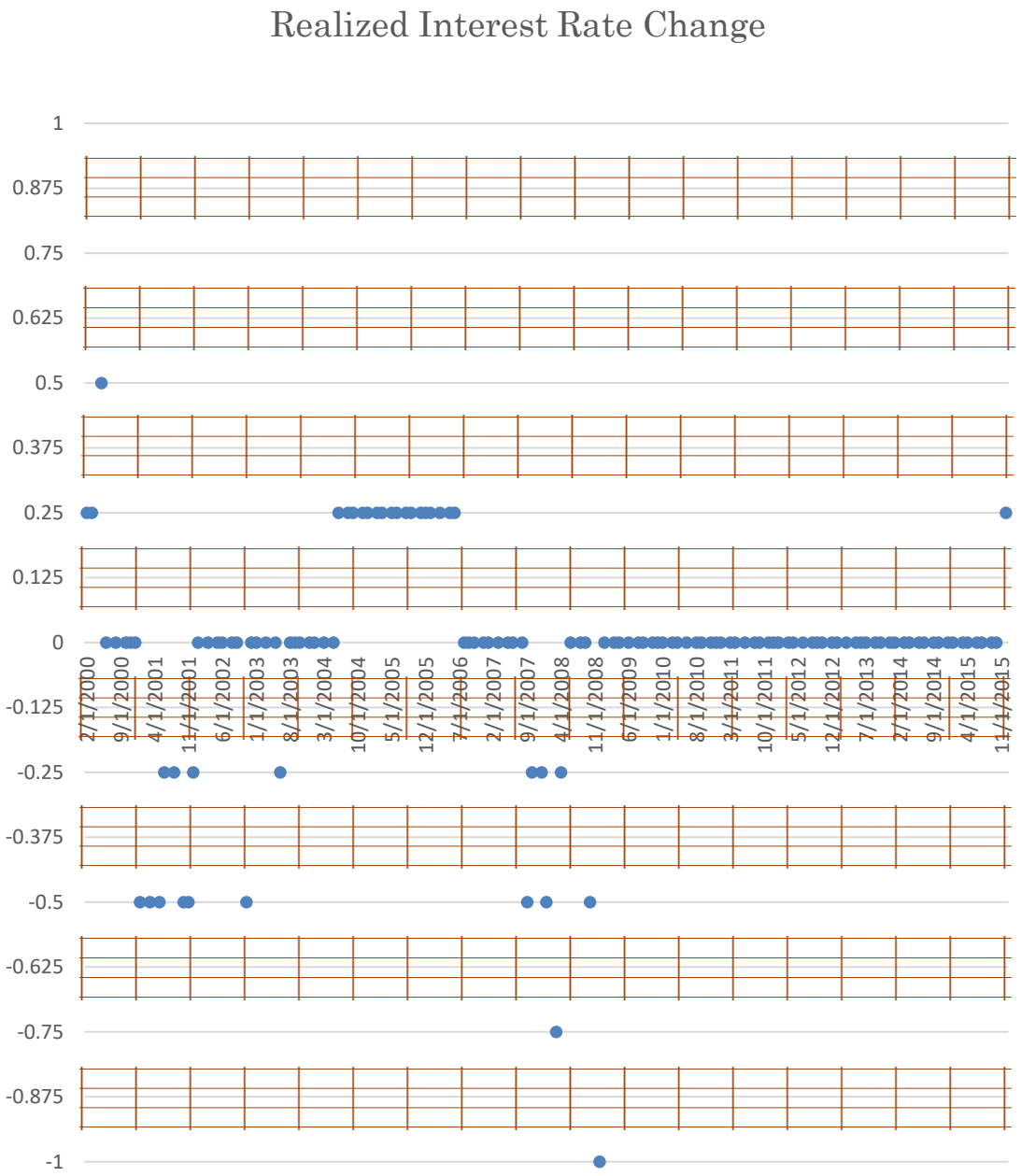


Figure 7: Distribution of Coefficients on Randomly Selected Window in Placebo tests

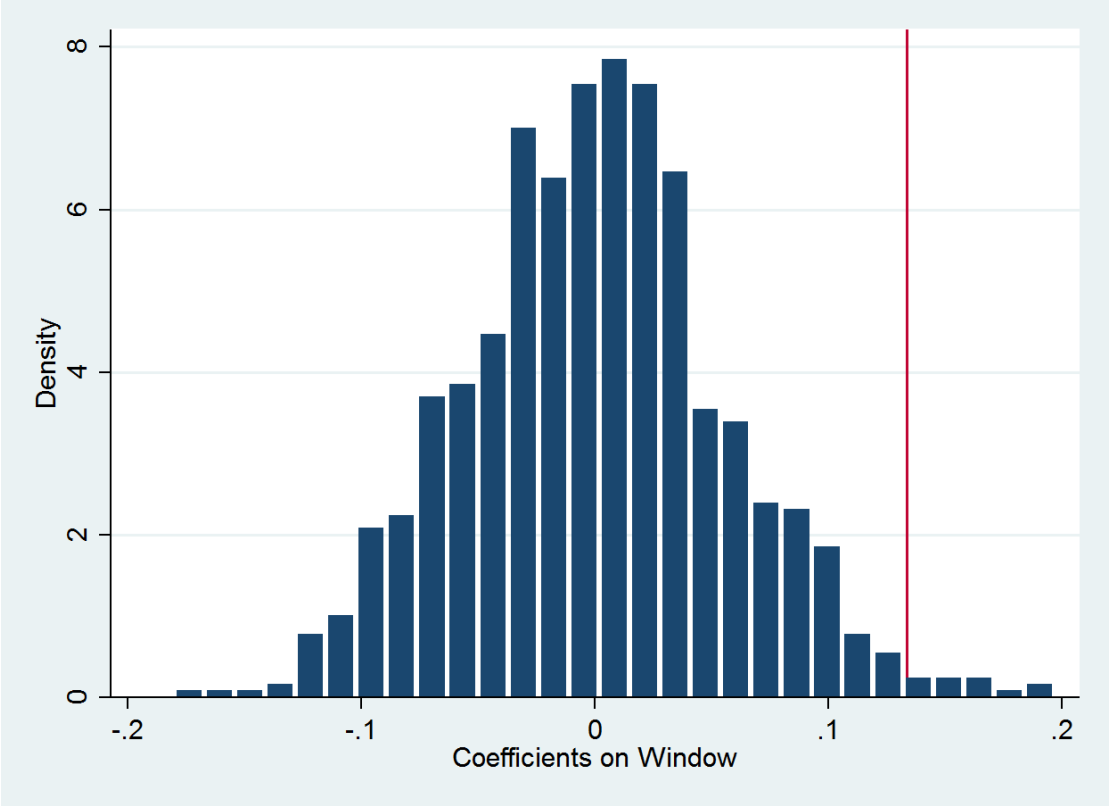


Table 1: Summaries of FOMC Meetings

Year	Number of Scheduled Meetings	Number of Interest Rate Increases	Number of Interest Rate Decreases
2000	8	3	0
2001	8	0	8
2002	8	0	1
2003	8	0	1
2004	8	5	0
2005	8	8	0
2006	8	4	0
2007	8	0	3
2008	8	0	5
2009	8	0	0
2010	8	0	0
2011	8	0	0
2012	8	0	0
2013	8	0	0
2014	8	0	0
2015	8	1	0
Sum	128	21	18

This Table reports the summary information of FOMC meetings from 2000 to 2015.

Table 2: Sample Selection

Sample Selection Steps	Delete	Leftover
EPS management guidances derived from I/B/E/S issued from2000 to 2015		153,085
Delete annual guidances	86,574	66,511
Delete non-USD based guidances	341	66,170
Delete revised version in I/B/E/S, keep the first version	4,783	61,387
Delete guidances with no actual eps/ earnings announcement date in I/B/E/S	1,324	60,063
Keep management guidances issued during the window: [Forecasted quarter end - 31, earnings announcement -3)	43,316	16,747
For each firm-quarter, keep the first management guidances	1,317	15,430
Can be merged with Compustat and are listed on NYSE, AMEX or Nasdaq	1,857	13,573
Delete management guidances that have duration longer than 75 days	141	13,432
Delete observations in Financial Industry	3,646	9,786
Delete observations with missing data and firms with fiscal quarter end not in March, June, September or December	768	9,018

This table reports the sample selection procedure for management guidance.

Table 3: Summary Statistics

Panel A: Summary Statistics for all management guidances

	Obs	Mean	Standard Deviation	Min	P25	Median	P75	Max
Window	9,018	0.0887	0.2843	0	0	0	0	1
Trading_Day	9,018	0.9929	0.0839	0	1	1	1	1
Abs_News	9,018	0.0106	0.0278	0	0.0016	0.0043	0.0105	0.9782
Saleshare	9,018	0.0170	0.0449	0	0.0004	0.0022	0.0119	0.6403
Size_Rank	9,018	0.6573	0.2414	0.0121	0.4784	0.6909	0.8667	1
Analyst_Rank	9.018	0.7340	0.1973	0.0526	0.5995	0.7692	0.9000	1
Past	9,018	0.2905	0.4540	0	0	0	1	1
Past_Time	9,018	51.1754	44.1796	0	0	70	90	164
Leader	9,018	0.1951	0.3963	0	0	0	0	1
Leadtime	9,018	61.9499	18.4921	27	56	62	70	131
Indtime	9,018	0.2889	0.4533	0	0	0	1	1
Peer	9,018	1.9052	3.8686	0	0	1	2	46

Panel B: Summary Statistics for management guidances issued in FOMC event windows vs. on normal days

	Management guidances in the [1,3] FOMC windows		Management guidances not issued in FOMC windows		Diff	
	Obs	Mean	Obs	Mean	t-value	p-value
Abs_News	800	0.0147	8,218	0.0102	-4.4027	<0.0001
Saleshare	800	0.0195	8,218	0.0168	-1.6176	0.1058
Size_Rank	800	0.6736	8,218	0.6557	-2.0070	0.0448
Analyst_Rank	800	0.7461	8,218	0.7328	-1.8270	0.0677
Past	800	0.3025	8,218	0.2894	-0.7811	0.4348
Past_Time	800	53.3312	8,218	50.9655	-1.4458	0.1483
Leader	800	0.1550	8,218	0.1990	2.9962	0.0027
Leadtime	800	62.4275	8,218	61.9034	-0.7653	0.4441
Indtime	800	0.3875	8,218	0.2793	-6.4621	<0.0001
Peer	800	2.6688	8,218	1.8309	-5.8588	<0.0001

This table reports the summary statistics of dependent and independent variables in the Cox Duration model. *Window* is an indicator variable which equals 1 if a management guidance is issued during the [1, 3] trading day window after FOMC scheduled meetings. *Trading_Day* is an indicator variable which equals 1 if a day is a trading day and equals 0 otherwise. *Abs_News* is the magnitude of earnings news, where earnings news is calculated as actual earnings relative to the last consensus (mean) analyst forecasts before management guidance scaled by stock price at the beginning of the forecasted period. *Salesshare* is a firm's share of sales relative to the total sales in the same SIC two-digit industry. *Size_Rank* is a firm's rank of the mean of past four quarters' market capitalization in the same SIC two-digit industry. *Analyst_Rank* is a firm's rank of the mean of past four quarters' analyst following in the same SIC two-digit industry. To facilitatee the interpretation of the coefficients on *Size_Rank* and *Analyst_Rank*, I standardize the ranks to the [0, 1] scale. *Past* is an indicator which equals 1 if a firm issued a management guidance in the prior quarter. *Past_time* is the mean of the duration of management guidances in the past 4 quarters. *Leader* is an indicator which equals 1 if a firm is the first to issue a management guidance in that quarter in the SIC 2 industry. *Leadtime* is the duration of management guidance of the first firm that issues management guidance in that quarter in the SIC two-industry. *Indtime* is an indicator which equals 1 if a day is within +/2 days relative to the industrial median time of management guidance. *Peer* is the number of management guidance issued by industry peers within [-5, 0) days relative to a day. In Panel A, I report the number of observation, mean, standard deviation, minimum, p25, median, p75 and maximum value of each variable. In Panel B, I report the summary statistics for management guidance reported in the [1, 3] window following FOMC meetings and for those reported outside the window. I also compare the mean of these variables for the two samples and report the t-test statistics.

Table 4: Clustering of Management Guidances Following FOMC Announcements

Panel A: Regression Coefficients for the Cox Model

Variables	Predicted Sign	(1) Coefficient (β)	(2) Coefficient (β)	(3) Coefficient (β)
Window	+	0.1522	0.1228	0.1333
		(3.68)***	(3.06)***	(3.22)***
Short	?	0.2395	0.1374	0.1113
		(8.66)***	(5.10)***	(3.95)***
File8K	+	1.7835	1.6543	1.7777
		(76.31)***	(74.96)***	(76.05)***
AbsNews	?	-1.3240	-0.6175	-1.3546
		(-2.99)***	(-1.52)	(-3.06)***
Saleshare	?	-1.3906	-1.7576	-1.3594
		(-4.12)***	(-5.18)***	(-4.03)***
Size_Rank	+	0.4029	0.4809	0.4027
		(5.60)***	(6.69)***	(5.60)***
Analyst_Rank	+	0.3702	0.3709	0.3698
		(4.50)***	(4.52)***	(4.50)***
Past	+	0.1821	0.2165	0.1809
		(6.48)***	(7.73)***	(6.44)***
Past_Time	-	-0.0009	-0.0009	-0.0009
		(-3.42)***	(-3.40)***	(-3.28)***
Leader	+	1.5132	1.4590	1.5192
		(37.02)***	(36.08)***	(37.18)***
Leadtime	-	-0.0226	-0.0256	-0.0228
		(-27.37)***	(-32.82)***	(-27.59)***
Indtime	+	0.1403	0.1096	0.1353
		(5.31)***	(4.16)***	(5.12)***
Peer	+	0.0407	0.0553	0.0410
		(11.46)***	(17.97)***	(11.57)***
Trading_day	+		4.1471	2.2861
			(32.72)***	(13.48)***
Industry Indicators		Yes	Yes	Yes
Year Indicators		Yes	No	Yes
Month Indicators		Yes	No	Yes
Weekday Indicators		Yes	No	Yes
N		271155	271155	271155
pseudo R-sq		0.105	0.098	0.107

Panel B: Marginal effect on hazard rate if the independent variable is increased by 1 unit.

	(1) Marginal Effect = Exp(β) - 1	(2) Marginal Effect = Exp(β) - 1	(3) Marginal Effect = Exp(β) - 1
Window	0.1644***	0.1307***	0.1426***
Short	0.2706***	0.1473***	0.1177***
File8K	4.9506***	4.2294***	4.9162***
AbsNews	-0.7339***	-0.4607	-0.7419***
Saleshare	-0.7511***	-0.8275***	-0.7432***
Size_Rank	0.4962***	0.6175***	0.4959***
Analyst_Rank	0.448***	0.449***	0.4474***
Past	0.1997***	0.2417***	0.1983***
Past_Time	-0.0009***	-0.0009***	-0.0009***
Leader	3.5412***	3.3017***	3.5686***
Leadtime	-0.0223***	-0.0253***	-0.0225***
Indtime	0.1506***	0.1158***	0.1449***
Peer	0.0415***	0.0569***	0.0419***
Trading_day		62.2503***	8.8365***

In this Table, I report the estimation results of the following duration model:

$$h(t_i) = h_0(t_i) \cdot \exp[\beta_0 Window(t)_i + \beta_1 Short(t)_i + \beta_2 File8K(t)_i + \beta_3 Trading\_Day(t)_i + \beta_4 Abs\_News_i + \beta_5 Size\_Rank_i + \beta_6 Analyst\_Rank_i + \beta_7 Saleshare_i + \beta_8 Past_i + \beta_9 Past\_Time_i + \beta_{10} Lead + \beta_{11} Leadtime + \beta_{12} Indtime + \beta_{13} Peer + \beta_{14} Industry + \beta_{15} Year + \beta_{16} Month + \beta_{17} Weekday]$$

where $h_0(t)$ is the baseline hazard rate and the *Exp*[*] component measures the marginal effects of time variant and invariant variables on the hazard rate. *t* measures the period between a specific day and the 31 day before the end of the forecasted period. *Window*(*t*) is my main variable of interest. It is an indicator which equals 1 if Day *t* falls into the [1, 3] trading day window relative to an FOMC meeting and equals zero otherwise. A positive coefficient on *Window*(*t*) suggests that managers are more likely to issue a management guidance after FOMC announcements. *Short*(*t*) is an indicator variable which equals 1 if day *t* falls into the [-10, 10] trading day window relative to an FOMC meeting and equals zero otherwise. *File8K* is an indicator if a firm files an 8-K file within [-3, 3] days relative to a day *t*. *Trading_Day* is an indicator variable which equals 1 if a day is a trading day and equals 0 otherwise. *Abs_News* is the magnitude of earnings news, where earnings news is calculated as actual earnings relative to the last consensus (mean) analyst forecasts before management guidance scaled by stock price at the beginning of the forecasted period. *Salesshare* is a firm's share of sales relative to the total sales in the same SIC two-digit industry. *Size_Rank* is a firm's rank of the mean of past four quarters' market capitalization in the same SIC two-digit industry. *Analyst_Rank* is a firm's rank of the mean of past four quarters' analyst following in the same SIC two-digit industry. To facilitate the interpretation of the coefficients on *Size_Rank* and *Analyst_Rank*, I standardize the ranks to the [0, 1] scale. *Past* is an indicator if a firm issued a management guidance in the prior quarter. *Past_time* is the mean of the duration of management guidance in the past 4 quarters. *Leader* is an indicator which equals 1 if a firm is the first to issue management guidance in that quarter in the SIC tw0 industry. *Leadtime* is the duration of management guidance of the first firm that issues management guidance in that quarter in the SIC two-industry. *Indtime* is an indicator which equals 1 if a day is within +/2 days relative to the industry median time of management guidance. *Peer* is the number of management guidance issued by industry peers within [-5, 0) days relative to a day. *Industry* represents a set of industry indicators based on SIC 2 digits industries. *Year, Month* and *Weekday* represents year, month and weekday indicators.

In Panel A I report the regression coefficients for the Cox Model. In Panel B, I report independent variables' marginal effects on reporting probability when each independent variable is increased by 1 unit. The marginal effect is calculated as Hazard Ratio – 1, where Hazard Ratio equals *Exp*(coefficient). The Cox Model is estimated using Efron methods. *, **, *** indicate significance at the 0.10, 0.05 and 0.01 levels, respectively.

Table 5: Controlling for Peer Firms' Earnings Announcements

Panel A: Regression Coefficients for the Cox Model

	(1) Coefficient (β)	(2) Coefficient (β)
Window	0.1315	0.1296
	(3.18)***	(2.46)**
Lead_EA	0.0890	
	(1.96)**	
Peer_EA	-0.0003	
	(-0.30)	
Short	0.1118	0.1845
	(3.96)***	(5.12)***
Trading_day	2.2862	2.2734
	(13.48)***	(11.15)***
AbsNews	-1.3537	-1.5799
	(-3.06)***	(-2.16)**
Saleshare	-1.3631	-1.7528
	(-4.04)***	(-4.65)***
Size_Rank	0.4018	0.4478
	(5.58)***	(4.92)***
Analyst_Rank	0.3700	0.3835
	(4.50)***	(3.68)***
Past	0.1806	0.1582
	(6.42)***	(4.66)***
Past_Time	-0.0009	-0.0003
	(-3.26)***	(-0.87)
Leader	1.5247	1.5209
	(37.05)***	(34.52)***
Leadtime	-0.0229	-0.0280
	(-27.60)***	(-26.68)***
Indtime	0.1345	-0.1282
	(5.09)***	(-4.09)***
Peer	0.0410	0.0296
	(11.51)***	(4.94)***
File8K	1.7776	1.6988
	(76.01)***	(58.64)***
Industry Indicators	Yes	Yes
Year Indicators	Yes	Yes
Month Indicators	Yes	Yes
Weekday Indicators	Yes	Yes
N	271155	147359
pseudo R-sq	0.108	0.118

Panel B: Marginal effect on hazard rate if the independent variable is increased by 1 unit.

	(1) Marginal Effect = Exp(β) - 1	(2) Marginal Effect = Exp(β) - 1
Window	0.1405***	0.1384**
Lead_EA	0.0931**	
Peer_EA	-0.0003	
Short	0.1183***	0.2026***
Trading_day	8.8375***	8.7124***
AbsNews	-0.7417***	-0.794**
Saleshare	-0.7441***	-0.8267***
Size_Rank	0.4945***	0.5649***
Analyst_Rank	0.4477***	0.4674***
Past	0.1979***	0.1714***
Past_Time	-0.0009***	-0.0003
Leader	3.5938***	3.5763***
Leadtime	-0.0226***	-0.0276***
Indtime	0.144***	-0.1203***
Peer	0.0419***	0.03***
File8K	4.9156***	4.4674***

This table reports the results to test FOMC meetings' impact of management guidance issuance after controlling for peer firms' earnings announcements. In Column (1), I control for quarterly earnings announcement events of industry peers. *Lead_EA* is an indicator which equals 1 if a day is within [0, 3] days relative to the earnings announcement day of the first firm that issues earnings announcement in that quarter in the SIC 2 digit industry. *Peer_EA* is the number of earnings announcements issued by industry peers within the [-3, 0] day relative to a day. In Column (2), I drop all management guidances that fall within the [0, 3] days relative to the earnings announcement day of peer firms, based on tree-digit SIC code. Refer to Table 4 for the definition of other control variables.
In Panel A I report the regression coefficients for the Cox Model. In Panel B, I report independent variables' marginal effects on reporting probability when each independent variable is increased by 1 unit. *z* statistics are reported in the parentheses. The model is estimated using Efron methods. *, **, *** indicate significance at the 0.10, 0.05 and 0.01 levels, respectively.

Table 6: Samples in a Short Period around FOMC Meetings

Panel A: Regression Coefficients for the Cox Model

Sample period relative to FOMC meetings	[-10,10] (1) Coefficient (β)	[-7,7] (2) Coefficient (β)	[-5,5] (3) Coefficient (β)
Window	0.1530	0.1594	0.1628
	(3.58)***	(3.51)***	(3.14)***
File8k	1.7464	1.7006	1.6907
	(61.24)***	(49.58)***	(42.27)***
AbsNews	-1.0251	-0.6981	0.0160
	(-2.01)**	(-1.15)	(0.02)
Saleshare	-1.7312	-2.0869	-1.6598
	(-4.22)***	(-4.09)***	(-2.91)***
Size_Rank	0.6568	0.7464	0.8032
	(7.39)***	(6.97)***	(6.44)***
Analyst_Rank	0.2590	0.3048	0.3146
	(2.55)**	(2.46)**	(2.17)**
Past	0.2172	0.2323	0.1865
	(6.35)***	(5.69)***	(3.95)***
Past_Time	-0.0011	-0.0010	-0.0006
	(-3.09)***	(-2.46)**	(-1.17)
Leader	1.4387	1.2808	1.2537
	(28.60)***	(20.79)***	(17.31)***
Leadtime	-0.0230	-0.0218	-0.0209
	(-22.72)***	(-17.60)***	(-14.31)***
Indtime	0.1656	0.2081	0.2739
	(5.22)***	(5.53)***	(6.36)***
Peer	0.0413	0.0378	0.0384
	(9.01)***	(6.67)***	(5.87)***
Industry Indicators	Yes	Yes	Yes
Year Indicators	Yes	Yes	Yes
Month Indicators	Yes	Yes	Yes
Weekday Indicators	Yes	Yes	Yes
N	128924	91310	66237
pseudo R-sq	0.069	0.071	0.073

Panel B: Marginal effect on hazard rate if the independent variable is increased by 1 unit.

Sample period relative to FOMC meetings	[-10,10]	[-7,7]	[-5,5]
	(1) Marginal Effect = Exp(β) - 1	(2) Marginal Effect = Exp(β) - 1	(3) Marginal Effect = Exp(β) - 1
Window	0.1653***	0.1728***	0.1768***
File8k	4.7339***	4.4772***	4.4233***
AbsNews	-0.6412**	-0.5025	0.0161
Saleshare	-0.8229***	-0.8759***	-0.8098***
Size_Rank	0.9286***	1.1094***	1.2327***
Analyst_Rank	0.2956**	0.3564**	0.3697**
Past	0.2426***	0.2615***	0.205***
Past_Time	-0.0011***	-0.001**	-0.0006
Leader	3.2152***	2.5995***	2.5033***
Leadtime	-0.0227***	-0.0216***	-0.0207***
Indtime	0.1801***	0.2313***	0.3151***
Peer	0.0422***	0.0385***	0.0391***

In this Table, I estimate the Clustering effect of management guidances in the [1, 3] trading day window relative to an FOMC meetings on a local period around FOMC meetings. In Column (1) the sample is based on the [-10, 10] trading day period relative to FOMC meetings. In Column (2), the sample is based on the [-7, 7] trading day period relative to FOMC meetings. In Column (3), the sample is based on the [-5, 5] trading day period relative to FOMC meetings. The control variables are the same as in Table 4, except that *Short* and *Trading_day* are dropped because all observations in the sample have *Short* equals 1. Refer to Table 4 for the definition of other control variables.

In Panel A I report the regression coefficients for the Cox Model. In Panel B, I report independent variables' marginal effects on reporting probability when each independent variable is increased by 1 unit. The marginal effect is calculated as Hazard Ratio – 1, where Hazard Ratio equals *Exp*(coefficient). The Cox Model is estimated using Efron methods. *, **, *** indicate significance at the 0.10, 0.05 and 0.01 levels, respectively.

Table 7: Policy Uncertainty Faced by the Entire Market

Panel A: Regression Coefficients for the Cox Model

	(1) Coefficient (β)	(2) Coefficient (β)	(3) Coefficient (β)
Window · HighUncertain1	0.1489		
	(2.99)***		
Window · LowUncertain1	0.1044		
	(1.55)		
Window · HighUncertain2		0.1664	
		(3.55)***	
Window · LowUncertain2		0.0411	
		(0.54)	
Window · HighUncertain3			0.1817
			(2.62)***
Window · LowUncertain3			0.1116
			(2.29)**
HighUncertain1	0.0440		
	(0.62)		
Short	0.1109	0.1109	0.1117
	(3.93)***	(3.93)***	(3.96)***
File8k	1.7776	1.7777	1.7778
	(76.04)***	(76.05)***	(76.05)***
AbsNews	-1.3556	-1.3556	-1.3586
	(-3.06)***	(-3.07)***	(-3.07)***
Saleshare	-1.3596	-1.3596	-1.3592
	(-4.03)***	(-4.03)***	(-4.03)***
Size_Rank	0.4019	0.4013	0.4018
	(5.59)***	(5.58)***	(5.58)***
Analyst_Rank	0.3702	0.3700	0.3702
	(4.51)***	(4.50)***	(4.51)***
Past	0.1813	0.1808	0.1810
	(6.45)***	(6.43)***	(6.44)***
Past_Time	-0.0009	-0.0009	-0.0009
	(-3.27)***	(-3.28)***	(-3.28)***
Leader	1.5183	1.5186	1.5192
	(37.15)***	(37.17)***	(37.18)***
Leadtime	-0.0228	-0.0228	-0.0228
	(-27.60)***	(-27.57)***	(-27.59)***
Indtime	0.1350	0.1353	0.1355
	(5.11)***	(5.12)***	(5.12)***
Peer	0.0409	0.0408	0.0407
	(11.52)***	(11.50)***	(11.40)***
Trading_day	2.2857	2.2860	2.2861
	(13.47)***	(13.48)***	(13.48)***
Industry Indicators	Yes	Yes	Yes
Year Indicators	Yes	Yes	Yes
Month Indicators	Yes	Yes	Yes
Weekday Indicators	Yes	Yes	Yes
N	271155	271155	271155
pseudo R-sq	0.108	0.108	0.108

Panel B: Marginal effect on hazard rate if the independent variable is increased by 1 unit.

	(1) Marginal Effect = Exp(β) - 1	(2) Marginal Effect = Exp(β) - 1	(3) Marginal Effect = Exp(β) - 1
Window · HighUncertain1	0.1606***		
Window · LowUncertain1	0.1100		
Window · HighUncertain2		0.1810***	
Window · LowUncertain2		0.0420	
Window · HighUncertain3			0.1993***
Window · LowUncertain3			0.1181**
HighUncertain1	0.045		
Short	0.1173***	0.1173***	0.1182***
File8k	4.9156***	4.9162***	4.9168***
AbsNews	-0.7422***	-0.7422***	-0.743***
Saleshare	-0.7432***	-0.7432***	-0.7431***
Size_Rank	0.4947***	0.4938***	0.4945***
Analyst_Rank	0.448***	0.4477***	0.448***
Past	0.1988***	0.1982***	0.1984***
Past_Time	-0.0009***	-0.0009***	-0.0009***
Leader	3.5645***	3.5658***	3.5686***
Leadtime	-0.0225***	-0.0225***	-0.0225***
Indtime	0.1445***	0.1449***	0.1451***
Peer	0.0417***	0.0416***	0.0415***
Trading_day	8.8326***	8.8355***	8.8365***

This table reports the results testing the difference in the clustering effect when there is high vs. low policy uncertainty regarding FOMC meetings. In Column (1), I replace *Window* with *Window · HighUncertain1* and *Window · LowUncertain1* where *HighUncertain1* is an indicator which equals 1 if a day falls in periods when the volatility of FOMC meeting surprise is high (years from 2000 to 2003 and from 2007, 2009). *LowUncertain1* is an indicator which equals 1 if a day falls in other years. In Column (2), I replace *Window* with *Window · HighUncertain2* and *Window · LowUncertain2* where *HighUncertain2 is* an indicator which equals 1 if the standard deviation of the past 8 FOMC meeting surprises is higher than sample median and *LowUncertain2* is an indicator which equals 2 if the standard deviation of past 8 FOMC meeting surprises is lower than median . In Column (3), I replace *Window* with *Window · HighUncertain3* and *Window · LowUncertain3* where *HighUncertain3* is an indicator which equals 1 if the expected interest rate change before FOMC falls in the following ranges: (-0.955, -0.795), (-0.705, -0.545), (-0.455, -0.295), (-0.205, -0.045), (0.045, 0.205), (0.295, 0.455), (-0.705, -0.545) or (-0.795, 0.955) and *LowUncertain3* is an indicator which equals 1 if the expected interest rate change does not fall in these ranges. Please refer to Appendix B for a detailed discussion of how to calculate the surprise. In addition, because *HighUncertain1* and *LowUncertain1* are calculated based on which year a day belongs to, I also control for *HighUncertain1* in Column (1) for any special pattern in management guidance in the related years. Refer to Table 4 for the definition of other control variables.
In Panel A I report the regression coefficients for the Cox Model. In Panel B, I report independent variables' marginal effects on reporting probability when each independent variable is increased by 1 unit. *z* statistics are reported in the parentheses. The model is estimated using Efron methods. *, **, *** indicate significance at the 0.10, 0.05 and 0.01 levels, respectively.

Table 8: Managers' Idiosyncratic Uncertainty about Monetary Policy

	(1) Coefficient = (β)	(1) Marginal Effect = Exp(β) - 1
Window · G1	0.1963	0.2169*
	(1.94)*	
Window · G2	0.1141	0.1209
	(1.14)	
Window · G3	0.0761	0.0791
	(0.78)	
Window · G4	0.0823	0.0858
	(0.90)	
G1	-0.2120	-0.191***
	(-5.10)***	
G2	-0.1310	-0.1228***
	(-3.35)***	
G3	-0.1189	-0.1121***
	(-3.12)***	
Short	0.1009	0.1062***
	(2.84)***	
File8k	1.8119	5.1221***
	(62.31)***	
AbsNews	-0.6197	-0.4619
	(-0.85)	
Saleshare	-1.7808	-0.8315***
	(-4.77)***	
Size_Rank	0.4964	0.6428***
	(5.00)***	
Analyst_Rank	0.5317	0.7018***
	(4.55)***	
Past	0.2244	0.2516***
	(6.52)***	
Past_Time	-0.0007	-0.0007**
	(-2.12)**	
Leader	1.5238	3.5896***
	(31.39)***	
Leadtime	-0.0240	-0.0237***
	(-22.78)***	
Indtime	0.1028	0.1083***
	(3.09)***	
Peer	0.0365	0.0372***
	(6.02)***	
Trading_day	1.9619	6.1128***
	(10.33)***	
Industry Indicators	Yes	Yes
Year Indicators	Yes	Yes
Month Indicators	Yes	Yes
Weekday Indicators	Yes	Yes
N	170555	
pseudo R-sq	0.120	

This table reports the results to test the difference in the clustering effect of macro news for firms' with different ability to predict the monetary policy. Specifically, I replace *Window* with *Window · G1*, *Window · G2*, *Window · G3* and *Window · G4*. *G1*, *G2*, *G3,* and *G4* are indicators for firms with R-square falling in the first, the second the third and the fourth quartile in a particular quarter from the following model:

$$Dif\_Roa_{i,q} = a_0 + \boldsymbol{a_1}' \boldsymbol{Dif\_Macro_q}$$

where $Dif\_Roa_{i,q}$ is the change in *Roa* for Firm *i* from Quarter *q*-4 to Quarter while $\boldsymbol{Dif\_Macro_q}$

represents the change in a set of macroeconomic factors. I employ 3 macroeconomic measures related to interest rate: Dif_AAA_q, the change in the AAA corporate bond yield from Quarter q-4 to Quarter q, $Dif\_ GS10_q$, the change in 10-year Treasury yield from Quarter q-4 to Quarter q and $Dif\_ TB3MS_q$, the change in three month Treasury yield from Quarter q-4 to Quarter q. I also include $Dif\_CPIAUCNS_q$, the change in the consumer price index for urban consumers from Quarter q-4 to Quarter q as a price related factor, and $Dif\_ UNRATE_q$, the change in unemployment rate from Quarter q-4 to Quarter q as an unemployment related factor. I estimate the model for each firm-quarter using data of the past 40 quarters. I expect that firms with higher R-square from the above model can better use their private information to predict monetary policy. So firms' ability to predict monetary policy change increases from *G1* to *G4*. Refer to Table 4 for the definition of other control variables.

In Panel A I report the regression coefficients for the Cox Model. In Panel B, I report independent variables' marginal effects on reporting probability when each independent variable is increased by 1 unit. *z* statistics are reported in the parentheses. The model is estimated using Efron methods. *, **, *** indicate significance at the 0.10, 0.05 and 0.01 levels, respectively.

Table 9: Ex-post Policy Surprise and Clustering of Management Guidances

Panel A: Regression Coefficients for the Cox Model

	(1) Coefficient (β)	(1) Coefficient (β)
Window · Pos_Sup	0.2333	
	(3.50)***	
Window · Zero_Sup	0.1294	
	(2.17)**	
Winodw · Neg_Sup	0.0135	
	(0.17)	
Window · High_RelSup		0.3185
		(4.05)***
Window · Mid_RelSup		0.0958
		(1.91)*
Winodw · Low_RelSup		0.0141
		(0.13)
Short	0.1129	0.1133
	(4.00)***	(4.02)***
File8k	1.7776	1.7772
	(76.04)***	(76.02)***
AbsNews	-1.3610	-1.3562
	(-3.08)***	(-3.07)***
Saleshare	-1.3639	-1.3625
	(-4.05)***	(-4.04)***
Size_Rank	0.4033	0.4027
	(5.61)***	(5.60)***
Analyst_Rank	0.3699	0.3710
	(4.50)***	(4.52)***
Past	0.1796	0.1800
	(6.39)***	(6.40)***
Past_Time	-0.0009	-0.0009
	(-3.23)***	(-3.22)***
Leader	1.5201	1.5208
	(37.21)***	(37.22)***
Leadtime	-0.0228	-0.0229
	(-27.59)***	(-27.62)***
Indtime	0.1357	0.1358
	(5.13)***	(5.14)***
Peer	0.0416	0.0416
	(11.64)***	(11.54)***
Trading_day	2.2871	2.2865
	(13.48)***	(13.48)***
Industry Indicators	Yes	Yes
Year Indicators	Yes	Yes
Month Indicators	Yes	Yes
Weekday Indicators	Yes	Yes
N	271155	271155
pseudo R-sq	0.108	0.108

Panel B: Marginal effect on hazard rate if the independent variable is increased by 1 unit.

	(1) Marginal Effect = Exp(β) - 1	(2) Marginal Effect = Exp(β) - 1
Window · Pos_Sup	0.2628***	
Window · Zero_Sup	0.1381**	
Winodw · Neg_Sup	0.0136	
Window · High_RelSup		0.3751***
Window · Mid_RelSup		0.1005*
Winodw · Low_RelSup		0.0142
Short	0.1195***	0.12***
File8k	4.9156***	4.9133***
AbsNews	-0.7436***	-0.7424***
Saleshare	-0.7443***	-0.744***
Size_Rank	0.4968***	0.4959***
Analyst_Rank	0.4476***	0.4492***
Past	0.1967***	0.1972***
Past_Time	-0.0009***	-0.0009***
Leader	3.5727***	3.5759***
Leadtime	-0.0225***	-0.0226***
Indtime	0.1453***	0.1455***
Peer	0.0425***	0.0425***
Trading_day	8.8463***	8.8404***

This table reports the results to test the difference the clustering effect of management guidance concerning difference in FOMC meetings' underlying macro news. In Column (1), I replace *Window* with *Window · Pos_Sup, Window · Zero_Sup* and *Window · Neg_Zero,* where *Pos_Sup* is an indicator which equals 1 if the surprise in interest rate change in the current meeting is positive, *Zero_Sup* is an indicator which equals 1 if the surprise in interest rate change equal to zero and *Neg_Zero* is an indicator which equals 1 if the surprise in interest rate change is negative. In Column (2), I replace *Window* with *Window · High_RelSup*, *Window · Mid_RelSup,* and *Window · Low_RelSup*, where *High_RelSup* is an indicator which equals 1 if the surprise in interest rate change divided by the standard deviation of the surprise in the past 8 meetings is higher than 1, *Mid_RelSup* is an indicator which equals 1 if the surprise in interest rate change divided by the standard deviation of the surprise in the past 8 meetings falls in [-1,1],*and Low_RelSup* is an indicator which equals 1 if the surprise in interest rate change divided by the standard deviation of the surprise in the past 8 meetings is lower than -1. Please refer to Appendix B for a detailed discussion of how to calculate the surprise. Refer to Table 4 for the definition of other control variables.
In Panel A I report the regression coefficients for the Cox Model. In Panel B, I report independent variables' marginal effects on reporting probability when each independent variable is increased by 1 unit. *z* statistics are reported in the parentheses. The model is estimated using Efron methods. *, **, *** indicate significance at the 0.10, 0.05 and 0.01 levels, respectively.

Table 10: Litigation Risk and Clustering of Management Guidances

Panel A: Regression Coefficients for the Cox Model

	(1) Coefficient (β)	(2) Coefficient (β)
Window · High_Lit	-0.1254	
	(-2.01)**	
Window · Low_Lit	0.3343	
	(6.54)***	
Window · High_Lit ·WU		0.0848
		(0.59)
Window · High_Lit ·WD		-0.1752
		(-2.26)**
Window · Low_Lit ·WU		0.2328
		(1.83)*
Window · Low_Lit ·WD		0.3423
		(5.50)***
WD		0.0406
		(1.28)
High_Lit	0.0813	0.1261
	(2.18)**	(3.01)***
Short	0.1123	0.1071
	(3.99)***	(3.40)***
File8k	1.7780	1.8195
	(76.04)***	(69.52)***
AbsNews	-1.3910	-1.5701
	(-3.14)***	(-2.74)***
Saleshare	-1.3588	-1.5236
	(-4.03)***	(-4.10)***
Size_Rank	0.4077	0.4741
	(5.66)***	(5.73)***
Analyst_Rank	0.3653	0.3616
	(4.44)***	(3.80)***
Past	0.1811	0.1726
	(6.44)***	(5.46)***
Past_Time	-0.0009	-0.0008
	(-3.23)***	(-2.59)***
Leader	1.5223	1.4978
	(37.25)***	(32.23)***
Leadtime	-0.0228	-0.0233
	(-27.59)***	(-25.07)***
Indtime	0.1352	0.1329
	(5.10)***	(4.45)***
Peer	0.0418	0.0419
	(11.75)***	(10.68)***
Trading_day	2.2898	2.2654
	(13.50)***	(11.98)***
Industry Indicators	Yes	Yes
Year Indicators	Yes	Yes
Month Indicators	Yes	Yes
Weekday Indicators	Yes	Yes
N	271155	220331
pseudo R-sq	0.108	0.114

Panel B: Marginal effect on hazard rate if the independent variable is increased by 1 unit.

	(1) Marginal Effect = Exp(β) - 1	(2) Marginal Effect = Exp(β) - 1
Window · High_Lit	-0.1179**	
Window · Low_Lit	0.397***	
Window · High_Lit ·WU		0.0885
Window · High_Lit ·WD		-0.1607**
Window · Low_Lit ·WU		0.2621*
Window · Low_Lit ·WD		0.4082***
WD		0.0414
High_Lit	0.0847**	0.1344***
Short	0.1188***	0.113***
File8k	4.918***	5.1688***
AbsNews	-0.7512***	-0.792***
Saleshare	-0.743***	-0.7821***
Size_Rank	0.5034***	0.6066***
Analyst_Rank	0.4409***	0.4356***
Past	0.1985***	0.1884***
Past_Time	-0.0009***	-0.0008***
Leader	3.5828***	3.4718***
Leadtime	-0.0225***	-0.023***
Indtime	0.1448***	0.1421***
Peer	0.0427***	0.0428***
Trading_day	8.873***	8.635***

This table reports the results to test the difference the clustering effect of management guidances for firms in high litigation vs low litigation risk industries. In Column (1), I replace *Window* with *Window · High_Lit* and *Window · Low_Lit,* where *High_Lit* is an indicator which equals 1 if a firm belongs to a high litigation risk industry defined in Francis, Philbrick, and Schipper (1994) and equals 0 otherwise and *Low_Lit* is an indicator which equals 1 if a firm belongs to a low litigation risk industry and equals 0 otherwise. In Column (2), I replace *Window* with *Window · High_Lit · WU*, *Window · High_Lit · WD*, *Window · Low_Lit · WU* and *Window · Low_Lit · WD*, where *WU* is an indicator which equals 1 if the point estimate or the lower-bound of a range estimate of EPS reported in a management guidance is higher than latest consensus (mean) of analyst forecasts and *WD* is an indicator which equals 1 if the point estimate or the upper-bound of a range estimate of EPS reported in a management guidance is higher than latest consensus (mean) of analyst forecast. I also include the indicator of *WD* and *High_Lit* into the model. Refer to Table 4 for the definition of other control variables.

In Panel A I report the regression coefficients for the Cox Model. In Panel B, I report independent variables' marginal effects on reporting probability when each independent variable is increased by 1 unit. *z* statistics are reported in the parentheses. The model is estimated using Efron methods. *, **, *** indicate significance at the 0.10, 0.05 and 0.01 levels, respectively.

Table 11: FOMC Meetings' Timing Relative to Forecasted Period Beginning

	(1) Coefficient (β)	(2) Marginal Effect = Exp(β) - 1
Window · Early_FOMC	0.2796	0.3226***
	(2.93)***	
Window · Late_FOMC	0.0923	0.0967**
	(2.00)**	
Short · Early_FOMC	0.2485	0.2821***
	(4.85)***	
Short · Late_FOMC	0.0849	0.0886***
	(2.87)***	
File8k	1.7762	4.9074***
	(75.97)***	
AbsNews	-1.3456	-0.7396***
	(-3.04)***	
Saleshare	-1.3546	-0.7419***
	(-4.02)***	
Size_Rank	0.4041	0.498***
	(5.62)***	
Analyst_Rank	0.3743	0.454***
	(4.55)***	
Past	0.1803	0.1976***
	(6.42)***	
Past_Time	-0.0009	-0.0009***
	(-3.28)***	
Leader	1.5175	3.5608***
	(37.13)***	
Leadtime	-0.0228	-0.0225***
	(-27.56)***	
Indtime	0.1338	0.1432***
	(5.06)***	
Peer	0.0417	0.0426***
	(11.76)***	
Trading_day	2.2881	8.8562***
	(13.49)***	
Industry Indicators	Yes	Yes
Year Indicators	Yes	Yes
Month Indicators s	Yes	Yes
Weekday Indicators	Yes	Yes
N	271155	271155
pseudo R-sq	0.108	0.108

This table reports the results to test the difference in the clustering effect of management guidances around FOMC meetings that take place relatively earlier vs FOMC meetings that take place relative late. I replace *Window* with *Window · Early_FOMC* and *Window · Late_FOMC*, and replace *Short* with *Short · Early_FOMC* and *Short · Late_FOMC*. *Early_FOMC* is an indicator which equals 1 if the period between the forecasted quarter beginning and a FOMC meeting is shorter than the 25 percentile of the sample and *Late_FOMC* is an indicator which equals 1 if that period is longer than the 25 percentile of the sample. HighConcern is an indicator which equals 1 if a firm is in a SIC 2 digits industry with below median number of firms. Refer to Table 4 for the definition of other control variables.

In Column (1) I report the regression coefficients for the Cox Model. In Column (2), I report independent variables' marginal effects on reporting probability when each independent variable is increased by 1 unit. *z* statistics are reported in the parentheses. The model is estimated using Efron methods. *, **, *** indicate significance at the 0.10, 0.05 and 0.01 levels, respectively.

Table 12: Forecast Accuracy Before and After FOMC meetings

Sample Period Relative to FOMC	(1) [-5,5]	(2) [-7,7]	(3) [-10,10]	(4) [-5,5]	(5) [-7,7]	(6) [-10,10]
		All FOMC Meetings			*FOMC Meetings with Non-Zero Surprise*	
	Accuracy	*Accuracy*	*Accuracy*	*Accuracy*	*Accuracy*	*Accuracy*
Post	0.0004	0.0001	0.0000	0.0001	0.0003	0.0001
	(0.63)	(0.17)	(0.04)	(0.07)	(0.28)	(0.08)
Anlyst_Follow	0.0000	0.0000	0.0000	0.0002	0.0001	0.0001
	(0.42)	(0.22)	(0.17)	(1.24)	(0.85)	(0.62)
Horizon	-0.0000	-0.0000	0.0000	-0.0000	-0.0000	0.0000
	(-0.48)	(-0.13)	(0.52)	(-0.60)	(-0.05)	(0.39)
Lag_Lmval	-0.0008	-0.0007	-0.0004	-0.0014	-0.0008	-0.0004
	(-0.90)	(-0.75)	(-0.49)	(-1.37)	(-0.90)	(-0.53)
Lag_mbt	-0.0004	-0.0003	-0.0004	-0.0004	-0.0004	-0.0005
	(-1.52)	(-1.21)	(-1.69)*	(-1.19)	(-1.40)	(-1.84)*
Loss	0.0042	0.0035	0.0029	0.0033	0.0022	0.0011
	(2.06)**	(1.81)*	(1.50)	(1.83)*	(1.37)	(0.66)
Mf_Surprise_Scale	-0.2249	-0.2397	-0.2882	-0.2314	-0.2916	-0.3195
	(-1.14)	(-1.19)	(-1.51)	(-1.66)	(-2.00)*	(-2.24)**
Dispersion	-0.0023	-0.0021	-0.0017	-0.0024	-0.0022	-0.0018
	(-2.01)*	(-2.43)**	(-2.02)*	(-1.57)	(-1.64)	(-1.60)
Beta	-0.0006	-0.0005	0.0006	0.0001	0.0006	0.0014
	(-0.89)	(-0.67)	(0.74)	(0.09)	(0.61)	(1.39)
Earvol	0.1475	0.1471	0.1389	0.1455	0.1621	0.1561
	(4.80)***	(4.29)***	(4.85)***	(2.65)**	(3.05)***	(3.49)***
Industry Indicators	Yes	Yes	Yes	Yes	Yes	Yes
Year Indicators	Yes	Yes	Yes	Yes	Yes	Yes
Moth Indicators	Yes	Yes	Yes	Yes	Yes	Yes
Weekday Indicators	Yes	Yes	Yes	Yes	Yes	Yes
_cons	0.0045	0.0054	0.0033	0.0068	0.0050	0.0035
	(0.61)	(0.80)	(0.58)	(1.19)	(0.94)	(0.75)
N	4326	5901	8332	2589	3492	4980
adj. R-sq	0.090	0.095	0.103	0.085	0.107	0.110

Table 12 continued

Sample Period Relative to FOMC	(7) [-5,5]	(8) [-7,7]	(9) [-10,10]	(10) [-5,5]	(11) [-7,7]	(12) [-10,10]
		All FOMC Meetings			*FOMC Meetings with Non-Zero Surprise*	
	Error	*Error*	*Error*	*Error*	*Error*	*Error*
Post	0.0005	0.0004	0.0002	0.0003	0.0002	-0.0001
	(1.48)	(1.57)	(0.89)	(0.56)	(0.47)	(-0.22)
Anlyst_Follow	0.0000	-0.0000	-0.0000	0.0000	0.0000	-0.0000
	(0.47)	(-0.35)	(-0.40)	(0.81)	(0.14)	(-0.01)
Horizon	0.0000	0.0000	0.0000	-0.0000	-0.0000	-0.0000
	(0.69)	(1.21)	(0.21)	(-0.98)	(-0.54)	(-1.06)
Lag_Lmval	0.0005	0.0005	0.0005	0.0006	0.0005	0.0005
	(1.82)*	(1.79)*	(1.81)*	(1.69)*	(1.58)	(1.75)*
Lag_mbt	0.0000	0.0001	0.0001	0.0000	0.0001	0.0001
	(0.57)	(1.36)	(2.27)**	(0.63)	(1.73)*	(2.15)**
Loss	-0.0064	-0.0062	-0.0060	-0.0062	-0.0058	-0.0055
	(-7.98)***	(-8.70)***	(-9.11)***	(-6.81)***	(-7.07)***	(-8.10)***
Mf_Surprise	-0.7217	-0.7063	-0.6889	-0.7103	-0.6844	-0.6791
	(-15.02)***	(-14.52)***	(-16.22)***	(-14.77)***	(-15.13)***	(-16.70)***
Dispersion	-0.0012	-0.0015	-0.0013	-0.0011	-0.0011	-0.0010
	(-2.25)**	(-3.32)***	(-2.67)**	(-1.77)*	(-2.11)**	(-2.06)**
Beta	0.0010	0.0009	0.0007	0.0015	0.0014	0.0010
	(2.80)***	(2.62)**	(2.53)**	(3.36)***	(2.81)***	(2.31)**
Earvol	0.0352	0.0287	0.0267	0.0343	0.0215	0.0162
	(1.95)*	(2.25)**	(2.50)**	(1.56)	(1.28)	(0.98)
Industry Indicators	Yes	Yes	Yes	Yes	Yes	Yes
Year Indicators	Yes	Yes	Yes	Yes	Yes	Yes
Moth Indicators	Yes	Yes	Yes	Yes	Yes	Yes
Weekday Indicators	Yes	Yes	Yes	Yes	Yes	Yes
_cons	-0.0091	-0.0046	-0.0028	-0.0131	-0.0050	-0.0029
	(-3.51)***	(-1.92)*	(-1.26)	(-4.53)***	(-2.14)**	(-1.26)
N	4326	5901	8332	2589	3492	4980
adj. R-sq	0.573	0.553	0.540	0.544	0.522	0.523

In this table I report the results for the following model:

$$Accuracy/\ Error = \beta_0 + \beta_1 Post + \beta_2 \text{Analyst Following} + \beta_3 Horizon + \beta_4 Lag\_Lmval + \beta_5 Lag\_Mbt + \beta_6 Loss + \beta_7 Dispersion +$$

$\beta_8 Mf\_Surprise + \beta_9 Beta + \beta_{10} Earvol + Industry\ Fixed\ Effects + Year\ Fixed\ Effects$

in which *Accuracy* is the absolute value of the difference between a management guidance and the actual EPS scaled by the stock price at the beginning of the forecasted quarter and *Error* equals (actual EPS – forecasted EPS)/ stock price at the beginning of the forecasted quarter. Following prior studies, I control for *Analyst Following* , which is the number of analysts that follows a firm, *Horizon*, the forecast horizon, *Lag_Lmval*, the natural logarithm of market value at the beginning of the forecasted period, *Lag_Mtb*, the market to book ratio at the beginning of the forecasted period, *Loss*, an indicator variable which equals 1 if the forecasted quarter finally has a negative earnings before extraordinary items, *Dispersion*, the dispersion of analyst forecasts, *Mf_Suprise*, the surprise of the management guidance relative to the last consensus analyst forecast scaled by the stock price at the beginning of the quarter, *Beta*, the market model beta coefficient for the forecasted quarter, *Earvol*, the earnings volatility of the past five quarters. In Columns (1) to (6), *Accuracy* is used as the dependent variable. In Columns (1) to (3), the samples are based on management guidance issued during the [-5,5], [-7,7] and [-10,10] trading days relative to FOMC meetings. In Columns (4) to (6), I examine a subsample of management guidance issued during the [-5,5], [-7,7] and [-10,10] trading days relative to FOMC meetings that have non-zero surprise in interest rate changes. In Columns (7) to (2), *Error* is used as the dependent variable. In Columns (7) to (9), the samples are based on management guidances issued during the [-5,5], [-7,7] and [-10,10] trading days relative to FOMC meetings. In Columns (10) to (12), I examine a subsample of management guidances issued during the [-5,5], [-7,7] and [-10,10] trading days relative to FOMC meetings that have non-zero surprise in interest rate changes.

Table 13: Robustness Tests for Clustering of Management Guidances

Panel A: Alternative Windows

	(1) Coefficient (β)	(2) Coefficient (β)	(3) Coefficient (β)
Window [1, 2]	0.1121		
	(2.35)**		
Window [0, 2]		0.1396	
		(3.52)***	
Window [0, 3]			0.1535
			(4.25)***
Other Control Variables	Yes	Yes	Yes
Industry Indicators	Yes	Yes	Yes
Year Indicators	Yes	Yes	Yes
Month Indicators	Yes	Yes	Yes
Weekday Indicators	Yes	Yes	Yes
N	271155	271155	271155
pseudo R-sq	0.107	0.108	0.108

Panel B: Alternative Samples

	Duration no longer than 60 days (1) Coefficient (β)	MF Before Quarter End (2) Coefficient (β)	MF After Quarter End (3) Coefficient (β)
Window	0.1403	0.1467	0.1364
	(3.27)***	(2.78)***	(1.87)*
Other Control Variables	Yes	Yes	Yes
Industry Indicators	Yes	Yes	Yes
Year Indicators	Yes	Yes	Yes
Month Indicators	Yes	Yes	Yes
Weekday Indicators	Yes	Yes	Yes
N	251944	73822	197333
pseudo R-sq	0.102	0.088	0.115

(Continued)	2000-2015 All fiscal year end (4) Coefficient (β)	1996-2015 Mar, Jun, Sep or Dec (5) Coefficient (β)	1996-2015 All fiscal year end (6) Coefficient (β)
Window	0.0875	0.1405	0.0882
	(2.52)**	(3.84)***	(2.82)***
Other Control Variables	Yes	Yes	Yes
Industry Indicators	Yes	Yes	Yes
Year Indicators	Yes	Yes	Yes
Month Indicators	Yes	Yes	Yes
Weekday Indicators	Yes	Yes	Yes
N	337754	328044	408072
pseudo R-sq	0.104	0.097	0.094

This table reports the robustness tests for the model tested in Table 4. In Panel A, I use alternative definitions for *Window*, which are [1, 2], [0, 2] and [0, 3] relative to FOMC meetings respectively. In Panel B, I use alternative samples. In Column (1), I drop management guidance that have a duration longer than 60 days. In Column (2), I limit the sample to management guidance that are issued before the forecasted quarter end. In Column (3), I limit the sample to management guidance that are issued after the forecasted quarter end. In Column (4), I include management guidance for firms that have fiscal quarter end not in March, June, September or December. In Columns (5) and (6), I extend the sample to 1996, when I/B/E/S/ starts to cover a considerable number of management guidance in the database. Specifically, in Column (5) the sample is limited to firms with fiscal year end in March, June, September or December and in Column (6) I include firms with fiscal year end in all months. Other control variables are the same as in Table 4, Column

(3). I only report the coefficients on *Window* in this table. The model is estimated using Efron methods. *, **, *** indicate significance at the 0.10, 0.05 and 0.01 levels, respectively.

Table 14: Walk-down vs Walk-up Management Guidances

	Panel A: Coefficient (β)	Panel B: Marginal Effect = Exp(β) - 1
	(1)	(1)
Window · WU	0.1703	0.1857*
	(1.74)*	
Window · WD	0.1305	0.1394***
	(2.59)***	
WD	-0.0360	-0.0354
	(-1.10)	
Short	0.1049	0.1106***
	(3.33)***	
File8k	1.7877	4.9757***
	(68.16)***	
AbsNews	-1.5609	-0.7901***
	(-2.71)***	
Saleshare	-1.2655	-0.7179***
	(-3.41)***	
Size_Rank	0.4678	0.5965***
	(5.69)***	
Analyst_Rank	0.3365	0.4***
	(3.57)***	
Past	0.1634	0.1775***
	(5.16)***	
Past_Time	-0.0009	-0.0009***
	(-3.04)***	
Trading_day	2.2714	8.693***
	(12.01)***	
Type_Leader	1.5639	3.7774***
	(36.51)***	
Type_Leadtime	-0.0309	-0.0304***
	(-34.92)***	
Type_Indtime	0.1307	0.1396***
	(4.50)***	
Type_PeerWarn	0.0563	0.0579***
	(11.38)***	
Industry Indicators	Yes	Yes
Year Indicators	Yes	Yes
Month Indicators	Yes	Yes
Weekday Indicators	Yes	Yes
N	220331	220331
pseudo R-sq	0.118	0.118

This table reports the results to test the difference in the clustering effect of management guidances for walk-up vs. walk-down management guidances. I replace *Window* with *Window · WU* and *Window · WD* to capture the different triggering effects for Walk-up management guidances and Walk-down management guidances. *WU* is an indicator which equals 1 if the point estimate or the lower-bound of a range estimate of EPS reported in a management guidance is higher than latest consensus (mean) of analyst forecasts. *WD* is an indicator which equals 1 if the point estimate or the upper-bound of a range estimate of EPS reported in a management guidance is higher than latest consensus (mean) of analyst forecast. A management guidance is defined as a point estimate if IBES variable *RANGE_DESC* is coded as "02", "14" or "09", and is defined as a range estimate if IBES variable *RANGE_DESC* is coded as "01". Since not all management guidances can be coded as Walk-up or Walk-down management guidances, the estimation in this table is only based on management guidances that can are either Walk-up or Walk-down management guidance. I also control for *WD* in the model. I replace *Leader, Leadtime*, *Indtime* and *Peer* with *Type_Leader*, *Type_Leadtime*, *Type_Indtime* and *Type_Peer*. *Type_Leader* is an indicator which equals 1 if a management guidance is the first Walk-up (Walk-down) management guidance issued in an industry-quarter for a Walk-up (Walk-down) management guidances. *Type_Leadtime* is the duration of the first issued Walk-up (Walk-down) management guidances in the industry-quarter for a Walk-up (Walk-down) management guidances. *Type_Indtime* is an indicator if a Walk-up (Walk-down) is issued within +/- 2 days relative to the industry-median time of Walk-up (Walk-down) management guidances.

Type_Peer is the number of Walk-up (Walk-down) management guidances issued within [-5, 0) days relative to the a Walk-up (Walk-down) management guidances. Refer to Table 4 for the definition of other control variables.
In Panel A I report the regression coefficients for the Cox Model. In Panel B, I report independent variables' marginal effects on reporting probability when each independent variable is increased by 1 unit. *z* statistics are reported in the parenthese. The model is estimated using Efron methods. *, **, *** indicate significance at the 0.10, 0.05 and 0.01 levels, respectively.

Table 15: Career Concerns and Clustering of Management Guidances

Panel A: Regression Coefficients for the Cox Model

	(1) Coefficient (β)	(2) Coefficient (β)
Window · HighConcern	-0.0163	
	(-0.14)	
Window · LowConcern	0.1522	
	(3.51)***	
Window · HighConcern · WU		-0.0931
		(-0.32)
Window · LowConcern · WU		0.2036
		(1.98)**
Window · HighConcern · WD		-0.0823
		(-0.57)
Window · LowConcern · WD		0.1570
		(2.98)***
HighConcern	0.1557	0.1780
	(1.49)	(1.56)
WD		-0.0351
		(-1.08)
Short	0.1114	0.1050
	(3.95)***	(3.33)***
File8k	1.7773	1.7872
	(76.02)***	(68.13)***
AbsNews	-1.3392	-1.5439
	(-3.03)***	(-2.69)***
Saleshare	-1.3530	-1.2557
	(-4.01)***	(-3.38)***
Size_Rank	0.4037	0.4672
	(5.61)***	(5.68)***
Analyst_Rank	0.3728	0.3410
	(4.54)***	(3.62)***
Past	0.1801	0.1628
	(6.40)***	(5.14)***
Past_Time	-0.0009	-0.0010
	(-3.30)***	(-3.09)***
Trading_day	2.2860	2.2716
	(13.48)***	(12.01)***
Leader	1.5203	
	(37.21)***	
Leadtime	-0.0228	
	(-27.58)***	
Indtime	0.1343	
	(5.08)***	
Peer	0.0409	
	(11.51)***	
Type_Leader		1.5652
		(36.54)***
Type_Leadtime		-0.0309
		(-34.92)***
Type_Indtime		0.1306
		(4.50)***
Type_PeerWarn		0.0561
		(11.34)***
Industry Indicators	Yes	Yes
Year Indicators	Yes	Yes
Month Indicators	Yes	Yes
Weekday Indicators	Yes	Yes
N	271155	220331
pseudo R-sq	0.108	0.118

Panel B: Marginal effect on hazard rate if the independent variable is increased by 1 unit.

	(1) Marginal Effect = Exp(β) - 1	(2) Marginal Effect = Exp(β) - 1
Window · HighConcern	-0.0162	
Window · LowConcern	0.1644***	
Window · HighConcern · WU		-0.0889
Window · LowConcern · WU		0.2258**
Window · HighConcern · WD		-0.079
Window · LowConcern · WD		0.17***
HighConcern	0.1685	0.1948
WD		-0.0345
Short	0.1178***	0.1107***
File8k	4.9139***	4.9727***
AbsNews	-0.7379***	-0.7865***
Saleshare	-0.7415***	-0.7151***
Size_Rank	0.4974***	0.5955***
Analyst_Rank	0.4518***	0.4064***
Past	0.1973***	0.1768***
Past_Time	-0.0009***	-0.001***
Trading_day	8.8355***	8.6949***
Leader	3.5736***	
Leadtime	-0.0225***	
Indtime	0.1437***	
Peer	0.0417***	
Type_Leader		3.7836***
Type_Leadtime		-0.0304***
Type_Indtime		0.1395***
Type_PeerWarn		0.0577***

This table reports the results to test the difference the clustering effect of management guidances for managers with high vs. low career concerns. In Column (1), I replace *Window* with *Window · HighConcern* and *Window · LowConcern* to capture the different triggering effect for high career concern managers and for low career concern managers. *HighConcern* is an indicator which equals 1 if a firm is in a SIC 2 digits industry with below median number of firms. *LowConcern* is an indicator which equals 1 if a firm is in a SIC 2 digits industry with above median number of firms. I also control for *HighConern* in the model. In Column (2), I further interact *WD* and *WU* with *Window · HighConcern* and *Window · LowConcern*. The indicator for *WD* management guidances is also controlled. Refer to Table 4 for the definition of other control variables.
In Panel A I report the regression coefficients for the Cox Model. In Panel B, I report independent variables' marginal effects on reporting probability when each independent variable is increased by 1 unit. *z* statistics are reported in the parentheses. The model is estimated using Efron methods. *, **, *** indicate significance at the 0.10, 0.05 and 0.01 levels, respectively.

Table 16: External Validity: Long-Horizon Quarterly Management Guidances

	(1) Coefficient (β)	(2) Marginal Effect = Exp(β) - 1
Window	0.0041	0.0041
	(0.17)	
Short	-0.1797	-0.1645***
	(-8.31)***	
File8k	2.5047	11.2399***
	(141.54)***	
AbsNews	-1.0427	-0.6475***
	(-3.54)***	
Saleshare	-0.3682	-0.308
	(-1.48)	
Size_Rank	0.2409	0.2724***
	(5.30)***	
Analyst_Rank	0.2366	0.2669***
	(4.63)***	
Past	0.4383	0.5501***
	(20.29)***	
Past_Time	-0.0175	-0.0173***
	(-23.55)***	
Leader	0.9482	1.5811***
	(30.52)***	
Leadtime	-0.0119	-0.0118***
	(-14.11)***	
Indtime	0.1691	0.1842***
	(11.40)***	
Peer	0.0071	0.0071***
	(5.63)***	
Trading_day	1.6137	4.0214***
	(10.56)***	
Industry Indicators	Yes	Yes
Year Indicators	Yes	Yes
Month Indicators	Yes	Yes
Weekday Indicators	Yes	Yes
N	677146	677146
pseudo R-sq	0.135	0.135

In this Table, I examine the timing of longer horizon management guidances after FOMC meetings. The management guidances in this sample are quarterly forecasts issued in the first two month of the forecasted quarter. If a firm issued more than 1 of such forecasts, the first forecast is kept. The table reports the estimation results of the following duration model:

$$h(t_i) = h_0(t_i) \cdot \exp[\beta_0 Window(t)_i + \beta_1 Short(t)_i + \beta_2 File8K(t)_i + \beta_3 Trading\_Day(t)_i + \beta_4 Abs\_News_i + \beta_5 Size\_Rank_i + \beta_6 Analyst\_Rank_i + \beta_7 Saleshare_i + \beta_8 Past_i + \beta_9 Past\_Time_i + \beta_{10} Lead + \beta_{11} Leadtime + \beta_{12} Indtime + \beta_{13} Peer + \beta_{14} Industry + \beta_{15} Year + \beta_{16} Month + \beta_{17} Weekday]$$

where $h_0(t)$ is the baseline hazard rate and the $Exp[*]$ component measures the marginal effects of time variant and invariant variables on the hazard rate. t measures the period between a specific day and the beginning of the forecasted quarter. Refer to Table 4 for the definition for control variables.

In Column (1) I report the regression coefficients for the Cox Model. In Column (2), I report independent variables' marginal effects on reporting probability when each independent variable is increased by 1 unit. The marginal effect is calculated as Hazard Ratio – 1, where Hazard Ratio equals Exp(coefficient). The Cox Model is estimated using Efron methods. *, **, *** indicate significance at the 0.10, 0.05 and 0.01 levels, respectively.

Table 17: External Validity: 8-K Filings

	(1) Coefficient (β)	(2) Marginal Effect = Exp(β) - 1
Window	0.0536	0.0551***
	(3.85)***	
Short	-0.0002	-0.0002
	(-0.02)	
Trading_day	2.6478	13.1229***
	(38.35)***	
Saleshare	0.1977	0.2186*
	(1.76)*	
Size_Rank	0.2346	0.2644***
	(12.32)***	
Analyst_Rank	0.0536	0.0551***
	(2.58)***	
Past_8K	0.1671	0.1819***
	(19.51)***	
Past_Time_8K	-0.0020	-0.002***
	(-12.94)***	
Leader_8K	2.3008	8.9822***
	(103.68)***	
Leadtime_8K	-0.0069	-0.0069***
	(-19.02)***	
Indtime_8K	0.4067	0.5019***
	(39.68)***	
Peer_8K	0.0033	0.0033***
	(6.89)***	
Industry Indicators	Yes	Yes
Year Indicators	Yes	Yes
Month Indicators	Yes	Yes
Weekday Indicators	Yes	Yes
N	1758695	1758695
pseudo R-sq	0.043	0.043

In this Table, I examine the timing of 8-K filings issued after FOMC meetings. The 8-K filings in this sample are those issued during the [T2-31, EA – 2) period If a firm issued more than one 8-K filings during this period, the first 8-K filing is kept. The table reports the estimation results of the following duration model:

$$h(t_i) = h_0(t_i) \cdot \exp[\beta_0 Window(t)_i + \beta_1 Short(t)_i + \beta_2 File8K(t)_i + \beta_3 Trading\_Day(t)_i + \beta_4 Abs\_News_i + \beta_5 Size\_Rank_i + \beta_6 Analyst\_Rank_i + \beta_7 Saleshare_i + \beta_8 Past_i + \beta_9 Past\_Time_i + \beta_{10} Lead + \beta_{11} Leadtime + \beta_{12} Indtime^+ \beta_{13} Peer + \beta_{14} Industry + \beta_{15} Year + \beta_{16} Month + \beta_{17} Weekday]$$

where $h_0(t)$ is the baseline hazard rate and the *Exp*[*] component measures the marginal effects of time variant and invariant variables on the hazard rate. *t* measures the period between a specific day and the 31 day before forecasted quarter end. Refer to Table 4 for the definition for control variables.

In Column (1) I report the regression coefficients for the Cox Model. In Column (2), I report independent variables' marginal effects on reporting probability when each independent variable is increased by 1 unit. The marginal effect is calculated as Hazard Ratio – 1, where Hazard Ratio equals *Exp*(coefficient). The Cox Model is estimated using Efron methods. *, **, *** indicate significance at the 0.10, 0.05 and 0.01 levels, respectively.

Appendix

Appendix A: FOMC Scheduled Meetings and Interest Rate Changes.

(1) Meeting date	(2) *Int_Change*(%)	(3) *Int_Surprise*(%)	(4) *Int_Expected*(%)
2000: 2/1-2/2	0.25	-0.05	0.30
2000: 3/21	0.25	-0.03	0.28
2000: 5/16	0.5	0.05	0.45
2000: 6/27-6/28	0	-0.02	0.02
2000: 8/22	0	-0.02	0.02
2000: 10/3	0	0.00	0.00
2000: 11/15	0	0.00	0.00
2000: 12/19	0	0.05	-0.05
2001: 1/30-1/31	-0.5	0.00	-0.50
2001: 3/20-3/20	-0.5	0.06	-0.56
2001: 5/15	-0.5	-0.08	-0.42
2001: 6/26-6/27	-0.25	0.05	-0.30
2001: 8/21	-0.25	0.02	-0.27
2001: 10/2	-0.5	-0.07	-0.43
2001: 11/6	-0.5	-0.10	-0.40
2001: 12/11	-0.25	0.00	-0.25
2002: 1/29-1/30	0	0.02	-0.02
2002: 3/19	0	-0.03	0.03
2002: 5/7	0	0.00	0.00
2002: 6/25-6/26	0	0.00	0.00
2002: 8/13	0	0.03	-0.03
2002: 9/24	0	0.02	-0.02
2002: 11/6	-0.5	-0.19	-0.31
2002: 12/10	0	0.00	0.00
2003: 1/28-1/29	0	0.01	-0.01
2003: 3/18	0	0.05	-0.05
2003: 5/6	0	0.04	-0.04
2003: 6/24-6/25	-0.25	0.15	-0.40
2003: 8/12	0	0.00	0.00
2003: 9/15-9/16	0	0.00	0.00
2003: 10/28	0	0.00	0.00
2003: 12/9	0	0.00	0.00
2004: 1/27-1/28	0	0.00	0.00
2004: 3/16	0	0.00	0.00
2004: 5/4	0	-0.01	0.01
2004: 6/29-6/30	0.25	-0.01	0.26
2004: 8/10	0.25	0.02	0.23
2004: 9/21	0.25	0.02	0.23
2004: 11/10	0.25	0.00	0.25
2004: 12/14	0.25	0.00	0.25
2005: 2/1-2/2	0.25	0.00	0.25
2005: 3/22	0.25	0.00	0.25
2005: 5/3	0.25	0.00	0.25
2005: 6/29-6/30	0.25	0.00	0.25
2005: 8/9	0.25	0.00	0.25
2005: 9/20	0.25	0.01	0.24
2005: 11/1	0.25	0.00	0.25
2005: 12/13	0.25	0.00	0.25
2006: 1/31	0.25	0.00	0.25
2006: 3/27-3/28	0.25	0.00	0.25
2006: 5/10	0.25	-0.01	0.26

2006: 6/28-6/29	0.25	-0.02	0.27
2006: 8/8	0	-0.04	0.04
2006: 9/20	0	0.00	0.00
2006: 10/24-10/25	0	0.00	0.00
2006: 12/12	0	0.00	0.00
2007: 1/30-1/31	0	0.00	0.00
2007: 3/20-3/21	0	0.00	0.00
2007: 5/9	0	0.00	0.00
2007: 6/27-6/28	0	0.00	0.00
2007: 8/7	0	0.03	-0.03
2007: 9/18	-0.5	-0.15	-0.35
2007: 10/30-10/31	-0.25	-0.02	-0.23
2007: 12/11	-0.25	0.01	-0.26
2008: 1/29-1/30	-0.5	-0.10	-0.40
2008: 3/18	-0.75	0.17	-0.92
2008: 4/29-4/30	-0.25	-0.05	-0.20
2008: 6/24-6/25	0	-0.03	0.03
2008: 8/5	0	-0.01	0.01
2008: 9/16	0	0.06	-0.06
2008: 10/29	-0.5	-0.06	-0.44
2008: 12/15-12/16	-1	-0.12	-0.88
2009: 1/27-1/28	0	0.00	0.00
2009: 3/17-3/18	0	-0.01	0.01
2009: 4/28-4/29	0	0.00	0.00
2009: 6/23-6/24	0	-0.02	0.02
2009: 8/11-8/12	0	-0.01	0.01
2009: 9/22-9/23	0	0.00	0.00
2009: 11/3-11/4	0	0.00	0.00
2009: 12/15-12/16	0	-0.01	0.01
2010: 1/26-1/27	0	-0.02	0.02
2010: 3/16	0	0.00	0.00
2010: 4/27-4/28	0	0.00	0.00
2010: 6/22-6/23	0	0.00	0.00
2010: 8/10	0	0.00	0.00
2010: 9/21	0	0.00	0.00
2010: 11/2-11/3	0	0.00	0.00
2010: 12/14	0	0.00	0.00
2011: 1/25-1/26	0	0.00	0.00
2011: 3/15	0	0.00	0.00
2011: 4/26-4/27	0	0.00	0.00
2011: 6/21-6/22	0	-0.01	0.01
2011: 8/9	0	0.00	0.00
2011: 9/20-9/21	0	0.01	-0.01
2011: 11/1-11/2	0	0.00	0.00
2011: 12/13	0	0.00	0.00
2012: 1/24-1/25	0	0.00	0.00
2012: 3/13	0	0.02	-0.02
2012: 4/24-4/25	0	0.00	0.00
2012: 6/19-6/20	0	0.00	0.00
2012: 7/31-8/1	0	0.01	-0.01
2012: 9/12-9/13	0	0.01	-0.01
2012: 10/23-10/24	0	0.00	0.00
2012: 12/11-12/12	0	0.00	0.00
2013: 1/29-1/30	0	0.00	0.00
2013: 3/19-3/20	0	0.00	0.00
2013: 4/30-5/1	0	0.00	0.00

2013: 6/18-6/19	0	0.01	-0.01
2013: 7/30-7/31	0	0.00	0.00
2013: 9/17-9/18	0	0.00	0.00
2013: 10/29-10/30	0	0.00	0.00
2013: 12/17-12/18	0	0.01	-0.01
2014: 1/28-1/29	0	0.00	0.00
2014: 3/18-3/19	0	0.00	0.00
2014: 4/29-4/30	0	0.00	0.00
2014: 6/17-6/18	0	0.00	0.00
2014: 7/29-7/30	0	0.00	0.00
2014: 9/16-9/17	0	0.00	0.00
2014: 10/28-10/29	0	0.01	-0.01
2014: 12/16-12/17	0	0.01	-0.01
2015: 1/27-1/28	0	0.00	0.00
2015: 3/17-3/18	0	-0.01	0.01
2015: 4/28-4/29	0	0.00	0.00
2015: 6/16-6/17	0	0.00	0.00
2015: 7/28-7/29	0	0.00	0.00
2015: 9/16-9/17	0	-0.06	0.06
2015: 10/27-10/28	0	0.00	0.00
2015: 12/15-12/16	0.25	0.02	0.23

This table shows the detailed information for each FOMC scheduled meetings during from 1995 to 2015. Column (1) shows the timing of each meeting. Column (2) reports the change in announced target interest rate. Column (3) reports the surprise in target interest rate change based on the following model:

$$Int\_Surprise = D/(D - d) * (F^{0}_{d,m} - F^{0}_{d-1,m})$$

where *Int_Surprise* is the surprise part of Federal Reserve target interest rate change, *Int_Expected* is the expected part of target interest rate change, and *Int_Change* is the announced change in target interest rate change (*Int_Change* = 0 means that the target interest rate remains the same). *D* is the total number of days in Month *m* when FOMC holds a meeting. If FOMC announces its decision on the first day of a month (*d* = 1), then $F^{1}_{l,m-1}$ is used instead of $F^{0}_{d-1,m}$, where $F^{1}_{l,m-1}$ is the settlement of the 1-month federal fund rate future contract on the last day (Day *l*) of Month *m* – 1. if FOMC announcement is on the last three days of a month, then unadjusted change in the settlement of 1-month federal fund rate future contract is used as the surprise (Bernanke and Kuttner, 2005). Column (4) is the expected part in target interest rate change, calculated according to:

$$Int\_Expected = Int\_Change - Int\_Surprise$$

Appendix B: Calculating Market Expectation of Interest Rate Change Using Federal Funds Future Rates.

Assume that on Month m, Day d FOMC announces monetary policy regarding target interest rate before the Federal Fund Rate future market closes. There are D days in Month m. Denote that $F^0_{d,m}$ is the settlement of the federal fund rate future contract for the current month on Day d Month m. Since FOMC decision is announced before the future market closes on Day d, the announced target interest rate would be reflected $F^0_{d,m}$ but not in $F^0_{d-1,m}$. In addition, market's expectation of potential Federal Reserve target interest rate change should already be incorporated in $F^0_{d-1,m}$ as long as the schedule of the meeting is known to the market. As such, for scheduled FOMC meetings, the difference between $F^0_{d,m}$ and $F^0_{d-1,m}$ reflect the surprise part of interest rate change. What is more, because the settlement price of future contracts is based on the monthly average of Federal fund rates, the implied surprise should be adjusted based on when a change is announced using the following equation:[20]

$$Int\_Surprise = D/(D - d) * (F^0_{d,m} - F^0_{d-1,m}) \quad (1)$$

and the expected part of interest rate change before FOMC meeting will be:

$$Int\_Expected = Int\_Change - Int\_Surprise \quad (2)$$

where *Int_Surprise* is the surprise part of Federal Reserve target interest rate change, *Int_Expected* is the expected part of target interest rate change, and *Int_Change* is the announced change in target interest rate change (*Int_Change* = 0 means that the target interest rate remains the same). D is the total number of days in Month m when FOMC holds a meeting. There are two exceptions when calculating *Int_Surprise*. First, if FOMC announces its decision on the first day of a month (d = 1), then $F^1_{l,m-1}$ is used instead of $F^0_{d-1,m}$, where $F^1_{l,m-1}$ is the settlement of the 1-month federal fund rate future contract on the last day (Day l) of Month m – 1. Second, if FOMC announcement is on the last three days of a month, then the unadjusted change in settlement of the 1-month federal fund rate future contract is used as the surprise (Bernanke and Kuttner, 2005).

20 See Kuttner, 2001 and Bernanke and Kuttner, 2005 for a detailed discussion.

Appendix C: Variable Definition

Variable Name	Variable Definition
$h(t_i)$	Hazard ratio, which measures the probability of management guidance issuance on Day t for Firm i.
$Window(t)_i$	An indicator which equals 1 if Day t falls into the [1, 3] trading day window following FOMC meetings and equals zero otherwise.
$Short(t)_i$	An indicator variable that equals 1 if Day t falls into the [-10, 10] trading day window relative to an FOMC meeting
$File8K(t)_i$	An indicator which equals 1 if Firm i files an 8-K within the period [t-3, t+3]
$Trading\_Day(t)_i$	An indicator which equals 1 if Day t for Firm i is a trading day
Abs_News_i	Absolute value of earnings surprise, which is calculated as (management forecasted EPS - last consensus (mean) analyst forecasts before management guidance) / stock price at the beginning of forecasted period
$Size\_Rank_i$	The industry rank of Firm i's market capitalization
$Analyst\_Rank_i$	The industry rank of Firm i's analyst following
$Saleshare_i$	Firm i's market share of sales based on SIC two-digit industries
$Past_i$	An indicator which equals 1 if Firm i issued a management guidance in the prior quarter
$Past\_Time_i$	The average duration for Firm i's past 4 quarters' management guidance. If no management guidance issued in the past quarter, this variable is set to be zero.
Leader	An indicator which equals 1 if a firm is the first to issue a management guidance in that quarter in the SIC two-digit industry
Leadtime	The duration of the management guidance of the first firm that issues management guidance in that quarter in the SIC two-digit industry
Indtime	An indicator which equals 1 if Day t is within [-2, 2] days relative to the industry median time of management guidance.
Peer	The number of management guidance issued by industry peers within [-5, 0) days relative to Day t.
Lead_EA	An indicator which equals 1 if a day is within [0, 3] days relative to the earnings announcement day of the first firm that issues earnings announcement in that quarter in the SIC 2 digit industry.
Peer_EA	The number of earnings announcements issued by industry peers within the [-3, 0] day relative to a day
HighUncertain1	An indicator which equals 1 if a day falls in periods when the volatility of FOMC meeting surprise is high (years from 2000 to 2003 and from 2007, 2009)
LowUncertain1	An indicator which equals 1 if a day falls in years 2004, 2005, 2006, or 2010 – 2015.
HighUncertain2	An indicator which equals 1 if the standard deviation of the past 8 FOMC meeting surprises is higher than sample median
LowUncertain2	An indicator which equals 2 if the standard deviation of past 8 FOMC meeting surprises is lower than median
HighUncertain3	An indicator which equals 1 if the expected interest rate change before FOMC falls in the following ranges: (-0.955, -0.795), (-0.705, -0.545), (-0.455, -0.295), (-0.205, -0.045), (0.045, 0.205), (0.295, 0.455), (-0.705, -0.545) or (-0.795, 0.955)
LowUncertain3	An indicator which equals 1 if the expected interest rate change does not fall in the following ranges: (-0.955, -0.795), (-0.705, -0.545), (-0.455, -0.295), (-0.205, -0.045), (0.045, 0.205), (0.295, 0.455), (-0.705, -0.545) or (-0.795, 0.955)
G1, *G2*, *G3,* and *G4*	Indicators for firms with R-square falling in the first, the second the third and the fourth quartile in a particular quarter from a model which regress the changes in a firm *Roa* on the changes in a serious of macro variables.
Pos_Sup	An indicator which equals 1 if the surprise in interest rate change in the current meeting is positive
Zero_Sup	An indicator which equals 1 if the surprise in interest rate change equal to zero
Neg_Sup	An indicator which equals 1 if the surprise in interest rate change is negative

High_RelSup	An indicator which equals 1 if the surprise in interest rate change divided by the standard deviation of the surprise in the past 8 meetings is higher than 1.
Mid_RelSup	An indicator which equals 1 if the surprise in interest rate change divided by the standard deviation of the surprise in the past 8 meetings falls in [-1,1].
Low_RelSup	An indicator which equals 1 if the surprise in interest rate change divided by the standard deviation of the surprise in the past 8 meetings is lower than -1.
High_Lit	An indicator which equals 1 if a firm belongs to a high litigation risk industry defined in Francis, Philbrick, and Schipper (1994) [SIC in: 2833 – 2836, 8731 – 8734, 3570 – 3577, 7370 – 7374, 3600 – 3674, 5200 – 5961].
Low_Lit	An indicator which equals 1 if a firm does not belongs to a high litigation risk industry defined in Francis, Philbrick, and Schipper (1994)
Early_FOMC	An indicator which equals 1 if the period between the forecasted quarter beginning and a FOMC meeting is shorter than the 25 percentile of the sample
Late_FOMC	An indicator which equals 1 if that period is longer than the 25 percentile of the sample.
WU	An indicator which equals 1 if the point estimate or the lower-bound of a range estimate of EPS reported in a management guidance is higher than latest consensus (mean) of analyst forecasts. A management guidance is defined as a point estimate if IBES variable *RANGE_DESC* is coded as "02", "14" or "09", and is defined as a range estimate if IBES variable *RANGE_DESC* is coded as "01".
WD	An indicator which equals 1 if the point estimate or the upper-bound of a range estimate of EPS reported in a management guidance is higher than latest consensus (mean) of analyst forecast. A management guidance is defined as a point estimate if IBES variable *RANGE_DESC* is coded as "02", "14" or "09", and is defined as a range estimate if IBES variable *RANGE_DESC* is coded as "01".
HighConcern	An indicator which equals 1 if a firm is in a SIC 2 digits industry with below median number of firms.
LowConcern	An indicator which equals 1 if a firm is in a SIC 2 digits industry with above median number of firms.
Accuracy	Management guidance accuracy. The absolute value of the difference between a management guidance and the actual EPS scaled by the stock price at the beginning of the forecasted quarter.
Error	Management guidance error. (actual EPS – forecasted EPS)/ stock price at the beginning of the forecasted quarter.
Post	An indicator which equals one if a management guidance is issued on the day or after a FOMC meeting and equals 0 otherwise
Analyst Following	The number of analysts that follows a firm before the issuance of the management guidance
Horizon	The forecast horizon, which equals the days between a management forecast and the forecasted period end
Lag_Lmval	The natural logarithm of market value at the beginning of the forecasted period
Lag_Mtb	The market to book ratio at the beginning of the forecasted period,
Loss	An indicator variable which equals 1 if the forecasted quarter finally has a negative earnings before extraordinary items
Dispersion	The dispersion of analyst forecasts,
Mf_Suprise	The surprise of the management guidance relative to the last consensus analyst forecast scaled by the stock price at the beginning of the quarter
Beta	The market model beta coefficient for the forecasted quarter
Earvol	The earnings volatility of the past five quarters.