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Abstract

We construct a novel hand-collected large data set of 205 U.S. hedge funds and 1031 activist events over the period 2005-2013, which records both the Schedule 13D filing date and the voicing date, and explore the role of voicing in value creation. We employ alternative inferential statistical approaches, including parametric, non-parametric, and heteroscedasticity-robust tests along with bootstrapping. We reveal that the voice date is important in creating short-term firm value, and provide strong evidence that voicing is associated with positive abnormal returns. These abnormal returns are approximately 1.11%, and are higher than the abnormal returns around the Schedule13D date by approximately 64%. There is also evidence of positive voice abnormal returns for voicing events which lead Schedule 13D events. The results are robust to models of abnormal returns allowing for leverage effects, and to alternative inferential statistical procedures. These findings suggest that voicing leads to information revelation, with implications for U.S. stock market arbitrage and the regulation for hedge fund activism information disclosure.

Keywords: Hedge Fund activism, Schedule13D, voice, abnormal returns, information revelation.

JEL Classifications: G14, G23, G3

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1. Introduction

Hedge fund activism is an investment strategy where a hedge fund intervenes in a target firm with a minority stake and influences the firm's internal decisions. The main objective of this intervention is to reduce agency costs, increase firm's performance and maximize shareholder value. Prior literature suggests that increased management monitoring by shareholder activists reduces agency and incentive costs (Brav et al. (2008); Gilson and Gordon (2013)), especially when activists gain board representation (Goodwin (2016)). Top activist investors target firms with higher agency costs and are more successful in their activist goals when engaging in monitoring management (Krishnan et al. (2016)). Taking the Schedule 13D[1] filing date as the critical date of an activist event, empirical contributions have documented that the stock market reacts favorably to activism, yielding positive average abnormal returns for target firms around that date, and suggesting that hedge fund activism creates value (Becht et al. (2008); Brav et al. (2008a); Brav et al. (2008b); Clifford (2008); Klein and Zur (2009); Greenwood and Schor (2009); Boyson and Mooradian (2011); Gow et al. (2014); Bebchuk et al. (2015); Becht et al. (2017))[2]. Although short-term effects have been examined around the Schedule 13D filing date, there is hardly any evidence on the short-term abnormal returns surrounding the amendment dates.

The present paper departs from the previous literature in that it considers as critical dates of an activist event not only the Schedule 13D date but also the amendment date that contains voice. We define this date as voice date. In fact, we expect voice to carry at least the same importance as the Schedule 13D. The motivation for considering the voice date arises from the fact that this is the date when a hedge fund clearly asks, proposes, differentiates or demands operational, strategic, corporate governance or capital allocation changes in the "Item 4" section[3]. Through voice, activists become more specific about their objectives by revealing their internal assessment and disclosing specific plans or proposals for the target firm. So, we hypothesize that voice functions as an information revelation mechanism. In

[1] Schedule 13D is commonly referred to as a "beneficial ownership report". The term "beneficial owner" is defined under SEC rules and includes any person who directly or indirectly shares voting power or investment power (the power to sell the security) - (SEC). Investors, who acquire beneficial ownership of more than 5% of a voting class of a company's equity securities registered under Section 12 of the Securities Exchange Act of 1934, are required to disclose a Schedule 13D with the SEC within 10 days from the transaction (https://www.sec.gov/fast-answers/answersshed13htm.html).

[2] As the event window becomes longer, abnormal returns increase (Brav et al. (2008); Krishnan et al. (2016)). Interestingly, positive abnormal returns are obtained even when hedge funds had previously disclosed a smaller stake at the target firm through the 13F filing (Brav et al. (2008)). Moreover, significant performance improvements are obtained when hedge funds switch from passive (Schedule 13G filing) to active (Schedule 13D filing) with no ownership change (Brav et al. (2015)). These performance improvements occurred due to the hedge fund's decision to switch from passive to active; otherwise they would not have been implemented.

[3] In "Item 4" section investors state the "Purpose of Transaction".

contrast, if the hedge fund activists do not state any specific plans or proposals through the Schedule 13D or Schedule 13D/A filings, we define those interventions as non-voice. In these interventions, activists may either make amendments for beneficial ownership changes or not make amendments at all until exit. So far, the vast majority of existing literature assumes that the activism engagement process is initiated by the Schedule 13D filing and terminates with exit. However, Schedule 13D filings which do not contain voice, simply signal an activist intention, which may occur or not. The stock price of the targeted firm at Schedule 13D filing date should reflect the expected value of two mutually exclusive events: the specific intervention activist purpose and the lack of such disclosed purpose. On the other hand, voice specifies the activism field since hedge funds disclose specific proposalsand/or plans. The stock price of the targeted firm at voice date should reflect the expected value of a successful, a failed or a settlement outcome, multiplied by the corresponding probabilities of occurrence. Although both dates are considered as dates of the activism engagement process initiation, they reflect different expected future outcomes. The goal of this paper is to investigate how investors react to hedge fund activism (voice) and to the announcement of a possible activism (Schedule 13D filing without voice). These two different initiation engagement dates are also compared in terms of abnormal return behavior.

Further motivation for focusing on the voice date is provided by the following examples of anecdotal evidence. On August 22, 2011, Starboard Value LP filed a Schedule 13D indicating an 8.9% beneficial ownership of Mips Technologies Inc. In the "Item 4" section, the reporting persons expressed their belief that that the shares were undervalued and did not have any plans or proposals[4]. On September 13, 2011, Starboard Value LP filed a Schedule 13D/A stating that they delivered a letter to the board of the company on September 12, 2011 nominating specific people for election to the company's Board of Directors, and urging the company to discontinue pursuing acquisitions, focus on improving its operating performance and consider buying back shares. As a result, the stock return of Mips Technologies on that date (September, 12) was 6.19%, much higher than that on the Schedule 13D filing date (August, 22) which was 0.46%. This echoes the relatively important role of voice in driving market responses. We consider this event as a voice event, and set September 12, 2011 as voice date where Starboard Value LP delivered the letter to Mips Technologies Inc[5].

[4] **https://www.sec.gov/Archives/edgar/data/1059786/000092189511001772/sc13da106297098_09122011.htm**

[5] Notably, Starboard Value LP had already filed a DFAN14A filing on September 12, 2011.

The second example refers to Atlantic Investment Management Inc. (AIM) filing a Schedule 13D on September 14, 2012, indicating a 5,05% beneficial ownership of Rockwood Holdings, Inc. On that date, the firm's stock return was +1.84%. In the "Item 4" section, the reporting persons stated that they acquired the stock for investment purposes and did not have any current plans[6]. On November 19, 2012, AIM filed an amendment where a beneficial owner increase was stated to 6.05% without amending the "Item 4" section. On that date, the stock return was +2%. AIM exited on January 29, 2013 filing a Schedule 13D/A stating a beneficial ownership of 4.89%. On the exit date the stock return was +0.5% We consider this as a non-voice event since AIM did not state any specific plans in any of its filings' "Item 4" section, and use the initial Schedule 13D date as the non-voice date.

We carefully collected a large sample of 205 U.S. hedge funds and 1031 activist events over the period 2005-2013. This data set is novel because it records both the Schedule 13D and the voice dates, and includes 379 voice and 652 non-voice events. Using this sample, we explored whether positive abnormal returns exist surrounding the voice date. Our findings strongly suggest that there exist positive abnormal returns not only surrounding the Schedule 13D date but also the voice date, suggesting value creation around the voice date as well. The abnormal returns around the voice date are approximately 1.11%, and are higher than the abnormal returns around the Schedule 13D date by approximately 64%. These findings are robust to alternative asset pricing models controlling for size, book to market, momentum, and GARCH-in-Mean effects. They are also robust to alternative parametric and non-parametric statistical procedures for inference on the significance of abnormal returns, including the Wilcoxon signed rank test, and the rank test procedure of Corrado (1989) and Corrado and Zivney (1992). The abnormal returns of Schedule13D and voice dates are also statistically compared by means of a battery of heteroscedasticity and skewness-robust tests. We document significant differences in the market inefficiency patterns. Our interpretation is that the Schedule 13D date reveals only partial information, with the remainder of information being revealed at voice. As we record both the voice and the Schedule 13D dates, we also consider the case of 93 events in which the voice date *leads* the Schedule 13D filing date by less than 10 trading days. We find evidence that for these events as well there exist positive voice abnormal returns, suggesting that voicing, regardless of whether it occurs before or after the Schedule 13D date, entails information revelation which triggers market response. These results are in line with Becht et al. (2017) who, using a sample of international activist events, found that positive short-term abnormal returns exist surrounding

[6] https://www.sec.gov/Archives/edgar/data/1063296/000090571812000245/sc13rockwood0912.htm

the amendment dates when activists disclose outcomes, such as board representation and takeovers, through amendments.

Our results have implications for information revelation, market quality and arbitrage opportunities, and regulation for hedge fund activism mandatory disclosure. The voice date and the Schedule 13D date, which in general do not coincide, are two important hallmarks of mandatory disclosure regulation for hedge fund activism. Positive abnormal returns on both dates, and not only the Schedule 13D date, indicate opportunities for arbitrage. Arbitrage is detrimental for stock market quality. As mandatory disclosure regulation should, in principle, aim at improving market quality, our findings point to the need of revisiting the way that hedge fund activism related information is disclosed in the market. This need is in line with the ongoing debate on whether mandatory disclosure regulation has net positive or negative effects on stock market quality (Enriques and Gilotta (2015); Greenstone et al. (2006)), as well as with recent legal scholars' recommendations for significant modification of U.S. securities markets regulation (Mahoney (1997)).

The remainder of the paper is as follows. Section 2 discusses the data set and the voice date. Section 3 outlines the methodology for abnormal returns, spells out the hypotheses to be tested, and discusses the statistical procedures. Section 4 reports the empirical findings, discusses their implications, and makes a regulatory policy recommendation. Section 5 provides several robustness checks, including various GARCH-type models for calculating abnormal returns, and non-parametric tests for statistical inference. Section 6 concludes.

2. The data set, and voice dates.

2.1. Compiling the data set

We obtained Schedule 13D filings between January 1, 2005 and December 31, 2013 using the Historical SEC Edgar Archives from the Edgar Database of the SEC[7]. Our search for "SC 13D" gave us 11.700 filers from a total of 19.352 filings[8].

The next step was to identify the hedge funds[9]. Although in the literature there is not a commonly accepted definition for hedge funds (Brav et al. (2008a)), we formed our sample of hedge funds following Brunnermeier and Nagel (2004), and Griffin and Xu (2009). We

[7] https://www.sec.gov/cgi-bin/srch-edgar

[8] We manually downloaded the list of Schedule 13D filers searching for "SC 13D" per month for the research period since there is a limitation of 4000 documents.

[9] The term 'hedge fund' refers to privately organized pooled investment vehicles, administered by professional managers, and not widely available to the public. Hedge funds do not fall in the regulation for mutual funds for the investors' protection, and are not restricted to certain levels of liquidity; they usually require investors to keep their money in the fund for a specific period of time.

searched the Investment Adviser Public Disclosure website[10] for each of the "Reporting Persons"[11] of the Schedule 13D filings and included in our sample only firms that were registered as investment advisers with the SEC and thus, filed the ADV form[12]. Next, we searched the "Item 5" section ("Information About Your Advisory Business - Employees, Clients, and Compensation") and included in our sample only those firms that at least 50% of their clients were "Other Pooled Investment Vehicles (e.g., hedge funds)" or "High Net Worth Individuals" and charged performance-based fees.

On the basis of these steps, we identified 321 "pure-play" hedge funds[13] which filed a total of 2.098 Schedule 13D filings. We excluded from our sample financial firms[14], private firms and activist events that were still live at the end of December 2013. Our final sample consists of 205 hedge funds and 1.031 activist events (379 voice and 652 non-voice events). The stock prices of our sample were downloaded from Thomson DataStream (TDS). Descriptive statistics for all stock returns and for the stock returns that comprise each event-based category are reported in Table 1, and indicate evidence of non-normality.

2.2. Voice dates

Hedge funds follow different strategies in order to maximize shareholder value and increase firm's performance. These strategies concern the hedge funds' plans or proposals for the target firm and the timing of their disclosure. Plans or proposals must be disclosed in the "Item 4" section, and contain changes in a firm's corporate governance (i.e. changes in board structure and composition), strategy (i.e. sell of company, spin-off of a subsidiary), capital allocation (i.e. buy back shares, special dividends) and operational performance. There are many cases though, where hedge funds exit the target firm without publicly stating any of the above objectives.

The timing of disclosure varies according to the activists' strategies. Activists could disclose their objectives either in their initial Schedule 13D filing following a more offensive agenda, or later by filing an amendment stating their objectives publicly[15]. Since investors have a 10-

[10] https://www.adviserinfo.sec.gov/IAPD/default.aspx
[11] The 'Reporting Persons" are stated in the "Item 2' section ("Identity and Background") of the Schedule 13D filing.
[12] Form ADV is the uniform form used by investment advisers to register with both the Securities and Exchange Commission (SEC) and state securities authorities. For example, David Knott was the filer of a Schedule 13D filing on January 11, 2008 concerning Pet DRx Corp. The "Reporting Persons" of this filing where David Knott and Dorset Management Corporation (DMC). DMC fulfilled our criteria. If we had not followed this procedure, we would have excluded David's Knott Schedule 13D filings from our sample.
[13] Ben-David, Itzhak, et al. (2013)
[14] SIC code 6000 to 6799
[15] In some cases, activists state their proposals without filing a Schedule 13D at all (activism under the 5% threshold). These cases are not included in our sample.

day window to file their beneficial ownership with the U.S. Securities and Exchange Commission (SEC), the disclosure date, which we define as the voice date, does not necessarily match with the Schedule 13D or the Schedule 13D/A filing date.

We search for voice in "Item 4" section (Purpose of Transaction) of the initial Schedule 13D, its amendments (Schedule 13D/A) and the attached Exhibits. Activist interventions are usually followed by amendments (Schedule 13D/A) where hedge funds make material changes in facts set forth in the initial Schedule 13D filing[16]. If a hedge fund states the exact date of voice in these filings we consider this date as the voice date, otherwise we use the filing date. We hypothesize that voice events generate positive short-term abnormal returns, since important information becomes available to investors at the voice date. We include in our sample only the first voice incident of an activist intervention.

In our voice events, the average difference between the identified voice date and the Schedule 13D date is + 40 trading days or 56 calendar days, namely the voice date *lags* the Schedule 13D date by 40 trading days. Importantly, we identified 93 events in which voicing *leads* Schedule 13D by 1 to 10 trading days, namely the voice day is in the space (-1, -10) of the Schedule 13D day. This point is taken into consideration when assessing the statistical significance of abnormal returns of voice; by looking not only at all voice events but also at this category of voice events leading the Schedule 13D events by 1 to 10 days.

3. Methodology

3.1. Abnormal returns of targeted firms

Our objective is to explore whether there exist statistically significant abnormal returns for the targeted firm around the hedge fund activism announcement date (Schedule 13D date), the announcement of voice activism (voice date), and the ex-post announcement that hedge fund activism did not eventually happen in terms of voice (non-voice). The time period of interest for which we observe the three event types, denoted as the event period, covers 20 pre-event days (day -20 to day -1), the event date (day 0), and 20 post-event days (day 1 to day 20). The event window is expanded by 20 days prior to the event in order to capture possible information leaks, and by 20 days after the event to account for possible delayed response of investors to announcements.

[16] Such changes may include changes in their beneficial ownership and plans or proposals stated in "Item 4" section. In "Item 4" section investors state the "Purpose of Transaction".

Abnormal returns are assessed in terms of the realized returns and the returns that would be normally expected by the market. Following Brown and Warner (1980), an abnormal return AR_{it} is defined as the difference between the actual return R_{it} of stock *i* at the event day *t* and the expected stock return at the event day *t* predicted by an estimated asset pricing model:

$$AR_{it} = R_{it} - E\left(R_{it}|D_t\right) \tag{1}$$

where $R_{it} = 100 * \log\left(P_{it}/P_{it-1}\right)$, P_{it} is the actual price of stock *i* at event day *t* , *i* = 1,2,…,*N* with *N* the total number of stocks, while $E\left(R_{it}|D_t\right)$ denotes the expected stock returns given the information set D_t available at time period *t*. The expected returns represent the "normal" returns, namely the returns that would be anticipated if no event took place. The expected returns are predictions for the event day, generated by an asset pricing model fitted to the actual stock returns over an estimation window. The estimation window represents the sample proportion of the data that precedes the event period. In this paper, the length of the estimation window is determined in terms of data availability. In particular, the estimation period for each stock starts at the first available stock return observation, and ends 21 days before the announcement date. Our results are also verified by using an estimation window of fixed length to calculate the abnormal returns.

Abnormal stock returns of the targeted firms are calculated using the market model and the multi-factor model of Carhart (1997). The market model assumes that the returns of each stock are linearly related to the market portfolio returns. The following linear regression model is estimated by least squares

$$R_{it} = a_0 + \beta_1\left(R_{mt} - R_{ft}\right) + u_{it} \tag{2}$$

where R_{mt} denotes the S&P 500 market index returns, and R_{ft} denotes the risk –free rate.
In the Carhart (1997) model, the conventional market model is enhanced by the size, value, and momentum factors:

$$R_{it} = a_0 + \beta_1\left(R_{mt} - R_{ft}\right) + \beta_2 SMB_t + \beta_3 HML_t + \beta_4 MOM_t + u_{it}, \tag{3}$$

where SMB_t denotes the size factor - the difference between the returns on portfolios based on stocks with small market capitalization and stocks with big market capitalization, HML_t represents the value factor - the difference between the returns on portfolios based on stocks with high book-to-market ratios and stocks with low book-to-market ratios, and MOM_t

represents the momentum factor - the difference between the returns on portfolios of the winners and losers of the previous year.

We finally consider the GARCH-in-Mean model, as asset pricing theory suggests that higher risk has to be compensated with a higher expected return. Thus, we include a measure of stock return volatility as a term in the generating mechanism of expected returns. Lundblad (2007) provides evidence supporting the adoption of the GARCH-in-Mean model, and shows that market's risk premium and conditional volatility are positively related. Ang et al. (2006) document that market volatility is a priced factor of the cross-sectional stock returns and therefore, market volatility should be included in a pricing model in addition to the market factor. Adrian and Rosenberg (2008) decompose market volatility into two factors, and find that the CAPM extended by these two factors price stock returns better than other pricing models. Motivated by these empirical findings, we consider the following specification for the returns generating mechanism[17]

$$R_{it} = a_0 + \beta_1\left(R_{mt} - R_{ft}\right) + \beta_2 SMB_t + \beta_3 HML_t + \beta_4 MOM_t + \beta_5\sqrt{h_{it}} + u_{it}, \quad (3a)$$

$$u_{it} = \xi_{it}\left(h_{it}\right)^{1/2}, \quad (3b)$$

$$h_{it} = k_0 + \gamma_1 u_{it-1}^2 + \gamma_2 h_{it-1}, \quad (3c)$$

where $\{\xi_{it}\}$ is a sequence of random variables which are assumed to be independent and identically distributed as Student's t with unknown degrees of freedom, while $\{h_{it}\}$ is the sequence of conditional variances which evolve as a GARCH (1, 1) process. The constant k_0, as well as the ARCH and GARCH coefficient parameters $\gamma_i, i = 1,2,$ are estimated using the quasi-maximum likelihood method.

Figures 1, 2, and 3 provide a pictorial representation of the abnormal returns for the Schedule 13D, voice and non-voice events, calculated using these 3 alternative models for the period (-20, +20) in relation to each event. Based on these abnormal returns, we next proceed to formulating and testing the hypotheses of interest.

3.2. Market responses to Schedule 13D, voice, and non-voice: Hypotheses and testing.

[17] In the Section exploring robustness, we also consider GARCH-type models allowing for asymmetric volatility effects, such as the exponential GARCH (EGARCH) and the GARCH-GJR models.

Our objective is to investigate the stock market response to the announcement of voice activism initiation in relation to other hedge fund activism announcements, such as the initial Schedule 13D filings announcement (Schedule 13D), and the announcement where hedge funds did not eventually disclose any plans or proposals (non-voice) until exit. This is done by testing the following null hypotheses:

$$H_{0A} : \mu_{St} = 0, \text{against } H_{1A} : \mu_{St} \neq 0, \tag{4}$$

$$H_{0B} : \mu_{Vt} = 0, \text{against } H_{1B} : \mu_{Vt} \neq 0, \tag{5}$$

$$H_{0C} : \mu_{NVt} = 0, \text{against } H_{1C} : \mu_{NVt} \neq 0, \tag{6}$$

where $\mu_{jt} = E\left(AR_{jt}\right), j = V, S, NV,$ denotes the expected value of the abnormal returns of the specific event-based category *j* at event date *t*, with *V*, *S*, *NV* denoting the stocks which comprise the voice, Schedule 13D and non-voice event categories, respectively.

The null hypothesis H_{0A} states that the stock market does not respond to the announcement of hedge fund activism initiation based on the information at the Schedule 13D filings announcements. Similarly, the stock market is hypothesized not to respond to voice announcements or the announcements of hedge fund activism which eventually does not take place under null hypotheses H_{0B} and H_{0C}, respectively. The null hypotheses (4)-(6) are formulated based on the fact that an event will have no impact on stock returns if the average of the cross-sectional abnormal returns at the particular date is equal to zero.

Parametric and non-parametric tests are employed to examine the no mean event effect hypotheses. The parametric t-statistic is defined as

$$t - test = \sqrt{N}\,\frac{\mu_t^*}{s\left(\mu_t^*\right)} \tag{7}$$

where $\mu_t^* = \frac{1}{N}\sum_{i=1}^{N} AR_{it}$, and $s\left(\mu_t^*\right) = \sqrt{\frac{1}{N-1}\sum_{t=1}^{N}\left(AR_{it} - \mu_t^*\right)^2}$.

The test-statistic is computed by regressing the abnormal returns on a constant and then testing the statistical significance of the constant parameter. Under the null hypothesis that the mean abnormal returns are equal to zero, the test statistic is distributed as Student's *t* with *N* – 1 degrees of freedom.

We also consider an additional testing approach which relies on the non-parametric Wilcoxon signed-rank test (Wilcoxon (1945)). According to Kolari and Pynnönen (2010), the Wilcoxon test outperforms the parametric test in terms of finite sample power especially when it is applied to data which are fat tailed- distributed. This test takes into account both the sign and the magnitude of the abnormal returns, while it does not require normality of the abnormal returns to achieve proper specification under the null hypothesis. Consider the statistical measure for a specific event day *t*:

$$W_t = \sum_{i=1}^{N} I\{AR_{it} - m(AR_{it}) > 0\} K(|AR_{it} - m(AR_{it})|), \tag{8}$$

where $m(AR_{it})$ is the median of the cross-sectional abnormal returns AR_{it}, $K(.)$ denotes the ranking order of the data according to their relative magnitude, $I\{AR_{it} - A\tilde{R}_{it} > 0\}$ is an indicator function that assigns the value 1 when the condition $AR_{it} - A\tilde{R}_{it} > 0$ is satisfied and 0 otherwise. It is assumed that none of the absolute values are equal, while these values are non-zero. The signed-ranked test statistic is defined as

$$z_{W,t} = \frac{W_t - \frac{N(N-1)}{4}}{\left[\frac{N(N+1)(2N+1)}{12}\right]^{1/2}}. \tag{9}$$

Under the null hypothesis that the abnormal returns are generated from a distribution whose median is zero, $z_{W,t}$ is distributed as standard normal[18].

3.3. Testing for different market reaction across different hedge fund activism events

Further, we investigate the possibility that the market reacts differently to those events by testing the following hypotheses:

$$H_{0D}: \mu'_{Vt} - \mu'_{St} = 0, \text{against } H_{1D}: \mu'_{Vt} - \mu'_{St} \neq 0, \tag{10}$$

$$H_{0D}: \mu'_{Vt} - \mu'_{St} = 0, \text{against } H_{1DR}: \mu'_{Vt} - \mu'_{St} > 0, \tag{11}$$

$$H_{0D}: \mu'_{Vt} - \mu'_{St} = 0, \text{against } H_{1DL}: \mu'_{Vt} - \mu'_{St} < 0, \tag{12}$$

$$H_{0E}: \mu'_{Vt} - \mu'_{NVt} = 0, \text{against } H_{1E}: \mu'_{Vt} - \mu'_{NVt} \neq 0, \tag{13}$$

$$H_{0E}: \mu'_{Vt} - \mu'_{NVt} = 0, \text{against } H_{1ER}: \mu'_{Vt} - \mu'_{NVt} > 0, \tag{14}$$

[18] In the Section addressing robustness, we consider additional inferential statistical procedures.

$$H_{0E}: \mu'_{Vt} - \mu'_{NVt} = 0, \text{against } H_{1EL}: \mu'_{Vt} - \mu'_{NVt} < 0, \tag{15}$$

where $\mu'_{jt} = E\left(SAR_{jt}\right), j = V, S, NV,$ denotes the expected value of the standardized abnormal returns of the specific event-based category *j* at event date *t*. The sample mean is used to estimate μ'_{jt} . The standardized abnormal returns for each stock *i* are defined as

$$SAR_{it} = \frac{AR_{it}}{\sigma\left(AR_{it}\right)}, \tag{16a}$$

where $\sigma\left(AR_{it}\right) = \sqrt{\frac{1}{L_1 - k}\sum_{t=1}^{L_1} u_{it}^2}$ is the standard deviation of the regression prediction errors of each stock, *k* denotes the degrees of freedom, and L_1 is the estimation window length. The parameter *k* is equal to one, four and five when the market model, the Carhart model, and the GARCH-in-Mean models are used, respectively. The standardization of the abnormal returns by their standard deviation allows conducting reliable inference on the difference between their sample means because these samples have unequal lengths. A standard two sample t-test of unequal variances that has been widely used in the literature is applied to the standardized abnormal returns to test hypotheses (10)-(15). In particular, the two sample t-test of Welch (1947) is defined as

$$t_W = \frac{\mu'_{Vt} - \mu'_{St}}{\sqrt{\frac{s_V^2}{N_V} + \frac{s_S^2}{N_S}}} \tag{16b}$$

where s_V^2 and s_S^2 are the sample variances of the cross-sectional standardized abnormal returns of voice and Schedule 13D event-based stocks respectively, while N_V and N_S are the total number of stocks of voice and Schedule 13D event-based categories, respectively. Under the null hypothesis that the difference of the two means is equal to zero, the test statistic is distributed as Student's *t* with *v* degrees of freedom, where

$$v = \left[\frac{\left(\frac{1}{N_V} + \frac{s_s^2}{s_V^2 N_S} \right)^2}{\frac{1}{N_V^2\left(N_V - 1\right)} + \frac{s_s^2}{s_V^2 N_S^2\left(N_S - 1\right)}} \right], \tag{17}$$

with $[.]$ denoting the function that rounds down to the nearest integer the data. The *t*-test for the difference $\mu'_{Vt} - \mu'_{NVt}$ is defined similarly. The simulation results of Ruxton (2006) document that the Welch test is favourably compared to the conventional two sample t-test of equal variances in terms of empirical size.

3.4. Heteroscedasticity-robust and non-normality-robust tests

Several studies on testing the mean equality hypothesis raise concerns about possible inferential biases associated with the application of the existing test procedures under the presence of non-normality and heteroscedasticity. For instance, Algina et al. (1994) show that the Welch test faces size distortions when applied to data which are non-normally distributed. Descriptive statistics of stock returns, presented in Table 1, do indicate departures from normality; moreover, heteroscadisticity is a common feature in stock returns.

To allow for these stock returns characteristics in our testing procedure, we consider the Yuen's (1974) trimmed mean based test. Wilcox (1997) documented that the Yuen's (1974) test is well sized and demonstrates enhanced power under a sequence of local alternatives. More recently, Keselman et al. (2004) proved that a modified version of Yuen's test, introduced by Guo and Luh (2000) and implemented in conjunction with bootstrap confidence intervals, performs satisfactorily in finite samples. Their test is also based on trimmed means and it ensures robustness to skewness.

The two-sample trimmed mean tests of Yuen (1974), and Guo and Luh (2000) are applied to the standardized abnormal returns in order to evaluate hypotheses (10)-(15). The test procedures are summarized below. Let $SAR_{j(1)} \le SAR_{j(2)} \le ... \le SAR_{j(N)}$ be the standardized abnormal returns of the event-based category *j* placed in ascending order. The sample trimmed mean of the category *j* is defined as

$$\mu_{jt}^{*} = \frac{1}{h_j} \sum_{k=q_j+1}^{N-q_j} SAR_{j(k)} \,, \tag{18}$$

where q_j denotes the lower and upper cut-off point of the distribution of the standardized abnormal returns, with $q_j = \lfloor gN \rfloor$, where γ is the percentage of trimming applied to the tails of the distribution, and $h_j = N - 2q_j$. Following the simulation results of Keselman et al. (2004), we set *g* equal to 10%. The Winsorized variance of the standardized abnormal returns is estimated as the sample variance of the Winsorized standardized abnormal returns:

$$\sigma_{Wj}^{2} = \frac{1}{N-1} \sum_{k=1}^{N} \left(SAR_{jk}^{*} - \mu_{Wj} \right)^2 , \tag{19}$$

$$\text{where } SAR^{*}_{jk} = \begin{cases} SAR_{j(q_j+1)}, & if \quad SAR_{jk} \le SAR_{j(q_j+1)} \\ SAR_{jk}, & if \quad SAR_{j(q_j+1)} < SAR_{jk} < SAR_{j(N-q_j)} \\ SAR_{j(N-q_j)}, & if \quad SAR_{jk} \ge SAR_{j(N-q_j)} \end{cases}, \tag{20}$$

$$\text{and } \mu_{Wj} = \frac{1}{N}\sum_{k=1}^{N}\left(SAR^{*}_{jk}\right). \tag{21}$$

Yuen's (1974) test is defined as

$$t_Y = \frac{\mu^{*}_{Vt} - \mu^{*}_{St}}{\left(p_V + p_S\right)^{1/2}}, \tag{22}$$

where $p_j = (N-1)\sigma^2_{Wj} / h_j(h_j - 1)$.

Guo and Luh (2000) proposed a modified version of Yuen's test which filters out non-parametrically possible excess skewness by using a Hall (1992) transformation to the original test statistic. Their test is defined as

$$t_H = \left\{(\mu^{*}_{Vt} - \mu^{*}_{St}) + \left(\mu_W / 6\sigma^2_W\right) + \left(\mu_W / 3\sigma^4_W\right)\left(\mu^{*}_{Vt} - \mu^{*}_{St}\right)^2 + \left(\mu^2_W / 27\sigma^8_W\right)\left(\mu^{*}_{Vt} - \mu^{*}_{St}\right)^3\right\} / \sigma_W \tag{22a}$$

$$\text{where } \mu_W = \frac{\mu_{3V}}{h^2_V} - \frac{\mu_{3S}}{h^2_S},\ \mu_{3j} = \frac{1}{N}\sum_{k=1}^{N}\left(SAR^{*}_{jk} - \mu_{Wj}\right)^3,\ \text{and } \sigma^2_W = p_V + p_S.$$

Under the null hypothesis of mean equality, both test statistics are distributed as Student's *t* with degrees of freedom equal to

$$\nu^{*} = \left(p_V + p_S\right)^2 / \left\{\left(p^2_V / (h_V - 1)\right) + \left(p^2_S / (h_S - 1)\right)\right\}. \tag{23}$$

Bootstrap critical values are employed for inference. The bootstrap simulations were conducted on the basis of the following steps: First, calculate the zero-mean series $L_{jt} = SAR_{jt} - \mu^{*}_{jt}$ for the standardized abnormal returns of each event-based category *j*. This transformation ensures that the empirical distributions of both samples L_{jt} share a common measure of location. Second, generate bootstrap series $\tilde{L}_{jt}$ of length *N* by randomly sampling with replacement from the original series L_{jt}. Third, calculate the bootstrap test $\tilde{t}_Y$ (or $\tilde{t}_H$)

using the bootstrap samples $\tilde{L}_{jt}$. Fourth, calculate the test statistic t_Y (or t_H) using the actual data L_{jt}. Fifth, repeat the first three steps of the procedure *B* times. A sequence of *B* pseudo-test values $\{\tilde{t}_{Yb}\}_{b=1}^{B}$ (or $\{\tilde{t}_{Hb}\}_{b=1}^{B}$) is generated. In our empirical investigation, 2500 bootstrap replications are used. Sixth, the null hypothesis of mean equality is rejected at level α if the condition $t_Y \in \left[\tilde{t}_{Y\alpha}, \tilde{t}_{Y(1-\alpha)}\right]$ is not satisfied, with $\tilde{t}_{Y\alpha}$ and $\tilde{t}_{Y(1-\alpha)}$ representing the lower α and upper $(1-\alpha)$ percentile of the distribution of $\{\tilde{t}_{Yb}\}_{b=1}^{B}$, respectively.

4. Empirical findings, implications, and regulatory policy recommendation

4.1. Abnormal returns around the Schedule 13D announcement

The results for testing the null hypothesis reflected in (4), namely that the stock market does not respond to the announcement of hedge fund activism initiation based on the information at the Schedule 13D filings announcements, is reported in Table 1a for the market model and the Carhart (1997) model of abnormal returns, and in Table 1b for the GARCH-in-Mean model with the normal distribution and the t-distribution. Tables 1a and 1b report the abnormal stock returns 20 days before and after the announcement date of the Schedule 13D filings, the p-values on the statistical significance of the abnormal returns based on the parametric t-test in (7) (denoted as "p-val"), and the p-value of the non-parametric Wilcoxon signed rank test in (9). The last column in each Table presents the percentage of the positive abnormal returns for the event date.

The results from Table 1a show that over the period (-1, +1) the abnormal returns are statistically different from zero at the 1% level, under both models of abnormal returns. In addition, there is evidence of statistical significance of abnormal returns for a period starting 9 trading days prior to the Schedule 13D date, which is justified by the fact that the hedge fund has a deadline of 10 days to disclose the information. The rejection of the null hypothesis in (4), that the stock market does not respond to the Schedule 13D filings announcements, is supported by both the parametric t-test and the non-parametric Wilcoxon test. The statistically significant abnormal returns to Schedule 13D announcements are positive, suggesting short-term value creation. Table 1b, for the GARCH-in-Mean model under the normal and under the Student's t-distribution, presents very similar results, suggesting statistically significant positive abnormal returns around the Schedule 13D announcement date.

These findings are in line with those of previous studies on U.S. hedge fund activism which, however, were obtained on the basis of either shorter or relatively earlier period. For instance, the results of Brav et al. (2008a) and Brav et al. (2008b) cover the period 2001-2006, whilst

Becht et al. (2017), Bebchuk et al. (2015), Klein and Zur (2008), and Clifford (2008) considered the periods 2000-2010, 1994-2007, 2003-2005, and 1998-2005, respectively. As, according to Klein and Zur (2009), results may differ across samples, the current results, for a period up to 2013 and including events which occurred within the 2007-2009 financial crisis, can be interpreted as extending the earlier results for a recent period which encompasses the turbulent span of a major financial crisis.

4.2. Abnormal returns around voice

The results from testing the null hypothesis (5), namely that the stock market does not respond to voice announcements, are reported in Tables 2a (for the market model and the Carhart model) and 2b (for the GARCH-in-Mean model). The message from these Tables is as follows. Statistically significant, in most cases at the 1% level, abnormal returns exist over the period (0, +4), and on date -9, regardless of the abnormal returns model and the test statistic employed. The abnormal returns are positive, and are approximately 1.11%. Importantly, compared to the abnormal returns around the Schedule 13D, the voice abnormal returns are higher by approximately 64%. Thus, voicing yields short-term value creation[19].

As voicing involves information disclosure about the objectives of the hedge fund activists, it is also related to the literature on mandatory disclosure of information in financial markets which is at the forefront of regulatory efforts to improve market quality. There is an ongoing discussion about the limits and costs of mandatory disclosure as well as about the challenges faced by policymakers with regard to mandatory disclosure (Enriques and Gilotta, 2015). Several studies have found that information disclosure, in general, creates value to shareholders (Akhigbe and Martin, 2006). Our findings are in line with such findings. However, our findings go further in suggesting that the two-step mechanism of disclosure of hedge fund activism (disclosure at Schedule 13D and disclosure at voice, at two chronologically different dates) may create anticipation by stock market participants of arbitrage profits. Although some benefits of disclosure do exist (like shareholder value creation), much has been written about potential unintended consequences of disclosure leading authors to search for an *optimal* level of disclosure in terms of promoting market

[19] As our objective is to illustrate the role of voicing in short-term value creation, exploring the long-term effects of voicing is not in the scope of this paper. Long-term effects of hedge fund activism around the Schedule 13D announcement have been explored in the literature with rather conflicting results. Cremers et al. (2015) contends that long-term effects may be endogenous and value increases might be attributable to market mechanisms other than hedge fund activism, whilst Bebchuk et al. (2015) suggest that positive long-term value effects exist which are in line with the identified short-term effects.

quality. Goldstein and Yang (2017) argued that one form of disclosure regulation is when investors are required to disclose information about their holdings in firms that might pertain to activism or intentions of activism, which is exactly the case of voicing examined here. Our results point at two chronologically different but linked (through mandatory regulation) event dates of hedge fund activism, which creates stock market inefficiencies and arbitrage and reduces instead of improving market quality.

These results show that the news disclosed at voice entails information revelation which is reflected into the stock market by a positive response. According to Suominen (2001), information revelation has empirical implications related to conditional volatility (i.e. GARCH-type), which justifies the adoption of the GARCH-in-Mean model for abnormal returns[20]. Furthermore, as the average voice date comes chronologically after the average Schedule 13D announcement date, the anticipation by market participants of subsequent voicing, created by the Schedule 13D announcement, can result in arbitrage due to the positive abnormal returns around voicing identified in our results. This point is related to the contention that there are many aspects to consider when evaluating the effects of information disclosure and the optimal regulation of the level and form of disclosure (Goldstein and Yang (2017, p. 122)).

4.3. Difference between abnormal returns of Schedule 13D and voice

We next turn to testing the hypotheses in (10)-(12), namely that the market reacts differently to the Schedule 13D and voice events. The results are reported in Tables 3a (market and Carhart models) and 3b (GARCH-in-Mean). The Tables report the test results of the difference between the average standardized abnormal returns of the voice and the average standardized abnormal returns of the Schedule 13D filing dates. In hypotheses (10)-(12), μ'_{Vt} denotes the average standardized abnormal returns of the voice, while μ'_{St} denotes the average abnormal returns of the Schedule 13D filings dates. We report the p-value of the t-statistic when the alternative hypothesis is $H_1 : \mu'_{Vt} - \mu'_{St} \neq 0$ (Hypothesis in (10)). In those Tables, "p-val right" denotes the p-value of the t-statistic when the alternative hypothesis is $H_1 : \mu'_{Vt} - \mu'_{St} > 0$ (Hypothesis in (11)) and "p-val left" denotes the p-value of the t-statistic when the alternative hypothesis is $H_1 : \mu'_{Vt} - \mu'_{St} < 0$ (Hypothesis in (12)).

The results suggest that, based on the "p-val", the difference of the abnormal returns is statistically significant over the period (+1, +3) under all 3 models of abnormal returns. Based

[20] Based on this contention, we will address the additional aspect of asymmetric conditional volatility using EGARCH and GARCH-GJR models in the following section for robustness.

on the "p-val right", the statistically significant difference reveals that the abnormal returns of voice are significantly higher than the returns of Schedule 13D[21]. These results indicate that the announcement made and information disclosed at the Schedule 13D does not reveal the full but only partial information, with the remainder of information being revealed at voice.

Our previous finding that the abnormal returns of voice are significantly higher than the returns of Schedule 13D is supported by the heteroscedasticity-robust tests of Yuen (1974), and Guo and Luh (2000). As shown in Tables 3c (for the market model), 3d (for the Carhart model), and 3e (for the GARCH-in-Mean model), both the Yuen (1974) and the Guo and Luh (2000) tests indicate that the abnormal returns of voice are different from the Schedule 13D returns (based on the p-val); moreover, the former are higher that the latter (based on the p-val right). The information disclosed at voice does reveal further news which is important and reflected in the market, supporting the conjecture that voice is related to information revelation in the U.S. stock market. Finally, this statistically significant difference between the voice and the Schedule 13D abnormal returns is approximately 0.4%, and is interpreted as an average arbitrage profit that can be obtained between the two dates.

These findings are in line with the dynamic trading models of Kyle (1985) and Ostrovsky (2012). Information revelation occurs when an informed trader, through his actions, takes advantage of his information and eventually moves the price of the stock to its correct value (Ostrovsky (2012)). In Kyle's (1985) dynamic trading model, the informational content of prices is examined along with the value of information to an informed trader, and price innovations are modelled as a consequence of information revelation with the informed trader acting in such a way so that his information is incorporated into prices. In our framework, the informed trader is the hedge fund and his actions include the hedge fund activism and information disclosure at both the Schedule 13D and the voice date. Our results are an empirical manifestation of Kyle's findings, in which hedge fund (informed trader) through hedge fund activism information revelation actions moves the security price to a new level.

4.4 Abnormal returns of voice when voicing leads Schedule 13D filings

As our sample records both the voice and the Schedule 13D dates, we identify 93 voice events which chronologically took place prior to the Schedule 13D filing date by 10 trading days or

[21] Based on the "p-val left", the Schedule 13D returns are higher than the voice returns over the period (-9,-7). This is consistent with the fact that filers have a 10-day window to file their beneficial ownership, and with hedge funds building their beneficial ownership stake gradually before the Schedule 13D filing.

less. The voice abnormal returns over the period (-20, +20) for the events are calculated using the 3 models, and results are reported in Table 3f. Based on inference from both the parametric and the non-parametric Wilcoxon tests, the results show that, at the 5% level, there exist statistically significant abnormal returns 1 trading day prior to the voicing date (-1), under all 3 models. These returns are positive, in line with the previously documented results in Tables 2a and 2b. The main message which emerges is that voicing on its own creates short-term value, and not necessarily as a result of the Schedule 13D filing. Markets respond to hedge fund voicing, regardless of whether this occurs prior to or after the Schedule 13D, which signals significant voice-related information revelation.

4.5. Abnormal returns of non-voice, and testing the difference between voice and non-voice

As hedge funds aim to change the strategy, the management, or the governance of a target company, they may get in conflict with the managers or the dominant shareholders who control the target company (Pacces (2016)). The choice between voicing and non-voicing (i.e. exiting the target firm) can be the outcome of this conflict as a rational decision by the hedge fund activist. This decision is dependent on whether the hedge fund can influence the target, whether the hedge fund needs to influence the target, or whether the expected gain of influencing the target exceeds the cost. Parameters which affect this choice include the extent to which the target firm already operates at maximum performance, and the degree to which other investors in the target firm are dissatisfied with the management (Admati and Pfleidere (2009); Kedia et al. (2017)).

The results from testing the null hypothesis in (6), regarding the abnormal returns of non-voicing, are reported in Tables 4a (market model and the Carhart model) and 4b (GARCH-in-Mean). The results indicate that non-voice is also related to positive abnormal returns over the period (-1, +1). These results are qualitatively similar to those reported in Tables 1a and 1b for the full sample of Schedule 13D announcements. Positive abnormal returns for non-voice could be interpreted as suggesting that the hedge fund activist, after monitoring the firm's operations, realizes that there is no scope of improving action. As contended by Brav et al. (2008b, p. 1748), some hedge fund activists hope to facilitate value enhancing changes in the target company as minority shareholders without taking control of the target firm's board of directors. Non-voicing may signal to the stock market that the target firm's value is already high enough so no value enhancing changes can be made. This can be the case when the target firm is already at an optimum level in terms of operations, strategy, etc, and the hedge fund activist has nothing more to offer (hence the non-voice) and exits the minority stake.

The positive abnormal returns may also be attributed to a relatively small degree of dissatisfaction of other institutional investors in the target firm (Kedia et al. (2017)). The fact that the existing management is strong and in close agreement regarding its vision about the future of the firm. So, the hedge fund's exiting from the target firm (non-voicing) is perceived by the market as good news about the target firm's condition or its management.

Another justification of the positive abnormal returns of non-voice (exit) is provided by Admati and Pfleiderer (2009). Over the period from the date of the Schedule 13D to the date of exit, the threat of exit can be a form of activism (Admati and Pfleiderer (2009)). Palmiter (2002, pp. 1437–38) suggests that large shareholders may be able to affect managerial decisions through the "threat (actual or implied) of selling their holdings and driving down the price of the targeted company". If managers' compensation is linked to share prices, and if the exit of a large shareholder has a negative price impact, then the presence of a large shareholder, who is potentially able to trade on private information, may help discipline the management and improve corporate governance (Admati and Pfleiderer (2009)). So, exiting may imply that, through the threat of exit, the objective of improving corporate performance has been accomplished.

Combining the results on positive abnormal returns for voice and non-voice suggests that stock market participants can obtain positive abnormal returns in any state of nature following the Schedule 13D announcement, namely regardless of whether the hedge fund is eventually engaged to the target (voice) or exits (non-voice). This further indicates that the disclosure of information at the Schedule 13D announcement creates anticipation to market participants that, regardless of the eventual voice-exit decision, arbitrage profits (abnormal returns) are to be generated sometime during the course of the hedge fund's holding of the minority stake. In other words, information revelation occurs at either the voice or the exit decision.

We next turn to testing the null hypotheses reflected in (13)-(15), namely that the previously identified abnormal returns for voice and non-voice are different (Hypothesis (13)). If we find that they are, we can test whether the voice returns are higher than the non-voice returns (Hypothesis (14)), or the opposite (Hypothesis (15)). The results are reported in Tables 5a (for the market and the Carhart models) and 5b (for the GARCH-in-Mean model). In line with Table 3a, these Tables report the test results of the difference between the average standardized abnormal returns of the voice and the average standardized abnormal returns of the non-voice. Denoting by μ'_{Vt} the average standardized abnormal returns of the voice and with μ'_{NVt} the average abnormal returns of the non-voice, Tables 5a and 5b report the p-value

of the t-statistic when the alternative hypothesis is ("p-val") $H_1 : \mu'_{Vt} - \mu'_{NVt} \neq 0$. In addition, they report the "p-val right" denoting the p-value of the t-statistic when the alternative hypothesis is $H_1 : \mu'_{Vt} - \mu'_{NVt} > 0$, and the "p-val left" denoting the p-value of the t-statistic when the alternative hypothesis is $H_1 : \mu'_{Vt} - \mu'_{NVt} < 0$.

The results from these Tables suggest that the voice abnormal returns are different from the non-voice returns over the period (0, +3) at the 5% or 1% level, regardless of the abnormal returns model. Thus, Hypothesis (13) is rejected in favour of its alternative. Moving on to identifying which abnormal returns are higher, the "p-val right" indicates that the difference between the voice returns and the non-voice returns is strongly significant over the period (0, +3). Thus, we conclude that the voice average abnormal returns are higher than the non-voice average abnormal returns at the 1% level at or post the event[22]. These findings suggest that the announcement at voice reveals more influential information than the non-voice announcement does. Stock markets respond more aggressively to voice than to Schedule 13D, signalling richer information revelation at voice events.

4.6. Basic implications, and regulatory policy recommendation

As discussed above, there is an ongoing debate on the limits and costs of the regulation of mandatory disclosure in stock markets, and whether this regulation has net positive or negative effects on stock market quality (Enriques and Gilotta, (2015)), Greenstone et al. (2006)). As a consequence, policy makers face the challenge of searching for an *optimal* level of disclosure in terms of promoting market quality (Goldstein and Yang (2017)). Our results have implications for regulation specifically related to mandatory disclosure of hedge fund activism events, and for policy making. The voice date and the Schedule 13D date, which in general do not coincide, are two important hallmarks of mandatory disclosure in regulation for the hedge fund activism. We find that both dates, and not only the Schedule 13D date, are important in short-term value creation. In addition, disclosure of non-voice is also related to value creation. All of these cases of value creation involve positive abnormal returns around the corresponding event dates. The positive abnormal returns at Schedule 13D events, voice events, and non-voice events, in conjunction with the fact that these events are disclosed at different dates, indicate opportunities for arbitrage. Arbitrage is detrimental for the U.S. stock market quality. However, in principle, mandatory disclosure regulation should aim at improving, not decreasing, stock market quality. Therefore, based on the criterion of

[22] For the period (-10, -7), there is evidence that the non-voice returns are higher than the voice returns. This is consistent with the fact that filers have a 10-day window to file their beneficial ownership, and they build their beneficial ownership before the Schedule 13D filing release.

promoting stock market quality, our findings point to the need of revisiting the way that hedge fund activism related information is disclosed in the stock market. This need is also in line with legal scholars' recommendations for significant modification of U.S. securities markets regulation (Mahoney, (1997), Romano (1998), Palmiter (1999)).

One way of restructuring the mechanism of mandatory disclosure of information for hedge fund activism events is the introduction of gradual disclosure of information on hedge fund activism. Under such an arrangement, regulators would require hedge fund activists to file several 'progress reports' or 'preliminary intention reports' at fixed time intervals until their final decision to voice or non-voice. In these reports, they will update market participants on their intention to engage into or exit from the target firm. In this way, instead of the full voice/non-voice information reaching the market at only one day (i.e. the event day), gradual dissemination of information may reduce the positive abnormal returns around the voice and non-voice dates, limit arbitrage opportunities, and thus improve market quality. Gradual dissemination means that market participants would act on several dates (the dates corresponding to the disclosure of the various 'preliminary intention reports') and not necessarily only on the one date corresponding to the one-off event disclosure (Schedule 13D date or voice date or non-voice date). This would reduce the number of market participants acting only on the event date and thus, reduce the amount of abnormal returns on that date. In addition, within the framework of Kyle (1985), gradual dissemination means that the single informed trader (hedge fund activist) would, due to gradual information revelation, have less power to drive through his one-off action (e.g. disclosure of voice or non-voice) the price to a new level. Importantly, this regulatory policy recommendation is in line with the research design of the Securities Act Amendments of 1964 which points to 'gradual dissemination of news' by firms filing with the SEC (Greenstone et al., (2006), page 415).

5. Robustness

5.1. Asymmetric (leverage) volatility effects and GARCH models for abnormal returns

Suominen (2001) has shown that information revelation in stock markets suggests that the expected price variability looks similar to a conditional variance GARCH-type model. In this section, we add another aspect of modeling time-varying volatility, namely allowing for asymmetric or leverage effects in the GARCH model, namely for the fact that negative shocks have a greater impact on stock return volatility than positive shocks. The most well-known GARCH-type models incorporating asymmetric effects are the exponential GARCH (EGARCH) (Nelson, 1991) and the GARCH-GJR (Glosten et al. 1993).

Under the EGARCH representation of the conditional variable, the expected returns evolve as

$$R_{it} = a_0 + \beta_1\left(R_{mt} - R_{ft}\right) + \beta_2 SMB_t + \beta_3 HML_t + \beta_4 MOM_t + \beta_5\sqrt{h_{it}} + u_{it}, \tag{24}$$

$$u_{it} = \xi_{it}\left(h_{it}\right)^{1/2}, \tag{25}$$

$$\log\left(h_{it}\right) = k_0 + \gamma_1 S\left(\frac{\left|u_{it-1}\right|}{\left(h_{it-1}\right)^{1/2}}\right) + \gamma_2\left(\frac{u_{it-1}}{\left(h_{it-1}\right)^{1/2}}\right) + \gamma_3 \log\left(h_{it-1}\right), \tag{26}$$

where $\{\xi_{it}\}$ is a sequence of independent and identically distributed as Student's t with unknown degrees of freedom random variables, $S\left(\frac{\left|u_{it-1}\right|}{\left(h_{it-1}\right)^{1/2}}\right) = \frac{\left|u_{it-1}\right|}{\left(h_{it-1}\right)^{1/2}} - \left(\frac{k-2}{\pi}\right)^{1/2}\frac{\Gamma\left(\frac{k-1}{2}\right)}{\Gamma\left(\frac{k}{2}\right)}$, k are the degrees of freedom, $\Gamma(.)$ is the Gamma function, and $\{h_{it}\}$ is the sequence of conditional variances which evolve as an EGARCH(1,1) process. Thus, abnormal returns are calculated based on the EGARCH-in-Mean model reflected in (24)-(26). The constant k_0 and the coefficients $\gamma_i, i = 1,2,3,$ are estimated using the quasi-maximum likelihood method.

Under the GARCH-GJR model, the following representation is considered:

$$R_{it} = a_0 + \beta_1\left(R_{mt} - R_{ft}\right) + \beta_2 SMB_t + \beta_3 HML_t + \beta_4 MOM_t + \beta_5\sqrt{h_{it}} + u_{it}, \tag{27}$$

$$u_{it} = \xi_{it}\left(h_{it}\right)^{1/2}, \tag{28}$$

$$h_{it} = k_0 + \gamma_1 u_{it-1}^2 + \gamma_2 h_{it-1} + \gamma_3 I\{u_{it-1} < 0\}u_{it-1}^2, \tag{29}$$

where $\{\xi_{it}\}$ is a sequence of random variables which are assumed to be independent and identically distributed as Student's t with unknown degrees of freedom, $I\{u_{it-1} < 0\}$ is an indicator function that assigns the value 1 when $u_{it} < 0$ and 0 otherwise, and $\{h_{it}\}$ is the sequence of conditional variances. Thus, abnormal returns are calculated based on the GJR-GARCH-in-Mean model reflected in (27)-(29). All models are estimated using the quasi-maximum likelihood method.

The empirical results are reported in Table 6 for the Schedule 13D abnormal returns, Table 7 for the voice abnormal returns and Table 8 for the non-voice abnormal returns. Each Table

reports both the parametric and the non-parametric Wilcoxon signed rank test p-values. As shown in Table 6, the Schedule 13D abnormal returns, based on the EGARCH-in-Mean and the GJR-GARCH-in-Mean models with the Student's t-distribution, are statistically significant for the periods (-1, +1) at the 1% level of significance. These findings are exactly the same as those reported in Tables 1a and 1b for the market model, the Carhart model, and the simple GARCH-in-Mean model. Thus, the results on the significance of the Schedule 13D abnormal returns are robust to asymmetric conditional variance effects[23].

Similar results are obtained from Table 7 for the voice abnormal returns. Under both the EGARCH-in-Mean and the GJR-GARCH-in-Mean models, the voice abnormal returns are different from 0 and positive over the period (0, +4) at either the 5% or the 1% level, based on both the parametric and the non-parametric tests. These findings are very similar to those under the previously examined three models in Tables 2a and 2b. Finally, Table 8, for the non-voice abnormal returns, indicates that these returns are different from 0 over the period (-1, +1) under both models based on the parametric test[24].

The main message from these robustness checks is as follows: Volatility clustering is the main empirical implication of information revelation (Suominen (2001)). This clustering may carry (especially in stock returns) an additional empirical characteristic, namely asymmetry (or leverage effects) (Nelson (1991); Glosten et al. (1993)). We illustrate that results on the statistical significance of abnormal returns around primarily the voice events (as well as around the Schedule 13D and non-voice events) are robust to both volatility clustering and leverage effects.

Finally, based on the EGARCH-in-Mean and GJR-GARCH-in-Mean models, we proceed to testing the difference between the Schedule 13D abnormal returns and voice returns, and the difference between the voice abnormal returns and the non-voice returns. The results are reported in Table 9 for the former tests and Table 10 for the latter tests. In line with Table 3a, we report the p-value of the t-statistic when the alternative hypothesis is $H_1 : \mu'_{Vt} - \mu'_{St} \neq 0$, the "p-val right" which denotes the p-value of the t-statistic when the alternative hypothesis is $H_1 : \mu'_{Vt} - \mu'_{St} > 0$, and the "p-val left" which denotes the p-value of the t-statistic when the alternative hypothesis is $H_1 : \mu'_{Vt} - \mu'_{St} < 0$. As shown in the "p-val right" column of Table 9, the

[23] The parametric test also indicates significance over the period (-9, +5) whilst the non-parametric test shows only limited evidence of significance over parts of the former period.
[24] Using the non-parametric Wilcoxon test, the abnormal returns are significant only on day -1.

voice abnormal returns are higher than the Schedule 13D abnormal returns over the period (+1, +3) at the 1% or 5% level[25].

Turning to the difference between voice and non-voice abnormal returns, Table 10 shows that over the period (0, +4) the voice returns are higher than the non-voice returns[26]. These findings are in line with those under the market model, the Carhart model, and the simple GARCH-in-Mean model, and suggest that our results are robust to models of abnormal returns allowing for richer empirical characteristics in the time-varying volatility process.

5.2. Further evidence from alternative non-parametric statistical procedures

To assess the robustness of our results to alternative inferential statistical procedures, we employ the rank test procedure of Corrado (1989), and Corrado and Zivney (1992). This is a non-parametric procedure which is based on the transformation of all the combined estimation window and event period abnormal returns into their respective ranks. The test statistic is defined as

$$t_{R,t} = \frac{\frac{1}{N'}\sum_{i=1}^{N'}\left(SK_{it} - 0.5\right)}{\sigma\left(SK\right)} \tag{30}$$

where $SK_{it} = \frac{K\left(AR_{it}\right)}{1+W_i}$, W_i is the number of non-missing returns of both estimation and event window for stock *i*, and N' is the number of non-missing returns across stocks. The standard deviation is defined as

$$\sigma\left(SK\right) = \sqrt{\frac{1}{L}\sum_{t=T_0}^{T_2}\left[\frac{1}{N'}\sum_{i=1}^{N'}\left(SK_{it} - 0.5\right)\right]^2} \tag{31}$$

where L is the length of both estimation and event windows, T_0 is the first day of the estimation window, and T_2 is the last day of the event window. Under the null hypothesis that the average abnormal returns at event day t are equal to zero, the test statistic $t_{R,t}$ is distributed as standard normal. A fixed length estimation window is used to calculate the abnormal returns and the Corrado rank statistics at each event day. Estimation windows of

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[25] As indicated in the "p-val left" column, the Schedule 13D abnormal returns are higher than the voice returns over the period (-9, -7). This is in line with the results in Table 3a, and is consistent with the fact that filers have a 10-day window to file their beneficial ownership and build their beneficial ownership to the target company before the Schedule 13D filing release.

[26] In line with the previously reported results in Tables 5a and 5b, over the period (-10, -7), non-voice abnormal returns are higher than voice abnormal returns.

length equal to 198, 212, and 212 observations are selected for the voice, the Schedule 13D, and the non-voice event-based stocks, respectively.

The results are reported in Tables 11, 12, and 13, for the Schedule 13D, voice and non-voice abnormal returns respectively. These Tables show that voicing is associated with statistically significant at the 5% abnormal returns over the period (-2, +5) irrespective of the abnormal returns model employed. In contrast, for Schedule 13D events, there is limited evidence of abnormal returns at the 10% level at best, and under only the GARCH, EGARCH and GJR-GARCH models. For the non-voice events, there is even scarcer evidence of abnormal returns only under the GARCH model and at the 10% level. These results signal that the voice events carry richer news compared to the other two types of events, and yield richer information revelation to which stock market participants are more highly respondent.

6. Conclusions

This paper emphasizes the role of voicing in hedge fund activism. We construct a hand-collected large data set of 205 U.S. hedge funds and 1031 activist events over the period 2005-2013, and record both the Schedule 13D filing date and the voice date. We reveal that the voice date is important in creating short-term firm value, and provide strong evidence that voicing in hedge fund activism is associated with positive abnormal returns. The abnormal returns around the voicing date are approximately 1.11%, and are higher than the abnormal returns around the Schedule13D date by approximately 64%. In addition, positive abnormal returns due to voicing are found even when voicing leads the Schedule 13D event. Therefore, voicing on its own creates short-term value, and not necessarily as a result of the Schedule 13D filing. Markets respond to hedge fund voicing, regardless of whether this occurs prior to or after the Schedule 13D, which signals significant information revelation. The results are robust to alternative models of abnormal returns and inferential statistical procedures.

These findings are interpreted as evidence that the U.S. stock market response to Schedule 13D events is smaller than that to voice events. Furthermore, the disclosures at the voice date and Schedule 13D date create information revelation and may form a mechanism for arbitrage. The latter point highlights the need for a closer look at hedge fund activism disclosure regulation in the U.S. stock market, in order to achieve the primary goal of mandatory regulation which is stock market quality improvement.

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Figure 1: Average abnormal returns of Schedule 13D filings

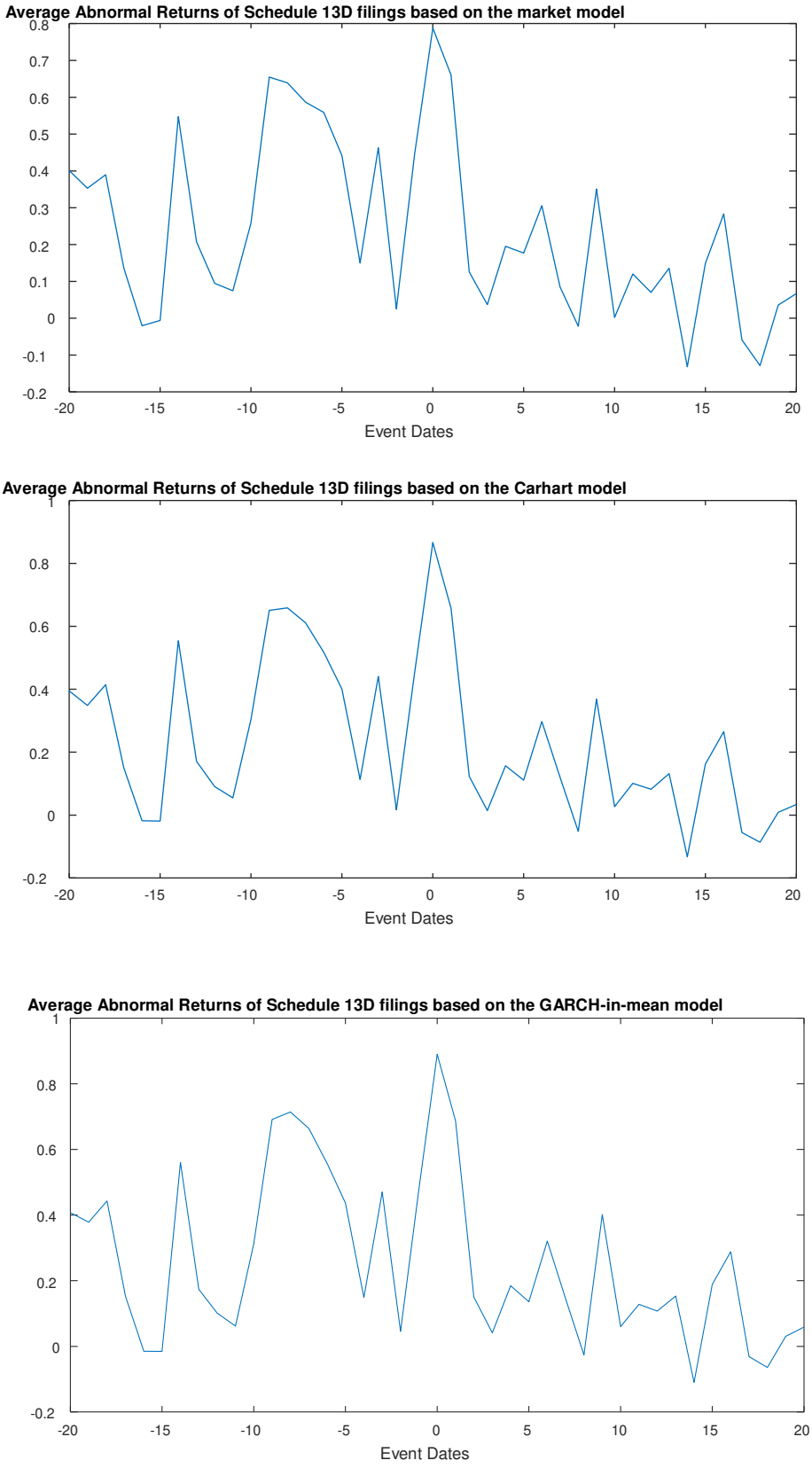
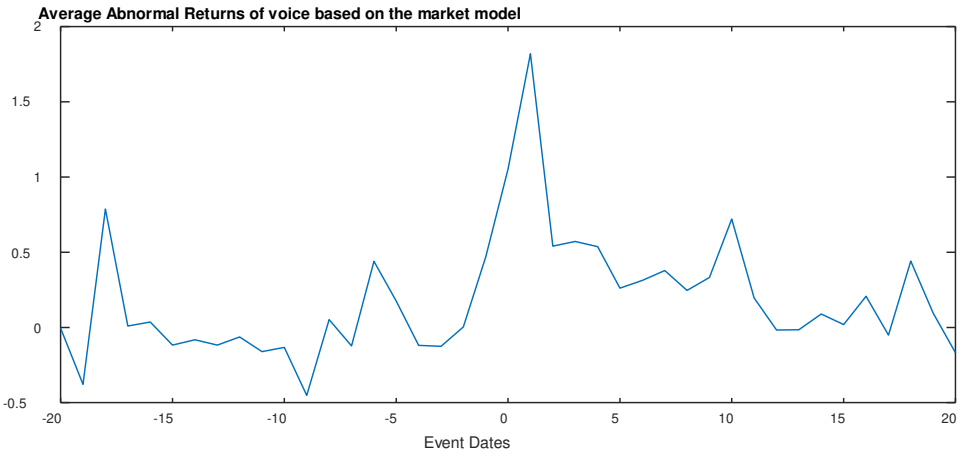
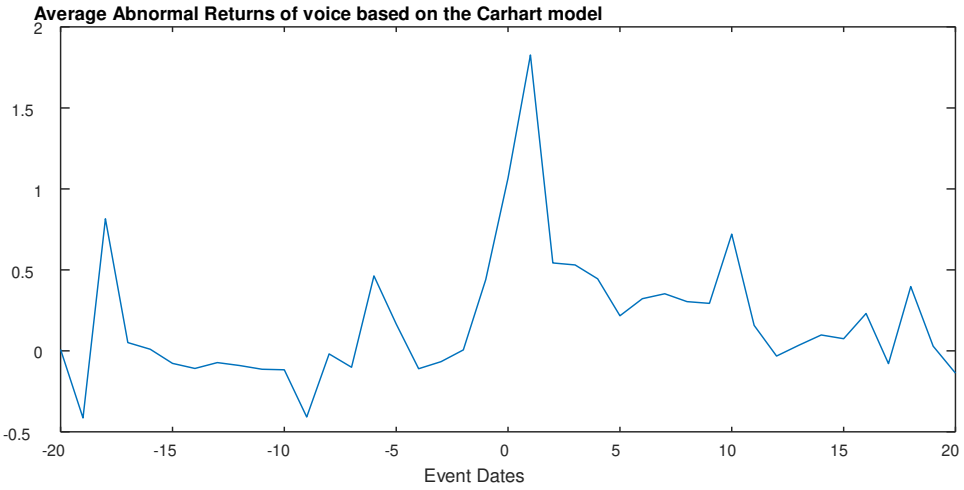


Figure 2: Average abnormal returns of voice





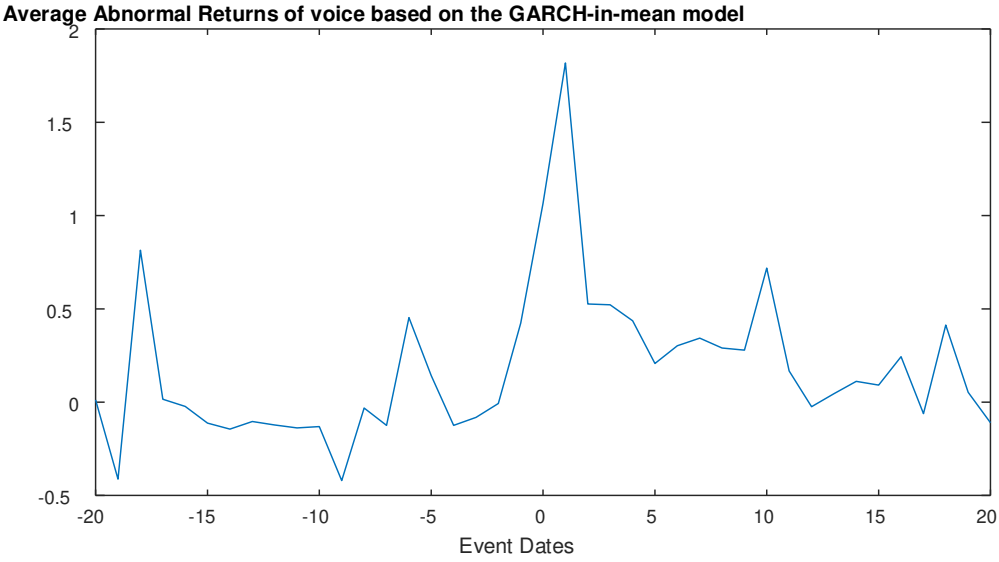
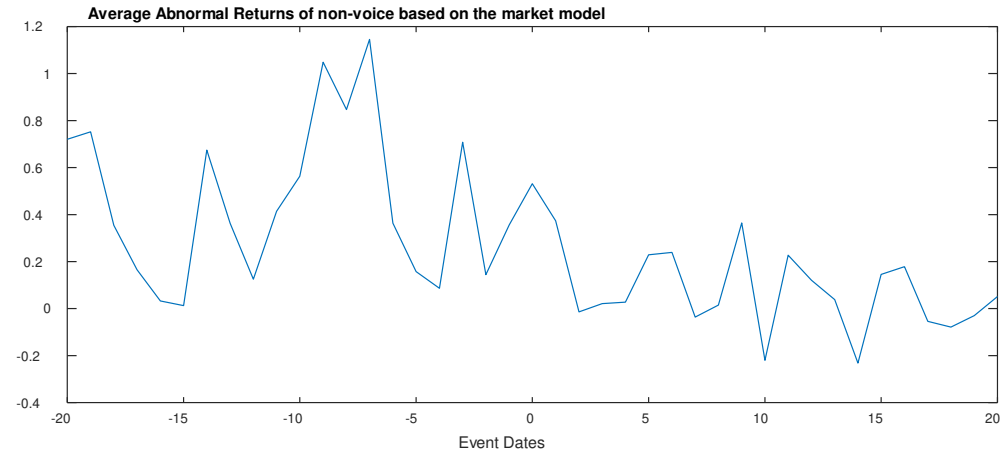
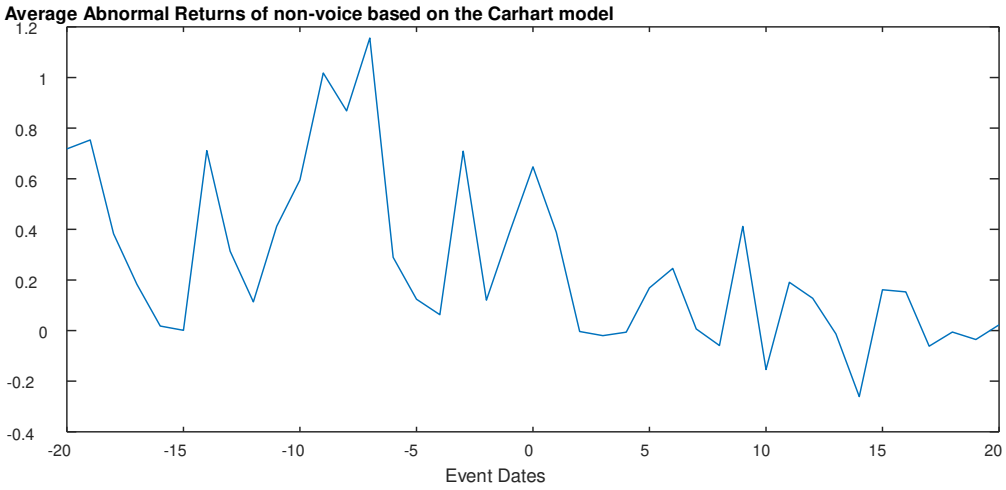


Figure 3: Average abnormal returns of non-voice





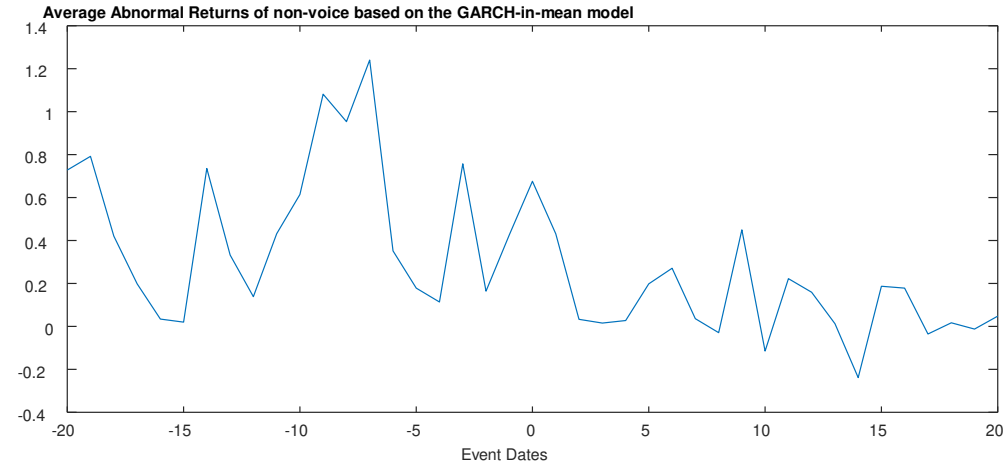


Table 1: Descriptive statistics of the stock returns (in %)

	All	Schedule 13D			voice			non-voice		
		$(-20, T_0)$	$(T_0, 0)$	$(T_0, 20)$	$(-20, T_0)$	$(T_0, 0)$	$(T_0, 20)$	$(-20, T_0)$	$(T_0, 0)$	$(T_0, 20)$
Mean	0.041	0.049	0.056	0.057	0.030	0.033	0.037	0.060	0.069	0.069
Median	0.000	-0.018	-0.016	-0.014	-0.032	-0.029	-0.029	-0.010	-0.007	-0.005
Standard Deviation	2.623	3.129	3.177	3.175	3.058	3.087	3.097	3.199	3.259	3.249
Kurtosis	62.651	17.690	20.680	21.135	15.889	16.571	17.233	19.398	24.431	24.779
Skewness	1.985	0.661	0.870	0.901	0.465	0.479	0.544	0.807	1.183	1.194
Minimum	-24.713	-19.775	-20.038	-20.172	-20.038	-20.584	-20.757	-19.853	-20.014	-20.085
Maximum	38.477	24.036	26.468	26.871	22.043	22.904	23.627	25.647	29.167	29.320
Number of stocks	1025		770			283			487	

Notes: The table reports summary statistics of all stock returns and for the stock returns that comprise each event-based category. Stock returns are computed as the logarithmic first differences of the corresponding stocks, multiplied by 100. The summary statistics for each event-based category are calculated by using three different sample windows; the first covers the period from the first available observation to twenty trading days before the event day, $(-20, T_0)$; the second from the first available observation to the event day, $(T_0, 0)$; and the third from the first available observation to twenty trading days after the event day, $(T_0, 20)$. T_0 represents the first day of the estimation sample window. -20 denote 20 trading days before the event day; 0 denotes the event day; 20 denotes 20 trading days after the event day.

Table 1a: Abnormal returns of Schedule 13D filings

Models	Market model			Carhart model			% of
Event Day	AR	p-val	p-val (Wilcoxon)	AR	p-val	p-val (Wilcoxon)	+ARs
-20	0.401	0.056*	0.297	0.395	0.061*	0.261	45.325
-19	0.353	0.176	0.021**	0.349	0.180	0.025**	44.805
-18	0.389	0.260	0.003***	0.415	0.231	0.012**	43.117
-17	0.136	0.362	0.249	0.150	0.313	0.482	45.325
-16	-0.021	0.887	0.072*	-0.018	0.901	0.145	45.455
-15	-0.006	0.969	0.307	-0.019	0.907	0.274	46.883
-14	0.547	0.000***	0.291	0.554	0.000***	0.174	48.182
-13	0.207	0.367	0.002***	0.171	0.458	0.001***	43.506
-12	0.095	0.479	0.670	0.091	0.493	0.752	48.442
-11	0.075	0.682	0.020**	0.055	0.758	0.062*	44.416
-10	0.258	0.310	0.008***	0.304	0.232	0.026**	43.636
-9	0.655	0.013**	0.435	0.651	0.013**	0.670	47.013
-8	0.639	0.009***	0.478	0.659	0.007***	0.255	49.091
-7	0.587	0.040**	0.745	0.611	0.031**	0.951	47.532
-6	0.559	0.001***	0.009***	0.517	0.003***	0.041**	52.727
-5	0.442	0.003***	0.024**	0.401	0.006***	0.147	51.299
-4	0.150	0.209	0.414	0.113	0.343	0.748	51.169
-3	0.463	0.125	0.557	0.441	0.145	0.700	50.260
-2	0.025	0.897	0.279	0.017	0.931	0.321	45.714
-1	0.445	0.001***	0.004***	0.452	0.001***	0.003***	52.078
0	0.788	0.000***	0.000***	0.867	0.000***	0.000***	53.117
1	0.661	0.000***	0.000***	0.657	0.000***	0.000***	52.857
2	0.125	0.308	0.275	0.123	0.321	0.402	42.857
3	0.037	0.748	0.256	0.014	0.898	0.163	45.195
4	0.195	0.127	0.654	0.157	0.205	0.424	46.364
5	0.177	0.148	0.417	0.111	0.361	0.846	49.221
6	0.306	0.142	0.414	0.297	0.150	0.428	46.104
7	0.085	0.636	0.050*	0.120	0.501	0.294	44.156
8	-0.022	0.878	0.149	-0.052	0.713	0.216	46.234
9	0.351	0.119	0.122	0.368	0.101	0.109	52.078
10	0.002	0.988	0.523	0.027	0.831	0.615	47.273
11	0.120	0.426	0.033**	0.101	0.496	0.048**	44.675
12	0.070	0.675	0.169	0.082	0.626	0.171	46.883
13	0.135	0.363	0.600	0.132	0.379	0.732	49.221
14	-0.132	0.318	0.048**	-0.132	0.323	0.049**	45.584
15	0.149	0.231	0.755	0.162	0.191	0.633	47.532
16	0.283	0.041**	0.466	0.265	0.053*	0.652	45.844
17	-0.059	0.587	0.107	-0.056	0.609	0.139	46.234
18	-0.129	0.330	0.081*	-0.086	0.511	0.369	46.364
19	0.036	0.752	0.039**	0.009	0.938	0.056*	43.636
20	0.067	0.584	0.477	0.034	0.783	0.350	47.013

Notes: This table reports the abnormal stock returns 20 days before and after the Schedule 13D filing date. Two models are used to compute the abnormal returns, namely the market model, and the Carhart model. We also report the p-values on the statistical significance of the abnormal returns, in particular the p-value of the parametric test (denoted as "p-val"), and the p-value of the Wilcoxon signed rank test. Last column presents the percentage of the positive abnormal returns for each event date. * indicates statistical significance at level 10%; ** indicates statistical significance at level 5%;*** indicates statistical significance at level 1%.

Table 1b: Abnormal returns of Schedule 13D filings

Models	GARCH-in-Mean with normal distribution			GARCH-in-Mean with Student's t distribution			% of +ARs
Event Day	AR	p-val	p-val (Wilcoxon)	AR	p-val	p-val (Wilcoxon)	
-20	0.408	0.049**	0.263	0.407	0.050**	0.242	47.402
-19	0.383	0.146	0.033**	0.379	0.151	0.034**	44.026
-18	0.450	0.192	0.028**	0.443	0.199	0.022**	43.506
-17	0.161	0.285	0.473	0.152	0.313	0.469	46.883
-16	-0.005	0.975	0.186	-0.015	0.920	0.165	45.324
-15	-0.005	0.975	0.260	-0.015	0.925	0.231	46.363
-14	0.570	0.000***	0.124	0.560	0.000***	0.151	49.220
-13	0.185	0.427	0.001***	0.174	0.454	0.001***	44.935
-12	0.111	0.406	0.611	0.101	0.447	0.685	49.870
-11	0.074	0.682	0.093*	0.062	0.731	0.070*	46.103
-10	0.326	0.208	0.038**	0.313	0.227	0.025**	44.545
-9	0.699	0.011**	0.719	0.691	0.012**	0.678	46.623
-8	0.719	0.004***	0.156	0.714	0.004***	0.178	50.779
-7	0.665	0.019**	0.751	0.664	0.020**	0.797	48.831
-6	0.565	0.001***	0.028**	0.557	0.001***	0.034**	53.376
-5	0.448	0.003***	0.077*	0.437	0.004***	0.098*	50.259
-4	0.158	0.197	0.495	0.149	0.225	0.605	50.649
-3	0.480	0.114	0.548	0.470	0.121	0.582	50.389
-2	0.045	0.819	0.506	0.045	0.817	0.505	47.402
-1	0.481	0.000***	0.001***	0.478	0.000***	0.002***	52.467
0	0.895	0.000***	0.000***	0.890	0.000***	0.000***	53.376
1	0.692	0.000***	0.000***	0.687	0.000***	0.000***	53.116
2	0.156	0.218	0.537	0.150	0.234	0.481	44.545
3	0.048	0.671	0.304	0.041	0.716	0.239	45.584
4	0.191	0.132	0.591	0.185	0.144	0.518	47.013
5	0.143	0.245	0.668	0.136	0.270	0.787	49.480
6	0.328	0.113	0.705	0.321	0.121	0.630	46.883
7	0.148	0.417	0.307	0.145	0.421	0.302	47.272
8	-0.025	0.862	0.253	-0.026	0.854	0.226	46.233
9	0.399	0.079*	0.097*	0.402	0.075*	0.100	52.207
10	0.057	0.647	0.850	0.060	0.628	0.911	48.181
11	0.128	0.395	0.091*	0.128	0.389	0.106	46.103
12	0.109	0.516	0.322	0.107	0.521	0.327	47.662
13	0.157	0.302	0.892	0.153	0.315	0.880	49.740
14	-0.104	0.449	0.087*	-0.110	0.428	0.077*	45.324
15	0.192	0.124	0.855	0.189	0.131	0.799	46.493
16	0.292	0.033**	0.801	0.289	0.035**	0.818	47.792
17	-0.029	0.790	0.218	-0.031	0.773	0.218	47.402
18	-0.061	0.640	0.531	-0.064	0.623	0.563	48.311
19	0.034	0.764	0.122	0.030	0.787	0.123	45.714
20	0.059	0.637	0.606	0.059	0.636	0.648	47.402

Notes: this table reports the abnormal stock returns 20 days before and after the Schedule 13D filing date. The abnormal returns are computed by using the model

$$R_{it} = a_0 + \beta_1\left(R_{mt} - R_{ft}\right) + \beta_2 SMB_t + \beta_3 HML_t + \beta_4 MOM_t + \beta_5\sqrt{h_{it}} + u_{it},$$

where h_{it} are the conditional variances. Two models are used to estimate the conditional variances, namely a GARCH(1,1) model based on normal distribution, and a GARCH(1,1) model based on Student's t distribution with unknown degrees of freedom. We also report the p-values on the statistical significance of the abnormal returns, in particular the p-value of the parametric test (denoted as p-val), and the p-value of the Wilcoxon signed rank test. Last column presents the percentage of the positive abnormal returns for each event date. * indicates statistical significance at level 10%; ** indicates statistical significance at level 5%;*** indicates statistical significance at level 1%.

Table 2a: Abnormal returns of voice

Models	Market model			Carhart model			% of
Event Day	AR	p-val	p-val (Wilcoxon)	AR	p-val	p-val (Wilcoxon)	+ARs
-20	-0.004	0.985	0.565	0.008	0.973	0.551	46.996
-19	-0.378	0.163	0.172	-0.414	0.126	0.104	45.583
-18	0.787	0.367	0.267	0.815	0.350	0.475	46.290
-17	0.010	0.964	0.432	0.051	0.807	0.896	46.643
-16	0.036	0.837	0.705	0.010	0.954	0.655	48.410
-15	-0.117	0.617	0.645	-0.077	0.744	0.945	44.876
-14	-0.081	0.740	0.767	-0.109	0.659	0.992	50.883
-13	-0.117	0.651	0.046**	-0.073	0.780	0.096*	43.816
-12	-0.063	0.778	0.700	-0.091	0.683	0.602	46.290
-11	-0.160	0.498	0.065*	-0.114	0.625	0.153	43.110
-10	-0.132	0.543	0.396	-0.117	0.593	0.505	46.290
-9	-0.452	0.036**	0.012**	-0.408	0.053*	0.041**	43.816
-8	0.052	0.840	0.417	-0.019	0.941	0.238	46.290
-7	-0.123	0.728	0.857	-0.101	0.773	0.912	48.763
-6	0.440	0.219	0.434	0.463	0.195	0.209	51.590
-5	0.175	0.539	0.776	0.165	0.559	0.994	50.530
-4	-0.119	0.628	0.689	-0.110	0.649	0.825	50.530
-3	-0.125	0.644	0.244	-0.067	0.804	0.109	52.650
-2	0.004	0.991	0.892	0.006	0.987	0.545	46.996
-1	0.468	0.110	0.031**	0.440	0.137	0.054*	54.417
0	1.052	0.004***	0.000***	1.067	0.003***	0.000***	59.364
1	1.819	0.000***	0.000***	1.827	0.000***	0.000***	60.071
2	0.541	0.026**	0.293	0.542	0.024**	0.255	51.590
3	0.572	0.023**	0.037**	0.530	0.031**	0.028**	51.590
4	0.537	0.011**	0.014**	0.445	0.030**	0.048**	56.537
5	0.261	0.357	0.731	0.217	0.440	0.958	50.530
6	0.313	0.123	0.416	0.322	0.106	0.328	51.943
7	0.378	0.160	0.978	0.353	0.184	0.914	48.763
8	0.246	0.254	0.724	0.304	0.163	0.766	46.996
9	0.332	0.339	0.329	0.293	0.402	0.471	52.297
10	0.720	0.026**	0.175	0.720	0.025**	0.180	51.237
11	0.195	0.369	0.923	0.157	0.442	0.840	46.996
12	-0.017	0.931	0.950	-0.032	0.861	0.995	50.883
13	-0.016	0.936	0.582	0.035	0.856	0.893	46.996
14	0.089	0.599	0.479	0.098	0.558	0.725	43.110
15	0.019	0.916	0.366	0.075	0.677	0.516	45.583
16	0.207	0.394	0.490	0.231	0.333	0.797	47.703
17	-0.051	0.763	0.561	-0.079	0.631	0.906	52.297
18	0.441	0.098*	0.890	0.397	0.135	0.853	50.177
19	0.096	0.685	0.075*	0.029	0.902	0.047**	42.049
20	-0.168	0.500	0.733	-0.138	0.573	0.969	46.290

Notes: this table reports the abnormal stock returns 20 days before and after the voice date. Two models are used to compute the abnormal returns, namely the market model, and the Carhart model. We also report the p-values on the statistical significance of the abnormal returns, in particular the p-value of the parametric test (denoted as p-val), and the p-value of the Wilcoxon signed rank test. Last column presents the percentage of the positive abnormal returns for each event date. * indicates statistical significance at level 10%; ** indicates statistical significance at level 5%;*** indicates statistical significance at level 1%.

Table 2b: Abnormal returns of voice

Models	GARCH-in-Mean with normal distribution			GARCH-in-Mean with Student's t distribution			% of +ARs
Event Day	AR	p-val	p-val (Wilcoxon)	AR	p-val	p-val (Wilcoxon)	
-20	0.006	0.981	0.534	0.012	0.958	0.555	46.996
-19	-0.419	0.124	0.108	-0.412	0.129	0.122	44.876
-18	0.810	0.353	0.429	0.814	0.351	0.454	46.643
-17	0.010	0.964	0.643	0.016	0.941	0.682	46.643
-16	-0.027	0.883	0.694	-0.023	0.899	0.690	50.883
-15	-0.117	0.622	0.780	-0.112	0.637	0.803	46.996
-14	-0.144	0.555	0.763	-0.144	0.553	0.749	49.470
-13	-0.103	0.691	0.082*	-0.103	0.691	0.080*	45.583
-12	-0.120	0.593	0.464	-0.122	0.586	0.447	47.703
-11	-0.137	0.549	0.120	-0.138	0.549	0.126	45.583
-10	-0.133	0.549	0.486	-0.130	0.556	0.512	47.703
-9	-0.428	0.039**	0.026**	-0.421	0.043**	0.032**	44.170
-8	-0.036	0.886	0.237	-0.031	0.903	0.244	47.703
-7	-0.130	0.713	0.997	-0.124	0.724	0.902	50.177
-6	0.444	0.212	0.221	0.454	0.201	0.195	52.650
-5	0.140	0.619	0.914	0.142	0.612	0.943	48.763
-4	-0.125	0.606	0.740	-0.124	0.611	0.759	50.883
-3	-0.081	0.763	0.131	-0.082	0.762	0.120	56.184
-2	-0.008	0.983	0.583	-0.007	0.984	0.597	50.177
-1	0.424	0.148	0.061*	0.424	0.148	0.063*	53.004
0	1.062	0.004***	0.000***	1.065	0.004***	0.000***	61.131
1	1.813	0.000***	0.000***	1.818	0.000***	0.000***	56.537
2	0.520	0.032**	0.297	0.526	0.031**	0.264	49.823
3	0.511	0.040**	0.037**	0.522	0.036**	0.037**	52.297
4	0.428	0.036**	0.054*	0.437	0.031**	0.051*	53.710
5	0.200	0.477	0.900	0.207	0.462	0.973	48.763
6	0.299	0.131	0.386	0.303	0.127	0.378	55.830
7	0.336	0.205	0.994	0.343	0.193	0.969	50.883
8	0.283	0.194	0.808	0.290	0.186	0.803	49.823
9	0.274	0.443	0.564	0.279	0.437	0.554	49.823
10	0.711	0.032**	0.201	0.718	0.031**	0.181	51.590
11	0.158	0.458	0.867	0.167	0.436	0.821	48.057
12	-0.034	0.853	0.909	-0.024	0.895	0.976	48.763
13	0.033	0.861	0.820	0.045	0.813	0.891	48.410
14	0.098	0.566	0.817	0.112	0.514	0.878	45.936
15	0.078	0.665	0.609	0.092	0.614	0.674	46.643
16	0.232	0.326	0.767	0.244	0.302	0.881	51.237
17	-0.078	0.640	0.865	-0.061	0.713	0.713	50.530
18	0.398	0.136	0.884	0.414	0.119	0.821	48.057
19	0.035	0.884	0.048**	0.053	0.827	0.056*	40.989
20	-0.126	0.597	0.913	-0.110	0.643	0.955	47.703

Notes: this table reports the abnormal stock returns 20 days before and after the voice date. The abnormal returns are computed by using the model $R_{it} = a_0 + \beta_1\left(R_{mt} - R_{ft}\right) + \beta_2 SMB_t + \beta_3 HML_t + \beta_4 MOM_t + \beta_5\sqrt{h_{it}} + u_{it}$,

where h_{it} are the conditional variances. Two models are used to estimate the conditional variances, namely a GARCH(1,1) model based on normal distribution, and a GARCH(1,1) model based on Student's t distribution with unknown degrees of freedom. We also report the p-values on the statistical significance of the abnormal returns, in particular the p-value of the parametric test (denoted as p-val), and the p-value of the Wilcoxon signed rank test. Last column presents the percentage of the positive abnormal returns for each event date. * indicates statistical significance at level 10%; ** indicates statistical significance at level 5%;*** indicates statistical significance at level 1%.

Table 3a: Testing for the difference between the standardized abnormal returns of Schedule 13D filings and voice

Models	Market Model				Carhart Model			
Event Day	t-test	p-val	p-val right	p-val left	t-test	p-val	p-val right	p-val left
-20	-1.102	0.271	0.864	0.136	-1.087	0.277	0.861	0.139
-19	-2.215	0.027**	0.987	0.013***	-2.334	0.020**	0.990	0.010**
-18	0.406	0.685	0.342	0.658	0.379	0.705	0.352	0.648
-17	-0.803	0.422	0.789	0.211	-0.747	0.455	0.772	0.228
-16	0.311	0.756	0.378	0.622	0.152	0.879	0.439	0.561
-15	-0.970	0.333	0.834	0.166	-0.729	0.466	0.767	0.233
-14	-1.747	0.081*	0.959	0.041***	-1.753	0.080*	0.960	0.040**
-13	-0.867	0.386	0.807	0.193	-0.647	0.518	0.741	0.259
-12	-1.124	0.261	0.869	0.131	-0.985	0.325	0.837	0.163
-11	-0.588	0.557	0.722	0.278	-0.367	0.714	0.643	0.357
-10	-1.185	0.236	0.882	0.118	-1.231	0.219	0.891	0.109
-9	-3.467	0.001***	1.000	0.000***	-3.359	0.001***	1.000	0.000***
-8	-1.654	0.098*	0.951	0.049**	-1.914	0.056*	0.972	0.028**
-7	-1.466	0.143	0.928	0.072*	-1.517	0.130	0.935	0.065*
-6	-0.706	0.481	0.760	0.240	-0.448	0.654	0.673	0.327
-5	-0.531	0.595	0.702	0.298	-0.393	0.695	0.653	0.347
-4	-1.206	0.229	0.886	0.114	-1.033	0.302	0.849	0.151
-3	-0.854	0.394	0.803	0.197	-0.631	0.529	0.736	0.264
-2	-0.782	0.435	0.783	0.217	-0.805	0.421	0.789	0.211
-1	0.246	0.806	0.403	0.597	0.141	0.888	0.444	0.556
0	1.597	0.111	0.056*	0.944	1.419	0.157	0.078*	0.922
1	3.230	0.001***	0.001***	0.999	3.195	0.002***	0.001***	0.999
2	1.848	0.065*	0.033**	0.967	1.912	0.057*	0.028**	0.972
3	2.491	0.013**	0.007***	0.993	2.579	0.010**	0.005***	0.995
4	0.967	0.334	0.167	0.833	0.615	0.539	0.269	0.731
5	0.062	0.950	0.475	0.525	-0.012	0.990	0.505	0.495
6	0.060	0.952	0.476	0.524	0.041	0.967	0.484	0.516
7	0.854	0.394	0.197	0.803	0.602	0.547	0.274	0.726
8	0.959	0.338	0.169	0.831	1.413	0.158	0.079*	0.921
9	0.917	0.360	0.180	0.820	0.759	0.448	0.224	0.776
10	1.642	0.102	0.051*	0.949	1.606	0.109	0.055*	0.945
11	1.291	0.197	0.099*	0.901	1.247	0.213	0.106	0.894
12	0.159	0.873	0.437	0.563	0.123	0.902	0.451	0.549
13	-0.926	0.355	0.823	0.177	-0.723	0.470	0.765	0.235
14	0.703	0.483	0.241	0.759	0.784	0.433	0.217	0.783
15	-1.254	0.210	0.895	0.105	-1.213	0.226	0.887	0.113
16	-0.375	0.708	0.646	0.354	-0.154	0.878	0.561	0.439
17	0.600	0.549	0.275	0.725	0.458	0.647	0.324	0.676
18	1.804	0.072*	0.036**	0.964	1.469	0.143	0.071*	0.929
19	0.198	0.843	0.422	0.578	0.036	0.971	0.486	0.514
20	-1.575	0.116	0.942	0.058*	-1.353	0.177	0.912	0.088*

Notes: the table reports the test results of the difference between the average standardized abnormal returns of voice and the average standardized abnormal returns of the Schedule 13D filings. μ'_{Vt} denotes the average standardized abnormal returns of the voice, while μ'_{St} denotes the average abnormal returns of the Schedule 13D filings dates. We report the p-value of the t-statistic when the alternative hypothesis is $H_1 : \mu'_{Vt} - \mu'_{St} \neq 0$. "p-val right" denotes the p-value of the t-statistic when the alternative hypothesis is $H_1 : \mu'_{Vt} - \mu'_{St} > 0$. "p-val left" denotes the p-value of the t-statistic when the alternative hypothesis is $H_1 : \mu'_{Vt} - \mu'_{St} < 0$. * indicates statistical significance at level 10%; ** indicates statistical significance at level 5%;*** indicates statistical significance at level 1%.

Table 3b: Testing for the difference between the standardized abnormal returns of Schedule 13D filings and voice

Models	GARCH-in-Mean with normal distribution				GARCH-in-Mean with Student's t distribution			
Event Day	t-test	p-val	p-val right	p-val left	t-test	p-val	p-val right	p-val left
-20	-1.106	0.269	0.865	0.135	-1.090	0.276	0.862	0.138
-19	-2.408	0.016**	0.992	0.008***	-2.387	0.017**	0.991	0.009***
-18	0.313	0.755	0.377	0.623	0.328	0.743	0.372	0.628
-17	-0.863	0.389	0.806	0.194	-0.811	0.418	0.791	0.209
-16	0.014	0.988	0.494	0.506	0.075	0.940	0.470	0.530
-15	-0.832	0.406	0.797	0.203	-0.785	0.433	0.783	0.217
-14	-1.898	0.058*	0.971	0.029**	-1.877	0.061*	0.969	0.031**
-13	-0.747	0.456	0.772	0.228	-0.720	0.472	0.764	0.236
-12	-1.134	0.257	0.871	0.129	-1.112	0.267	0.867	0.133
-11	-0.479	0.632	0.684	0.316	-0.442	0.659	0.671	0.329
-10	-1.313	0.189	0.905	0.095*	-1.273	0.203	0.898	0.102
-9	-3.512	0.000***	1.000	0.000***	-3.464	0.001***	1.000	0.000***
-8	-2.074	0.038**	0.981	0.019**	-2.047	0.041**	0.980	0.020**
-7	-1.663	0.097*	0.952	0.048**	-1.647	0.100	0.950	0.050*
-6	-0.617	0.537	0.731	0.269	-0.561	0.575	0.712	0.288
-5	-0.580	0.562	0.719	0.281	-0.529	0.597	0.702	0.298
-4	-1.220	0.223	0.888	0.112	-1.165	0.245	0.878	0.122
-3	-0.765	0.444	0.778	0.222	-0.734	0.463	0.768	0.232
-2	-0.884	0.377	0.811	0.189	-0.882	0.378	0.811	0.189
-1	0.069	0.945	0.472	0.528	0.073	0.942	0.471	0.529
0	1.319	0.188	0.094*	0.906	1.327	0.185	0.093*	0.907
1	3.123	0.002***	0.001***	0.999	3.145	0.002***	0.001***	0.999
2	1.681	0.093*	0.047**	0.953	1.704	0.089*	0.045**	0.955
3	2.332	0.020**	0.010**	0.990	2.384	0.018**	0.009***	0.991
4	0.390	0.697	0.348	0.652	0.473	0.637	0.318	0.682
5	-0.191	0.849	0.576	0.424	-0.123	0.902	0.549	0.451
6	-0.145	0.885	0.558	0.442	-0.075	0.940	0.530	0.470
7	0.463	0.644	0.322	0.678	0.522	0.602	0.301	0.699
8	1.218	0.224	0.112	0.888	1.293	0.197	0.098*	0.902
9	0.641	0.522	0.261	0.739	0.669	0.504	0.252	0.748
10	1.474	0.141	0.071*	0.929	1.495	0.136	0.068*	0.932
11	1.171	0.242	0.121	0.879	1.219	0.224	0.112	0.888
12	0.069	0.945	0.473	0.527	0.132	0.895	0.448	0.552
13	-0.792	0.429	0.786	0.214	-0.729	0.466	0.767	0.233
14	0.703	0.482	0.241	0.759	0.775	0.439	0.219	0.781
15	-1.284	0.200	0.900	0.100	-1.212	0.226	0.887	0.113
16	-0.219	0.827	0.587	0.413	-0.172	0.864	0.568	0.432
17	0.378	0.705	0.353	0.647	0.442	0.659	0.329	0.671
18	1.411	0.159	0.080*	0.920	1.462	0.144	0.072*	0.928
19	0.000	1.000	0.500	0.500	0.049	0.961	0.480	0.520
20	-1.397	0.163	0.919	0.081	-1.355	0.176	0.912	0.088

See notes of Table 2b, and 3a.

Table 3c: Heteroscedasticity -robust two-sample t-test results for the difference between voice and Schedule 13D standardized abnormal returns - the market model

Test Statistics	Yuen test statistic				Guo and Luh test statistic				Bootstrap 95% confidence interval: Yuen test statistic		Bootstrap 95% confidence interval: Guo and Luh test statistic	
Event Day	t-test	p-val	p-val right	p-val left	t-test	p-val	p-val right	p-val left	Lower bound	Upper bound	Lower bound	Upper bound
-20	0.046	0.963	0.482	0.518	0.047	0.963	0.481	0.519	-2.050	1.949	-2.055	1.955
-19	-0.210	0.834	0.583	0.417	-0.209	0.835	0.583	0.417	-1.897	2.050	-1.904	2.061
-18	0.638	0.524	0.262	0.738	0.641	0.522	0.261	0.739	-1.963	1.974	-1.946	1.997
-17	-0.363	0.717	0.642	0.358	-0.362	0.718	0.641	0.359	-2.048	2.003	-2.049	2.023
-16	1.209	0.228	0.114	0.886	1.210	0.227	0.114	0.886	-2.016	1.885	-2.017	1.898
-15	0.329	0.742	0.371	0.629	0.329	0.742	0.371	0.629	-1.898	1.849	-1.894	1.848
-14	-0.379	0.705	0.648	0.352	-0.380	0.704	0.648	0.352	-2.093	2.015	-2.102	2.012
-13	-0.362	0.718	0.641	0.359	-0.361	0.718	0.641	0.359	-2.050	1.891	-2.051	1.900
-12	-0.596	0.552	0.724	0.276	-0.596	0.551	0.724	0.276	-1.870	1.903	-1.874	1.893
-11	-0.244	0.807	0.596	0.404	-0.244	0.808	0.596	0.404	-2.004	1.921	-2.008	1.930
-10	0.306	0.760	0.380	0.620	0.306	0.760	0.380	0.620	-1.965	2.032	-1.977	2.037
-9	-2.299	0.022**	0.989	0.011**	-2.309	0.022**	0.989	0.011**	**-1.879**	**2.019**	**-1.888**	**2.013**
-8	-0.661	0.509	0.746	0.254	-0.658	0.511	0.745	0.255	-1.952	1.924	-1.943	1.938
-7	-0.053	0.958	0.521	0.479	-0.052	0.959	0.521	0.479	-1.937	1.898	-1.938	1.912
-6	-0.171	0.864	0.568	0.432	-0.169	0.866	0.567	0.433	-2.086	2.004	-2.085	2.025
-5	-0.541	0.589	0.706	0.294	-0.540	0.590	0.705	0.295	-1.930	2.052	-1.939	2.066
-4	-1.077	0.282	0.859	0.141	-1.077	0.282	0.859	0.141	-1.983	2.107	-2.003	2.109
-3	0.739	0.460	0.230	0.770	0.738	0.461	0.231	0.769	-1.858	1.952	-1.873	1.956
-2	0.617	0.538	0.269	0.731	0.617	0.538	0.269	0.731	-1.948	1.925	-1.955	1.938
-1	0.557	0.578	0.289	0.711	0.563	0.574	0.287	0.713	-2.156	1.817	-2.125	1.850
0	1.747	0.082*	0.041**	0.959	1.768	0.078*	0.039**	0.961	-2.002	1.884	-1.993	1.940
1	2.845	0.005***	0.002***	0.998	2.927	0.004***	0.002***	0.998	**-1.991**	**1.713**	**-1.946**	**1.755**
2	1.389	0.166	0.083*	0.917	1.397	0.163	0.082*	0.918	-2.082	2.025	-2.066	2.042
3	2.465	0.014**	0.007***	0.993	2.484	0.014**	0.007***	0.993	**-1.913**	**2.064**	**-1.900**	**2.073**
4	1.816	0.070*	0.035**	0.965	1.818	0.070*	0.035**	0.965	-1.952	2.035	-1.959	2.035
5	-0.173	0.863	0.569	0.431	-0.172	0.863	0.568	0.432	-2.005	2.037	-2.002	2.044
6	0.833	0.405	0.203	0.797	0.836	0.404	0.202	0.798	-2.025	1.936	-2.021	1.944
7	0.465	0.643	0.321	0.679	0.465	0.642	0.321	0.679	-1.880	2.035	-1.880	2.043
8	0.486	0.627	0.314	0.686	0.488	0.626	0.313	0.687	-1.923	1.878	-1.924	1.896
9	0.440	0.660	0.330	0.670	0.443	0.658	0.329	0.671	-1.971	1.983	-1.969	2.000
10	1.577	0.116	0.058*	0.942	1.587	0.113	0.057	0.943	-1.951	2.051	-1.946	2.070
11	1.062	0.289	0.145	0.855	1.067	0.287	0.143	0.857	-1.947	1.904	-1.943	1.940
12	1.047	0.296	0.148	0.852	1.050	0.294	0.147	0.853	-1.890	1.954	-1.886	1.968
13	-0.530	0.596	0.702	0.298	-0.530	0.596	0.702	0.298	-1.898	1.945	-1.899	1.954
14	0.301	0.764	0.382	0.618	0.302	0.763	0.382	0.618	-1.983	1.772	-1.988	1.789
15	-0.473	0.637	0.682	0.318	-0.472	0.637	0.682	0.318	-2.050	1.920	-2.060	1.925
16	-0.907	0.365	0.818	0.182	-0.908	0.365	0.818	0.182	-2.057	1.904	-2.065	1.898
17	1.242	0.215	0.107	0.893	1.243	0.215	0.107	0.893	-1.948	1.922	-1.960	1.938
18	0.968	0.334	0.167	0.833	0.972	0.332	0.166	0.834	-1.903	1.970	-1.910	1.999
19	-1.208	0.228	0.886	0.114	-1.203	0.230	0.885	0.115	-1.996	2.024	-2.012	2.032
20	-0.217	0.828	0.586	0.414	-0.216	0.829	0.586	0.414	-1.955	1.905	-1.954	1.917

Notes: this table reports the results of the two-sample tests proposed by Yuen (1974) and Guo and Luh (2000) (denoted as Yuen and Hall test statistics respectively) on the difference between the standardized abnormal returns of voice and the standardized abnormal returns of the Schedule 13D filing dates. The 95% bootstrap percentile interval is also reported for each test statistic. 2500 replications are used in the bootstrap technique. * indicates statistical significance at level 10%; ** indicates statistical significance at level 5%;*** indicates statistical significance at level 1%. Results in bold indicate statistical significance at level 5% using the confidence interval.

Table 3d: Heteroscedasticity -robust two sample t-test results for the difference between voice and Schedule 13D average standardized abnormal returns - the Carhart model

Test Statistics	Yuen test statistic				Guo and Luh test statistic				Bootstrap 95% confidence interval: Yuen test statistic		Bootstrap 95% confidence interval: Guo and Luh test statistic	
Event Day	t-test	p-val	p-val right	p-val left	t-test	p-val	p-val right	p-val left	Lower bound	Upper bound	Lower bound	Upper bound
-20	0.026	0.979	0.490	0.510	0.027	0.979	0.489	0.511	-2.084	1.922	-2.088	1.939
-19	-0.408	0.683	0.658	0.342	-0.408	0.684	0.658	0.342	-1.867	2.008	-1.872	2.024
-18	0.658	0.511	0.256	0.744	0.660	0.510	0.255	0.745	-2.028	1.924	-2.024	1.930
-17	0.027	0.979	0.489	0.511	0.027	0.979	0.489	0.511	-1.969	1.953	-1.972	1.958
-16	0.963	0.336	0.168	0.832	0.962	0.337	0.168	0.832	-1.976	1.843	-1.985	1.845
-15	0.613	0.540	0.270	0.730	0.613	0.540	0.270	0.730	-1.917	1.990	-1.925	1.994
-14	-0.627	0.531	0.734	0.266	-0.627	0.531	0.734	0.266	-1.968	1.914	-1.976	1.924
-13	0.126	0.900	0.450	0.550	0.126	0.900	0.450	0.550	-1.924	1.866	-1.936	1.870
-12	-0.512	0.609	0.695	0.305	-0.512	0.609	0.695	0.305	-1.941	1.980	-1.937	1.992
-11	-0.052	0.958	0.521	0.479	-0.052	0.958	0.521	0.479	-2.012	1.889	-2.016	1.892
-10	0.279	0.780	0.390	0.610	0.279	0.780	0.390	0.610	-1.828	1.989	-1.837	1.998
-9	-1.981	0.048**	0.976	0.024**	-1.990	0.047**	0.976	0.024**	-2.053	1.949	-2.056	1.951
-8	-1.329	0.185	0.908	0.092*	-1.324	0.186	0.907	0.093*	-1.946	1.886	-1.944	1.908
-7	-0.056	0.955	0.522	0.478	-0.056	0.956	0.522	0.478	-2.123	1.787	-2.135	1.801
-6	0.485	0.628	0.314	0.686	0.487	0.627	0.313	0.687	-2.056	1.939	-2.046	1.956
-5	-0.292	0.770	0.615	0.385	-0.291	0.772	0.614	0.386	-1.855	2.052	-1.857	2.065
-4	-0.670	0.503	0.748	0.252	-0.670	0.503	0.748	0.252	-1.830	2.012	-1.839	2.020
-3	1.244	0.214	0.107	0.893	1.242	0.215	0.107	0.893	-1.887	2.068	-1.903	2.078
-2	0.972	0.332	0.166	0.834	0.970	0.333	0.166	0.834	-1.873	2.056	-1.888	2.057
-1	0.525	0.600	0.300	0.700	0.530	0.597	0.298	0.702	-2.201	1.851	-2.172	1.884
0	1.455	0.147	0.073*	0.927	1.466	0.144	0.072*	0.928	-1.992	1.919	-1.983	1.953
1	2.950	0.003***	0.002***	0.998	3.039	0.003***	0.001***	0.999	**-2.025**	**1.791**	**-1.982**	**1.836**
2	1.321	0.187	0.094*	0.906	1.328	0.185	0.093*	0.907	-2.007	1.861	-2.000	1.880
3	2.670	0.008***	0.004***	0.996	2.689	0.008***	0.004***	0.996	**-1.997**	**1.960**	**-1.988**	**1.974**
4	1.584	0.114	0.057*	0.943	1.586	0.114	0.057*	0.943	-1.893	1.965	-1.890	1.967
5	-0.005	0.996	0.502	0.498	-0.003	0.998	0.501	0.499	-1.933	1.823	-1.937	1.839
6	0.852	0.395	0.197	0.803	0.853	0.394	0.197	0.803	-1.914	1.966	-1.910	1.972
7	0.094	0.925	0.463	0.537	0.094	0.925	0.462	0.538	-1.933	2.098	-1.938	2.103
8	0.938	0.349	0.174	0.826	0.940	0.348	0.174	0.826	-2.038	2.001	-2.030	2.008
9	0.069	0.945	0.472	0.528	0.070	0.944	0.472	0.528	-1.877	1.899	-1.872	1.903
10	1.605	0.110	0.055*	0.945	1.615	0.107	0.054*	0.946	-1.890	1.989	-1.877	2.013
11	1.134	0.257	0.129	0.871	1.141	0.255	0.127	0.873	-1.796	1.844	-1.797	1.870
12	0.914	0.361	0.181	0.819	0.917	0.360	0.180	0.820	-2.016	1.971	-2.003	1.991
13	-0.018	0.986	0.507	0.493	-0.018	0.986	0.507	0.493	-1.944	1.857	-1.951	1.864
14	0.576	0.565	0.282	0.718	0.578	0.564	0.282	0.718	-1.961	1.947	-1.960	1.960
15	-0.222	0.824	0.588	0.412	-0.222	0.825	0.588	0.412	-2.055	1.882	-2.066	1.888
16	-0.606	0.545	0.728	0.272	-0.606	0.545	0.728	0.272	-1.967	1.923	-1.969	1.921
17	0.963	0.336	0.168	0.832	0.965	0.335	0.167	0.833	-2.101	1.940	-2.098	1.960
18	0.585	0.559	0.279	0.721	0.586	0.558	0.279	0.721	-2.009	1.946	-2.008	1.958
19	-1.377	0.169	0.915	0.085*	-1.373	0.171	0.915	0.085*	-1.891	1.940	-1.890	1.956
20	0.214	0.831	0.415	0.585	0.214	0.831	0.415	0.585	-1.967	1.959	-1.962	1.956

See notes of Table 3c

Table 2e: Heteroscedasticity -robust two sample t-test results for the difference between voice and Schedule 13D average standardized abnormal returns - the GARCH-in-Mean model

Test Statistics	Yuen test statistic				Guo and Luh test statistic				Bootstrap 95% confidence interval: Yuen test statistic		Bootstrap 95% confidence interval: Guo and Luh test statistic	
Event Day	t-test	p-val	p-val right	p-val left	t-test	p-val	p-val right	p-val left	Lower bound	Upper bound	Lower bound	Upper bound
-20	0.112	0.911	0.455	0.545	0.114	0.910	0.455	0.545	-2.050	1.882	-2.052	1.889
-19	-0.378	0.705	0.647	0.353	-0.378	0.705	0.647	0.353	-1.892	2.092	-1.891	2.101
-18	0.589	0.556	0.278	0.722	0.591	0.555	0.277	0.723	-2.002	1.976	-2.004	1.975
-17	-0.142	0.887	0.556	0.444	-0.142	0.888	0.556	0.444	-1.843	1.903	-1.845	1.903
-16	0.903	0.367	0.184	0.816	0.901	0.368	0.184	0.816	-1.999	1.870	-2.009	1.853
-15	0.480	0.632	0.316	0.684	0.480	0.631	0.316	0.684	-2.019	1.972	-2.029	1.980
-14	-0.970	0.333	0.834	0.166	-0.970	0.333	0.834	0.166	-1.966	1.847	-1.975	1.852
-13	0.085	0.932	0.466	0.534	0.085	0.932	0.466	0.534	-1.969	1.936	-1.957	1.934
-12	-0.708	0.479	0.760	0.240	-0.708	0.479	0.760	0.240	-2.021	2.015	-2.009	2.026
-11	-0.211	0.833	0.584	0.416	-0.211	0.833	0.583	0.417	-1.883	1.869	-1.891	1.877
-10	0.257	0.797	0.399	0.601	0.257	0.797	0.399	0.601	-1.902	2.021	-1.910	2.031
-9	-2.015	0.045**	0.978	0.022**	-2.025	0.044**	0.978	0.022**	**-1.837**	**1.903**	**-1.844**	**1.899**
-8	-1.466	0.143	0.928	0.072*	-1.463	0.144	0.928	0.072*	-1.925	1.929	-1.935	1.933
-7	-0.204	0.838	0.581	0.419	-0.204	0.839	0.581	0.419	-1.907	1.955	-1.901	1.975
-6	0.407	0.685	0.342	0.658	0.409	0.683	0.342	0.658	-1.990	2.033	-1.985	2.047
-5	-0.420	0.675	0.663	0.337	-0.418	0.676	0.662	0.338	-1.824	1.959	-1.814	1.980
-4	-0.740	0.460	0.770	0.230	-0.740	0.460	0.770	0.230	-1.895	2.005	-1.887	2.005
-3	1.102	0.271	0.136	0.864	1.101	0.272	0.136	0.864	-1.937	1.988	-1.954	1.993
-2	0.853	0.394	0.197	0.803	0.851	0.395	0.198	0.802	-2.035	2.033	-2.038	2.032
-1	0.361	0.719	0.359	0.641	0.365	0.715	0.358	0.642	-2.107	1.974	-2.084	2.006
0	1.448	0.148	0.074*	0.926	1.459	0.146	0.073*	0.927	-1.999	1.899	-1.987	1.933
1	2.857	0.005***	0.002***	0.998	2.934	0.004***	0.002***	0.998	**-2.203**	**1.749**	**-2.169**	**1.778**
2	1.261	0.208	0.104	0.896	1.267	0.206	0.103	0.897	-2.068	1.900	-2.053	1.913
3	2.458	0.015**	0.007***	0.993	2.472	0.014**	0.007***	0.993	**-1.984**	**2.011**	**-2.001**	**2.021**
4	1.397	0.163	0.082*	0.918	1.398	0.163	0.082*	0.918	-1.869	1.992	-1.873	2.003
5	0.047	0.963	0.481	0.519	0.048	0.962	0.481	0.519	-2.039	1.867	-2.034	1.885
6	0.747	0.455	0.228	0.772	0.748	0.455	0.227	0.773	-2.092	1.937	-2.094	1.942
7	0.222	0.824	0.412	0.588	0.222	0.825	0.412	0.588	-1.955	2.022	-1.946	2.034
8	1.024	0.306	0.153	0.847	1.027	0.305	0.153	0.847	-1.915	1.945	-1.915	1.956
9	0.067	0.946	0.473	0.527	0.069	0.945	0.473	0.527	-2.054	1.931	-2.042	1.955
10	1.409	0.160	0.080*	0.920	1.418	0.157	0.079*	0.921	-1.985	1.955	-1.977	1.976
11	1.018	0.310	0.155	0.845	1.023	0.307	0.154	0.846	-2.050	1.828	-2.043	1.845
12	0.768	0.443	0.222	0.778	0.770	0.442	0.221	0.779	-1.931	1.971	-1.932	1.993
13	-0.093	0.926	0.537	0.463	-0.094	0.926	0.537	0.463	-1.962	1.968	-1.972	1.970
14	0.688	0.492	0.246	0.754	0.689	0.491	0.246	0.754	-2.030	1.910	-2.035	1.913
15	-0.118	0.906	0.547	0.453	-0.118	0.906	0.547	0.453	-1.985	1.956	-1.990	1.973
16	-0.562	0.575	0.713	0.287	-0.562	0.574	0.713	0.287	-1.929	1.865	-1.937	1.857
17	1.075	0.283	0.142	0.858	1.078	0.282	0.141	0.859	-1.965	2.062	-1.964	2.085
18	0.483	0.629	0.315	0.685	0.483	0.629	0.315	0.685	-1.894	2.015	-1.894	2.032
19	-1.461	0.145	0.928	0.072*	-1.457	0.146	0.927	0.073*	-2.003	1.997	-1.995	2.008
20	0.120	0.905	0.452	0.548	0.120	0.904	0.452	0.548	-1.918	1.897	-1.918	1.894

See notes of Table 3c and 3d.

Table 3f: Abnormal returns of voice events occurring 1 to 10 trading days before Schedule 13D events

Models	Market model		Carhart model				GARCH with Student's t distribution		
Event Day	AR	p-val	AR	p-val	p-val (Wilcoxon)	p-val (Wilcoxon)	AR	p-val	p-val (Wilcoxon)
-20	-0.226	0.575	-0.265	0.513	0.509	0.545	-0.282	0.497	0.503
-19	-0.341	0.535	-0.337	0.551	0.984	0.777	-0.354	0.529	0.942
-18	-0.734	0.565	-0.795	0.537	0.387	0.296	-0.808	0.532	0.369
-17	-0.148	0.799	-0.170	0.778	0.965	0.830	-0.158	0.788	0.961
-16	-0.570	0.068*	-0.627	0.059*	0.023**	0.069*	-0.613	0.062*	0.027**
-15	0.096	0.857	0.127	0.819	0.822	0.601	0.132	0.807	0.837
-14	-0.109	0.789	-0.179	0.665	0.455	0.535	-0.194	0.640	0.497
-13	-0.285	0.484	-0.393	0.373	0.029**	0.029	-0.406	0.361	0.025
-12	0.156	0.656	0.169	0.637	0.751	0.953	0.155	0.662	0.725
-11	-0.518	0.118	-0.450	0.173	0.015**	0.008***	-0.478	0.153	0.013**
-10	0.372	0.422	0.383	0.402	0.520	0.594	0.348	0.447	0.562
-9	-0.554	0.230	-0.610	0.171	0.200	0.269	-0.639	0.160	0.218
-8	-0.659	0.121	-0.600	0.148	0.481	0.407	-0.619	0.128	0.420
-7	0.815	0.079*	0.829	0.067*	0.237	0.376	0.820	0.071*	0.267
-6	0.493	0.408	0.393	0.485	0.659	0.656	0.398	0.485	0.684
-5	-0.471	0.348	-0.433	0.386	0.365	0.342	-0.425	0.390	0.291
-4	-0.357	0.343	-0.330	0.371	0.859	0.645	-0.327	0.375	0.844
-3	-0.227	0.617	-0.042	0.929	0.649	0.876	-0.039	0.933	0.678
-2	0.014	0.981	0.060	0.921	0.352	0.418	0.064	0.915	0.350
-1	1.119	0.010**	0.981	0.028**	0.048**	0.034**	0.990	0.026**	0.037**
0	-0.184	0.703	-0.178	0.711	0.558	0.656	-0.186	0.697	0.539
1	0.677	0.145	0.619	0.189	0.024**	0.026	0.616	0.188	0.030**
2	-0.376	0.520	-0.380	0.523	0.187	0.172	-0.372	0.526	0.192
3	0.790	0.108	0.926	0.049**	0.130	0.325	0.924	0.054*	0.159
4	0.194	0.579	0.130	0.686	0.283	0.268	0.128	0.696	0.323
5	1.121	0.113	0.988	0.164	0.931	0.575	0.999	0.157	0.897
6	0.675	0.078*	0.655	0.082*	0.216	0.234	0.708	0.064*	0.141
7	0.644	0.231	0.754	0.168	0.618	0.642	0.789	0.157	0.598
8	0.349	0.303	0.296	0.393	0.726	0.676	0.346	0.311	0.611
9	0.471	0.218	0.412	0.273	0.484	0.520	0.444	0.236	0.552
10	0.454	0.332	0.389	0.411	0.133	0.061*	0.410	0.379	0.113
11	0.076	0.835	-0.038	0.913	0.527	0.652	-0.023	0.947	0.594
12	0.384	0.428	0.207	0.674	0.818	0.867	0.218	0.656	0.799
13	0.120	0.658	0.156	0.542	0.859	0.977	0.154	0.543	0.733
14	0.087	0.811	0.049	0.893	0.312	0.312	0.038	0.918	0.302
15	0.066	0.854	-0.022	0.955	0.726	0.443	-0.037	0.926	0.645
16	0.451	0.475	0.323	0.618	0.901	0.833	0.305	0.639	0.977
17	-0.040	0.880	-0.162	0.635	0.680	0.810	-0.179	0.606	0.669
18	0.266	0.661	0.168	0.787	0.723	0.748	0.142	0.818	0.687
19	-0.234	0.407	-0.332	0.258	0.316	0.449	-0.366	0.208	0.345
20	-0.683	0.282	-0.607	0.333	0.426	0.300	-0.644	0.312	0.404

Notes: This table reports the abnormal stock returns 20 days before and after the voice date. Three models are used to compute the abnormal returns, namely the market model, the Carhart model, and the GARCH-in-Mean model. We also report the p-values on the statistical significance of the abnormal returns, in particular the p-value of the parametric test (denoted as p-val), and the p-value of the Wilcoxon signed rank test. Last column presents the percentage of the positive abnormal returns for each event date. * indicates statistical significance at level 10%; ** indicates statistical significance at level 5%;*** indicates statistical significance at level 1%.

Table 4a: Abnormal returns of non-voice

Models	Market model			Carhart model			% of
Event Day	AR	p-val	p-val (Wilcoxon)	AR	p-val	p-val (Wilcoxon)	+ARs
-20	0.720	0.024**	0.665	0.718	0.024**	0.714	44.606
-19	0.752	0.044**	0.199	0.753	0.043**	0.272	45.436
-18	0.354	0.144	0.156	0.383	0.114	0.317	44.813
-17	0.165	0.429	0.104	0.183	0.380	0.296	43.776
-16	0.032	0.868	0.266	0.018	0.926	0.292	46.266
-15	0.013	0.955	0.069*	0.001	0.997	0.056*	44.191
-14	0.675	0.001***	0.269	0.711	0.001***	0.070*	47.925
-13	0.363	0.202	0.085*	0.314	0.267	0.043**	45.021
-12	0.125	0.441	0.971	0.114	0.483	0.861	47.718
-11	0.414	0.083*	0.165	0.412	0.079*	0.529	45.021
-10	0.563	0.141	0.022**	0.595	0.121	0.033**	42.531
-9	1.048	0.009***	0.863	1.018	0.011**	0.867	48.133
-8	0.847	0.017**	0.630	0.868	0.014**	0.383	47.925
-7	1.145	0.007***	0.610	1.156	0.006***	0.514	48.340
-6	0.364	0.031**	0.210	0.290	0.085*	0.678	50.830
-5	0.157	0.261	0.784	0.124	0.359	0.865	47.510
-4	0.087	0.449	0.179	0.063	0.582	0.346	51.452
-3	0.708	0.122	0.932	0.709	0.123	0.909	50.207
-2	0.145	0.510	0.078*	0.120	0.582	0.075*	42.739
-1	0.356	0.027**	0.188	0.390	0.014**	0.089*	49.170
0	0.532	0.007***	0.977	0.647	0.001***	0.123	46.888
1	0.374	0.030**	0.180	0.389	0.021**	0.192	49.170
2	-0.014	0.921	0.031**	-0.004	0.979	0.059*	40.664
3	0.022	0.875	0.063*	-0.020	0.882	0.024**	42.739
4	0.028	0.861	0.061*	-0.006	0.968	0.047**	42.946
5	0.229	0.114	0.873	0.169	0.243	0.561	47.718
6	0.239	0.444	0.091*	0.246	0.428	0.100	44.606
7	-0.036	0.883	0.029**	0.006	0.979	0.263	41.494
8	0.015	0.938	0.691	-0.059	0.761	0.628	46.888
9	0.364	0.290	0.646	0.412	0.232	0.472	50.415
10	-0.220	0.191	0.021**	-0.154	0.362	0.113	43.776
11	0.227	0.291	0.098*	0.191	0.370	0.080	45.228
12	0.121	0.594	0.177	0.128	0.581	0.124	46.058
13	0.038	0.808	0.993	-0.013	0.934	0.803	50.415
14	-0.232	0.079*	0.452	-0.261	0.053*	0.267	47.510
15	0.146	0.251	0.721	0.161	0.192	0.927	48.755
16	0.179	0.271	0.332	0.153	0.339	0.509	45.643
17	-0.054	0.648	0.062*	-0.062	0.605	0.057*	43.568
18	-0.078	0.569	0.182	-0.006	0.966	0.849	46.058
19	-0.030	0.845	0.006***	-0.035	0.817	0.032**	41.286
20	0.051	0.695	0.629	0.022	0.867	0.431	46.888

Notes: this table reports the abnormal stock returns 20 days before and after the Schedule 13D filing date of the firms that were not subject to voice. Two models are used to compute the abnormal returns, namely the market model, and the Carhart model. We also report the p-values on the statistical significance of the abnormal returns, in particular the p-value of the parametric test (denoted as "p-val"), and the p-value of the Wilcoxon signed rank test. Last column presents the percentage of the positive abnormal returns for each event date. * indicates statistical significance at level 10%; ** indicates statistical significance at level 5%;*** indicates statistical significance at level 1%.

Table 4b: Abnormal returns of non-voice

Models	GARCH-in-Mean with normal distribution			GARCH-in-Mean with Student's t distribution			% of +ARs
Event Day	AR	p-val	p-val (Wilcoxon)	AR	p-val	p-val (Wilcoxon)	
-20	0.733	0.020**	0.690	0.728	0.021**	0.618	48.548
-19	0.802	0.034**	0.332	0.792	0.037**	0.310	46.266
-18	0.434	0.070*	0.474	0.421	0.079*	0.401	45.021
-17	0.215	0.310	0.334	0.198	0.349	0.319	46.266
-16	0.049	0.808	0.344	0.034	0.867	0.292	45.436
-15	0.034	0.881	0.065	0.020	0.930	0.056*	44.191
-14	0.747	0.000***	0.033**	0.736	0.000***	0.045**	50.830
-13	0.347	0.225	0.075*	0.333	0.244	0.053*	47.510
-12	0.153	0.352	0.846	0.138	0.400	0.953	49.585
-11	0.449	0.058*	0.757	0.432	0.068*	0.629	47.925
-10	0.632	0.106	0.063*	0.615	0.116	0.041**	43.983
-9	1.095	0.009***	0.731	1.081	0.010**	0.795	47.718
-8	0.960	0.008***	0.239	0.953	0.008***	0.277	49.585
-7	1.248	0.003***	0.288	1.240	0.003***	0.365	49.585
-6	0.365	0.030**	0.492	0.352	0.036**	0.561	50.622
-5	0.194	0.178	0.815	0.178	0.218	0.926	48.340
-4	0.128	0.300	0.164	0.114	0.356	0.234	52.282
-3	0.769	0.096*	0.812	0.757	0.100	0.875	49.378
-2	0.161	0.465	0.161	0.164	0.457	0.160	44.191
-1	0.428	0.007***	0.037**	0.427	0.007***	0.042**	51.660
0	0.683	0.002***	0.108	0.676	0.002***	0.131	47.510
1	0.440	0.009***	0.110	0.431	0.010**	0.133	51.037
2	0.043	0.773	0.099*	0.033	0.823	0.070*	42.946
3	0.027	0.843	0.077*	0.015	0.912	0.053*	43.776
4	0.039	0.801	0.081*	0.027	0.859	0.060*	44.813
5	0.211	0.158	0.744	0.198	0.186	0.598	47.303
6	0.286	0.358	0.204	0.271	0.383	0.154	45.436
7	0.043	0.864	0.272	0.036	0.882	0.251	45.851
8	-0.025	0.898	0.688	-0.029	0.881	0.629	47.095
9	0.449	0.198	0.430	0.450	0.193	0.443	50.622
10	-0.116	0.481	0.187	-0.114	0.490	0.217	47.303
11	0.226	0.299	0.173	0.222	0.299	0.188	44.398
12	0.162	0.477	0.225	0.159	0.486	0.234	47.303
13	0.019	0.910	0.970	0.013	0.939	0.918	49.793
14	-0.230	0.087*	0.375	-0.238	0.078*	0.343	46.473
15	0.192	0.124	0.712	0.187	0.137	0.772	47.095
16	0.181	0.261	0.633	0.178	0.270	0.663	45.436
17	-0.031	0.794	0.113	-0.035	0.769	0.101	45.436
18	0.021	0.875	0.942	0.017	0.900	0.991	49.378
19	-0.007	0.966	0.058*	-0.013	0.934	0.056*	44.191
20	0.051	0.706	0.700	0.048	0.722	0.679	48.133

Notes: this table reports the abnormal stock returns 20 days before and after the Schedule 13D filing date of the firms that were not subject to voice. The abnormal returns are computed by using the model $R_{it} = a_0 + \beta_1\left(R_{mt} - R_{ft}\right) + \beta_2 SMB_t + \beta_3 HML_t + \beta_4 MOM_t + \beta_5\sqrt{h_{it}} + u_{it}$,

where h_{it} are the conditional variances. Two models are used to estimate the conditional variances, namely a GARCH(1,1) model based on normal distribution, and a GARCH(1,1) model based on Student's t distribution with unknown degrees of freedom. We also report the p-values on the statistical significance of the abnormal returns, in particular the p-value of the parametric test (denoted as "p-val"), and the p-value of the Wilcoxon signed rank test. Last column presents the percentage of the positive abnormal returns for each event date. * indicates statistical significance at level 10%; ** indicates statistical significance at level 5%;*** indicates statistical significance at level 1%.

Table 5a: Testing for the difference between the standardized abnormal returns of voice and non-voice

Models	Market Model				Carhart Model			
Event Day	t-test	p-val	p-val right	p-val left	t-test	p-val	p-val right	p-val left
-20	-1.740	0.082*	0.959	0.041**	-1.722	0.085*	0.957	0.043**
-19	-2.560	0.011**	0.995	0.005***	-2.650	0.008***	0.996	0.004***
-18	0.188	0.851	0.426	0.574	0.177	0.859	0.430	0.570
-17	-0.673	0.501	0.749	0.251	-0.605	0.545	0.727	0.273
-16	0.012	0.990	0.495	0.505	-0.069	0.945	0.527	0.473
-15	-0.772	0.440	0.780	0.220	-0.496	0.620	0.690	0.310
-14	-1.942	0.053*	0.974	0.026**	-2.061	0.040**	0.980	0.020**
-13	-1.257	0.209	0.895	0.105	-1.044	0.297	0.852	0.148
-12	-1.146	0.252	0.874	0.126	-0.965	0.335	0.833	0.167
-11	-1.460	0.145	0.928	0.072*	-1.369	0.172	0.914	0.086*
-10	-1.671	0.095*	0.952	0.048**	-1.650	0.099*	0.950	0.050*
-9	-3.713	0.000***	1.000	0.000***	-3.607	0.000***	1.000	0.000***
-8	-1.847	0.065*	0.967	0.033**	-2.068	0.039**	0.981	0.019**
-7	-2.209	0.027**	0.986	0.014**	-2.242	0.025**	0.987	0.013**
-6	-0.338	0.736	0.632	0.368	0.049	0.961	0.481	0.519
-5	0.360	0.719	0.360	0.640	0.474	0.636	0.318	0.682
-4	-1.053	0.293	0.854	0.146	-0.928	0.354	0.823	0.177
-3	-1.122	0.262	0.869	0.131	-0.986	0.324	0.838	0.162
-2	-1.120	0.263	0.868	0.132	-1.130	0.259	0.871	0.129
-1	0.535	0.593	0.297	0.703	0.379	0.705	0.352	0.648
0	2.861	0.004***	0.002***	0.998	2.589	0.010**	0.005***	0.995
1	3.830	0.000***	0.000***	1.000	3.764	0.000***	0.000***	1.000
2	2.452	0.015**	0.007***	0.993	2.459	0.014**	0.007***	0.993
3	2.490	0.013**	0.007***	0.993	2.638	0.009***	0.004***	0.996
4	1.765	0.078*	0.039**	0.961	1.434	0.152	0.076*	0.924
5	-0.010	0.992	0.504	0.496	-0.094	0.925	0.537	0.463
6	0.838	0.402	0.201	0.799	0.722	0.471	0.235	0.765
7	1.239	0.216	0.108	0.892	0.979	0.328	0.164	0.836
8	0.575	0.566	0.283	0.717	1.171	0.242	0.121	0.879
9	1.145	0.253	0.126	0.874	0.943	0.346	0.173	0.827
10	2.097	0.037**	0.018**	0.982	1.904	0.058*	0.029**	0.971
11	0.921	0.357	0.179	0.821	0.934	0.351	0.176	0.824
12	0.134	0.894	0.447	0.553	0.174	0.862	0.431	0.569
13	-0.614	0.540	0.730	0.270	-0.251	0.802	0.599	0.401
14	1.008	0.314	0.157	0.843	1.213	0.226	0.113	0.887
15	-1.160	0.246	0.877	0.123	-1.133	0.258	0.871	0.129
16	-0.163	0.871	0.565	0.435	0.143	0.886	0.443	0.557
17	0.565	0.572	0.286	0.714	0.520	0.603	0.302	0.698
18	1.473	0.142	0.071*	0.929	1.026	0.305	0.153	0.847
19	0.562	0.575	0.287	0.713	0.330	0.742	0.371	0.629
20	-1.563	0.119	0.941	0.059*	-1.351	0.177	0.911	0.089*

Notes: the table reports the test results of the difference between the average standardized abnormal returns of voice and the average standardized abnormal returns of non-voice. μ'_{Vt} denotes the average standardized abnormal returns of voice, while μ'_{NVt} denotes the average abnormal returns of non-voice. We report the p-value of the t-statistic when the alternative hypothesis is $H_1 : \mu'_{Vt} - \mu'_{NVt} \neq 0$. "p-val right" denotes the p-value of the t-statistic when the alternative hypothesis is $H_1 : \mu'_{Vt} - \mu'_{NVt} > 0$. "p-val left" denotes the p-value of the t-statistic when the alternative hypothesis is $H_1 : \mu'_{Vt} - \mu'_{St} < 0$. * indicates statistical significance at level 10%; ** indicates statistical significance at level 5%;*** indicates statistical significance at level 1%.

Table 5b: Testing for the difference between the standardized abnormal returns of voice and non-voice

Models	GARCH-in-Mean with normal distribution				GARCH-in-Mean with Student's t distribution			
Event Day	t-test	p-val	p-val right	p-val left	t-test	p-val	p-val right	p-val left
-20	-1.738	0.083*	0.959	0.041**	-1.717	0.086*	0.957	0.043**
-19	-2.719	0.007***	0.997	0.003***	-2.695	0.007***	0.996	0.004***
-18	0.088	0.930	0.465	0.535	0.113	0.910	0.455	0.545
-17	-0.731	0.465	0.768	0.232	-0.662	0.508	0.746	0.254
-16	-0.223	0.824	0.588	0.412	-0.151	0.880	0.560	0.440
-15	-0.618	0.537	0.732	0.268	-0.568	0.570	0.715	0.285
-14	-2.221	0.027**	0.987	0.013**	-2.195	0.029**	0.986	0.014**
-13	-1.159	0.247	0.877	0.123	-1.126	0.261	0.870	0.130
-12	-1.136	0.256	0.872	0.128	-1.100	0.272	0.864	0.136
-11	-1.497	0.135	0.933	0.067*	-1.449	0.148	0.926	0.074*
-10	-1.723	0.085*	0.957	0.043**	-1.684	0.093*	0.954	0.046**
-9	-3.719	0.000***	1.000	0.000***	-3.670	0.000***	1.000	0.000***
-8	-2.233	0.026**	0.987	0.013**	-2.207	0.028**	0.986	0.014**
-7	-2.411	0.016**	0.992	0.008***	-2.385	0.017**	0.991	0.009***
-6	-0.168	0.867	0.567	0.433	-0.104	0.917	0.541	0.459
-5	0.232	0.816	0.408	0.592	0.299	0.765	0.382	0.618
-4	-1.165	0.245	0.878	0.122	-1.090	0.277	0.862	0.138
-3	-1.143	0.253	0.873	0.127	-1.103	0.270	0.865	0.135
-2	-1.220	0.223	0.889	0.111	-1.224	0.222	0.889	0.111
-1	0.308	0.758	0.379	0.621	0.308	0.758	0.379	0.621
0	2.422	0.016**	0.008***	0.992	2.430	0.016**	0.008***	0.992
1	3.670	0.000***	0.000***	1.000	3.696	0.000***	0.000***	1.000
2	2.196	0.029**	0.014**	0.986	2.225	0.027**	0.013**	0.987
3	2.360	0.019**	0.009***	0.991	2.426	0.016**	0.008***	0.992
4	1.195	0.232	0.116	0.884	1.297	0.195	0.098*	0.902
5	-0.279	0.780	0.610	0.390	-0.196	0.844	0.578	0.422
6	0.544	0.586	0.293	0.707	0.629	0.530	0.265	0.735
7	0.821	0.412	0.206	0.794	0.893	0.373	0.186	0.814
8	0.982	0.326	0.163	0.837	1.061	0.289	0.145	0.855
9	0.817	0.415	0.207	0.793	0.848	0.397	0.198	0.802
10	1.756	0.080*	0.040**	0.960	1.777	0.076*	0.038**	0.962
11	0.850	0.396	0.198	0.802	0.905	0.366	0.183	0.817
12	0.107	0.914	0.457	0.543	0.171	0.865	0.432	0.568
13	-0.330	0.742	0.629	0.371	-0.258	0.796	0.602	0.398
14	1.146	0.252	0.126	0.874	1.230	0.219	0.110	0.890
15	-1.190	0.234	0.883	0.117	-1.110	0.268	0.866	0.134
16	0.094	0.925	0.463	0.537	0.139	0.890	0.445	0.555
17	0.448	0.654	0.327	0.673	0.514	0.607	0.304	0.696
18	0.974	0.331	0.165	0.835	1.026	0.305	0.153	0.847
19	0.288	0.773	0.387	0.613	0.340	0.734	0.367	0.633
20	-1.392	0.165	0.918	0.082*	-1.342	0.180	0.910	0.090*

See Notes of Table 5a

Table 6: Robustness check - abnormal returns of Schedule 13D filings

Models	EGARCH with Student's t distribution			GJR-GARCH with Student's t distribution			% of +ARs
Event Day	AR	p-val	p-val (Wilcoxon)	AR	p-val	p-val (Wilcoxon)	
-20	0.413	0.048**	0.300	0.407	0.051*	0.272	48.624
-19	0.397	0.137	0.032**	0.379	0.152	0.039**	45.085
-18	0.468	0.180	0.029**	0.446	0.197	0.024**	44.037
-17	0.170	0.270	0.578	0.157	0.298	0.492	47.575
-16	0.002	0.991	0.223	-0.013	0.932	0.192	45.872
-15	0.004	0.980	0.346	-0.011	0.948	0.282	46.920
-14	0.588	0.000***	0.078*	0.575	0.000***	0.117	50.328
-13	0.199	0.398	0.002***	0.183	0.430	0.001***	45.216
-12	0.123	0.365	0.472	0.112	0.400	0.553	50.721
-11	0.084	0.643	0.122	0.071	0.693	0.097*	46.920
-10	0.330	0.206	0.054*	0.319	0.217	0.044**	46.003
-9	0.696	0.011**	0.834	0.696	0.011**	0.832	47.444
-8	0.727	0.003***	0.148	0.721	0.003***	0.133	51.245
-7	0.669	0.020**	0.742	0.670	0.018**	0.664	49.148
-6	0.567	0.001***	0.020**	0.568	0.001***	0.019**	53.866
-5	0.445	0.003***	0.073	0.444	0.003***	0.063*	51.114
-4	0.151	0.215	0.498	0.161	0.186	0.473	50.721
-3	0.478	0.119	0.534	0.474	0.118	0.475	50.721
-2	0.044	0.825	0.538	0.026	0.897	0.592	48.100
-1	0.483	0.000***	0.001***	0.462	0.000***	0.001***	53.211
0	0.900	0.000***	0.000***	0.881	0.000***	0.000***	54.260
1	0.692	0.000***	0.000***	0.681	0.000***	0.000***	54.522
2	0.150	0.235	0.611	0.147	0.240	0.554	45.609
3	0.039	0.734	0.318	0.039	0.728	0.278	46.658
4	0.183	0.147	0.639	0.183	0.146	0.557	47.969
5	0.133	0.282	0.626	0.132	0.282	0.754	50.066
6	0.319	0.126	0.653	0.317	0.125	0.665	47.182
7	0.139	0.445	0.331	0.141	0.435	0.342	47.575
8	-0.034	0.815	0.292	-0.038	0.796	0.274	46.920
9	0.399	0.080*	0.074*	0.384	0.071*	0.084*	53.866
10	0.052	0.680	0.886	0.039	0.776	0.969	49.148
11	0.125	0.406	0.133	0.110	0.425	0.127	47.182
12	0.102	0.545	0.334	0.094	0.582	0.333	49.017
13	0.153	0.316	0.982	0.144	0.347	0.900	51.900
14	-0.116	0.397	0.095*	-0.117	0.398	0.076*	46.527
15	0.182	0.146	0.863	0.183	0.140	0.818	48.100
16	0.286	0.039**	0.868	0.286	0.037**	0.825	48.231
17	-0.037	0.734	0.236	-0.033	0.759	0.245	47.706
18	-0.069	0.603	0.557	-0.066	0.616	0.595	48.755
19	0.027	0.817	0.128	0.028	0.802	0.137	46.658
20	0.051	0.684	0.593	0.054	0.664	0.606	48.755

Notes: this table reports the abnormal stock returns 20 days before and after the Schedule 13D filing date. The abnormal returns are computed by using the model

$$R_{it} = a_0 + \beta_1\left(R_{mt} - R_{ft}\right) + \beta_2 SMB_t + \beta_3 HML_t + \beta_4 MOM_t + \beta_5\sqrt{h_{it}} + u_{it},$$

where h_{it} are the conditional variances. Two models are used to estimate the conditional variances, namely a EGARCH(1,1) model based on Student's t distribution with unknown degrees of freedom, and a GJR-GARCH(1,1) model based on Student's t distribution with unknown degrees of freedom. We also report the p-values on the statistical significance of the abnormal returns, in particular the p-value of the parametric test (denoted as p-val), and the p-value of the Wilcoxon signed rank test. Last column presents the percentage of the positive abnormal returns for each event date. * indicates statistical significance at level 10%; ** indicates statistical significance at level 5%;*** indicates statistical significance at level 1%.

Table 7: Robustness check - abnormal returns of voice

Models	EGARCH with Student's t distribution			GJR-GARCH with Student's t distribution			% of +ARs
Event Day	AR	p-val	p-val (Wilcoxon)	AR	p-val	p-val (Wilcoxon)	
-20	0.005	0.982	0.560	0.012	0.959	0.563	46.643
-19	-0.419	0.124	0.120	-0.413	0.129	0.129	44.876
-18	0.812	0.352	0.463	0.816	0.350	0.444	46.996
-17	0.043	0.840	0.779	0.017	0.937	0.677	47.350
-16	0.006	0.974	0.657	-0.025	0.889	0.689	50.530
-15	-0.085	0.719	0.909	-0.114	0.632	0.783	45.936
-14	-0.114	0.642	0.933	-0.139	0.568	0.784	48.763
-13	-0.075	0.774	0.097*	-0.098	0.707	0.082	45.230
-12	-0.095	0.673	0.627	-0.117	0.602	0.475	47.350
-11	-0.118	0.609	0.172	-0.134	0.558	0.127	46.643
-10	-0.115	0.600	0.559	-0.127	0.566	0.521	48.763
-9	-0.412	0.047**	0.041**	-0.419	0.043**	0.032**	45.230
-8	-0.019	0.941	0.254	-0.027	0.915	0.253	48.057
-7	-0.108	0.758	0.900	-0.118	0.737	0.873	49.470
-6	0.462	0.194	0.195	0.456	0.199	0.173	53.357
-5	0.152	0.587	0.981	0.145	0.606	0.980	49.117
-4	-0.116	0.633	0.785	-0.121	0.620	0.740	50.177
-3	-0.074	0.784	0.102	-0.079	0.769	0.109	56.890
-2	-0.003	0.993	0.520	-0.005	0.989	0.581	50.530
-1	0.424	0.150	0.053*	0.425	0.146	0.061*	53.710
0	1.066	0.004***	0.000***	1.067	0.004***	0.000***	61.484
1	1.817	0.000***	0.000***	1.816	0.000***	0.000***	56.890
2	0.538	0.026**	0.262	0.536	0.027**	0.251	50.177
3	0.529	0.032**	0.026**	0.528	0.034**	0.032**	52.650
4	0.438	0.030**	0.045**	0.435	0.030**	0.054*	54.417
5	0.210	0.455	0.968	0.205	0.468	0.966	49.117
6	0.311	0.115	0.326	0.296	0.136	0.387	55.124
7	0.345	0.193	0.994	0.338	0.198	0.980	50.177
8	0.294	0.177	0.757	0.284	0.194	0.829	49.470
9	0.279	0.433	0.501	0.274	0.445	0.569	50.530
10	0.705	0.029**	0.187	0.712	0.031**	0.185	51.590
11	0.146	0.490	0.791	0.159	0.457	0.822	48.763
12	-0.043	0.814	0.945	-0.031	0.867	0.941	49.117
13	0.027	0.888	0.877	0.039	0.838	0.857	49.470
14	0.094	0.585	0.757	0.106	0.534	0.825	46.643
15	0.074	0.681	0.564	0.088	0.626	0.659	45.936
16	0.232	0.327	0.759	0.242	0.305	0.854	51.590
17	-0.078	0.638	0.838	-0.062	0.708	0.735	50.883
18	0.399	0.135	0.865	0.412	0.121	0.839	48.763
19	0.034	0.887	0.058*	0.052	0.831	0.055*	41.696
20	-0.129	0.594	0.922	-0.113	0.636	0.935	48.057

Notes: this table reports the abnormal stock returns 20 days before and after the voice date. The abnormal returns are computed by using the model $R_{it} = a_0 + \beta_1\left(R_{mt} - R_{ft}\right) + \beta_2 SMB_t + \beta_3 HML_t + \beta_4 MOM_t + \beta_5\sqrt{h_{it}} + u_{it}$,

where h_{it} are the conditional variances. Two models are used to estimate the conditional variances, namely a EGARCH(1,1) model based on Student's t distribution with unknown degrees of freedom, and a GJR-GARCH(1,1) model based on Student's t distribution with unknown degrees of freedom. We also report the p-values on the statistical significance of the abnormal returns, in particular the p-value of the parametric test (denoted as p-val), and the p-value of the Wilcoxon signed rank test. Last column presents the percentage of the positive abnormal returns for each event date. * indicates statistical significance at level 10%; ** indicates statistical significance at level 5%;*** indicates statistical significance at level 1%.

Table 8: Robustness - Abnormal returns of non-voice

Models	EGARCH with Student's t distribution			GJR-GARCH with Student's t distribution			% of +ARs
Event Day	AR	p-val	p-val (Wilcoxon)	AR	p-val	p-val (Wilcoxon)	
-20	0.751	0.018**	0.742	0.730	0.021**	0.663	49.895
-19	0.835	0.031**	0.323	0.795	0.037**	0.343	46.947
-18	0.465	0.058*	0.476	0.427	0.076*	0.410	45.684
-17	0.214	0.328	0.384	0.207	0.329	0.352	47.368
-16	0.048	0.821	0.421	0.038	0.852	0.342	45.684
-15	0.034	0.883	0.089*	0.027	0.905	0.075*	44.632
-14	0.766	0.000***	0.023**	0.759	0.000***	0.029**	52.211
-13	0.361	0.218	0.092*	0.348	0.223	0.076*	47.368
-12	0.163	0.334	0.769	0.159	0.336	0.766	50.526
-11	0.462	0.056*	0.790	0.449	0.058*	0.761	48.000
-10	0.641	0.107	0.085*	0.627	0.108	0.082*	44.842
-9	1.092	0.009***	0.668	1.091	0.009***	0.601	48.421
-8	0.974	0.007***	0.220	0.965	0.007***	0.206	50.737
-7	1.253	0.003***	0.326	1.252	0.003***	0.265	49.684
-6	0.361	0.034**	0.411	0.370	0.027**	0.371	51.579
-5	0.186	0.197	0.849	0.193	0.175	0.695	48.632
-4	0.117	0.336	0.201	0.137	0.256	0.156	51.579
-3	0.769	0.101	0.856	0.768	0.096*	0.708	49.263
-2	0.161	0.472	0.167	0.137	0.565	0.207	44.842
-1	0.432	0.007***	0.041**	0.406	0.011**	0.033**	52.632
0	0.688	0.001***	0.122	0.669	0.002***	0.102	48.632
1	0.434	0.010**	0.094*	0.427	0.011**	0.109	52.842
2	0.032	0.825	0.117	0.034	0.818	0.109	43.789
3	0.014	0.921	0.081*	0.017	0.903	0.075*	44.632
4	0.027	0.861	0.101	0.029	0.850	0.082*	45.684
5	0.201	0.181	0.777	0.197	0.184	0.672	48.000
6	0.276	0.381	0.189	0.271	0.382	0.190	45.684
7	0.032	0.900	0.291	0.034	0.891	0.308	45.895
8	-0.035	0.860	0.777	-0.045	0.825	0.742	48.211
9	0.452	0.198	0.329	0.424	0.191	0.362	53.053
10	-0.124	0.464	0.224	-0.146	0.435	0.264	47.789
11	0.223	0.306	0.241	0.195	0.315	0.231	47.158
12	0.155	0.503	0.238	0.139	0.552	0.244	48.842
13	0.012	0.942	0.897	0.000	0.999	0.959	52.842
14	-0.243	0.077*	0.410	-0.245	0.071*	0.348	48.000
15	0.187	0.142	0.649	0.184	0.144	0.742	49.263
16	0.179	0.273	0.758	0.178	0.270	0.696	47.368
17	-0.039	0.752	0.126	-0.035	0.773	0.121	46.526
18	0.018	0.894	0.939	0.019	0.889	0.936	49.895
19	-0.012	0.939	0.073*	-0.012	0.939	0.069*	46.105
20	0.046	0.741	0.738	0.044	0.744	0.676	49.263

Notes: this table reports the abnormal stock returns 20 days before and after the Schedule 13D filing date of the firms that were not subject to voice until exit. The abnormal returns are computed by using the model $R_{it} = a_0 + \beta_1\left(R_{mt} - R_{ft}\right) + \beta_2 SMB_t + \beta_3 HML_t + \beta_4 MOM_t + \beta_5\sqrt{h_{it}} + u_{it}$,

where h_{it} are the conditional variances. Two models are used to estimate the conditional variances, namely a EGARCH(1,1) model based on Student's t distribution with unknown degrees of freedom, and a GJR-GARCH(1,1) model based on Student's t distribution with unknown degrees of freedom. We also report the p-values on the statistical significance of the abnormal returns, in particular the p-value of the parametric test (denoted as p-val), and the p-value of the Wilcoxon signed rank test. Last column presents the percentage of the positive abnormal returns for each event date. * indicates statistical significance at level 10%; ** indicates statistical significance at level 5%;*** indicates statistical significance at level 1%.

Table 9: Robustness - Testing for the difference between the standardized abnormal returns of voice and Schedule 13D filing dates

Models	EGARCH with Student's t distribution				GJR-GARCH with Student's t distribution			
Event Day	t-test	p-val	p-val right	p-val left	t-test	p-val	p-val right	p-val left
-20	-1.120	0.263	0.868	0.132	-1.102	0.271	0.865	0.135
-19	-2.422	0.016**	0.992	0.008***	-2.406	0.016**	0.992	0.008***
-18	0.300	0.764	0.382	0.618	0.317	0.751	0.376	0.624
-17	-0.629	0.529	0.735	0.265	-0.838	0.402	0.799	0.201
-16	0.214	0.830	0.415	0.585	0.034	0.973	0.487	0.513
-15	-0.696	0.487	0.757	0.243	-0.811	0.418	0.791	0.209
-14	-1.737	0.083*	0.958	0.042**	-1.885	0.060*	0.970	0.030**
-13	-0.645	0.519	0.740	0.260	-0.722	0.471	0.765	0.235
-12	-1.013	0.312	0.844	0.156	-1.136	0.257	0.872	0.128
-11	-0.402	0.687	0.656	0.344	-0.469	0.639	0.680	0.320
-10	-1.254	0.210	0.895	0.105	-1.296	0.195	0.902	0.098*
-9	-3.426	0.001***	1.000	0.000***	-3.516	0.000***	1.000	0.000***
-8	-2.022	0.044**	0.978	0.022**	-2.080	0.038**	0.981	0.019**
-7	-1.602	0.110	0.945	0.055*	-1.659	0.098*	0.951	0.049**
-6	-0.533	0.595	0.703	0.297	-0.597	0.551	0.725	0.275
-5	-0.498	0.618	0.691	0.309	-0.555	0.579	0.710	0.290
-4	-1.132	0.258	0.871	0.129	-1.212	0.226	0.887	0.113
-3	-0.711	0.477	0.761	0.239	-0.755	0.451	0.775	0.225
-2	-0.861	0.390	0.805	0.195	-0.882	0.378	0.811	0.189
-1	0.073	0.942	0.471	0.529	0.070	0.944	0.472	0.528
0	1.353	0.177	0.088*	0.912	1.330	0.184	0.092*	0.908
1	3.159	0.002***	0.001***	0.999	3.152	0.002***	0.001***	0.999
2	1.867	0.063*	0.031**	0.969	1.825	0.069*	0.034**	0.966
3	2.520	0.012**	0.006***	0.994	2.453	0.015**	0.007***	0.993
4	0.555	0.579	0.290	0.710	0.504	0.614	0.307	0.693
5	-0.063	0.950	0.525	0.475	-0.112	0.911	0.545	0.455
6	-0.028	0.978	0.511	0.489	-0.085	0.933	0.534	0.466
7	0.546	0.585	0.293	0.707	0.512	0.609	0.304	0.696
8	1.320	0.187	0.094*	0.906	1.273	0.203	0.102	0.898
9	0.678	0.498	0.249	0.751	0.662	0.508	0.254	0.746
10	1.518	0.130	0.065*	0.935	1.497	0.135	0.068*	0.932
11	1.151	0.251	0.125	0.875	1.195	0.233	0.116	0.884
12	0.059	0.953	0.476	0.524	0.102	0.918	0.459	0.541
13	-0.791	0.429	0.785	0.215	-0.758	0.449	0.775	0.225
14	0.723	0.470	0.235	0.765	0.746	0.456	0.228	0.772
15	-1.255	0.210	0.895	0.105	-1.232	0.219	0.891	0.109
16	-0.195	0.846	0.577	0.423	-0.187	0.851	0.574	0.426
17	0.406	0.685	0.342	0.658	0.424	0.672	0.336	0.664
18	1.426	0.154	0.077*	0.923	1.439	0.151	0.075*	0.925
19	0.009	0.993	0.496	0.504	0.033	0.973	0.487	0.513
20	-1.381	0.168	0.916	0.084*	-1.373	0.170	0.915	0.085*

See notes of Table 3a

Table 10: Robustness - Testing for the difference between the standardized abnormal returns of voice and non-voice

Models	EGARCH with Student's t distribution				GJR-GARCH with Student's t distribution			
Event Day	t-test	p-val	p-val right	p-val left	t-test	p-val	p-val right	p-val left
-20	-1.755	0.080*	0.960	0.040**	-1.731	0.084*	0.958	0.042**
-19	-2.735	0.006***	0.997	0.003***	-2.717	0.007***	0.997	0.003***
-18	0.068	0.946	0.473	0.527	0.096	0.923	0.462	0.538
-17	-0.407	0.684	0.658	0.342	-0.694	0.488	0.756	0.244
-16	0.058	0.954	0.477	0.523	-0.197	0.844	0.578	0.422
-15	-0.425	0.671	0.664	0.336	-0.598	0.550	0.725	0.275
-14	-1.999	0.046**	0.977	0.023**	-2.223	0.027**	0.987	0.013**
-13	-1.022	0.307	0.846	0.154	-1.141	0.254	0.873	0.127
-12	-0.975	0.330	0.835	0.165	-1.153	0.249	0.875	0.125
-11	-1.384	0.167	0.917	0.083*	-1.495	0.135	0.932	0.068*
-10	-1.659	0.098*	0.951	0.049**	-1.715	0.087*	0.957	0.043**
-9	-3.634	0.000***	1.000	0.000***	-3.732	0.000***	1.000	0.000***
-8	-2.180	0.030**	0.985	0.015**	-2.251	0.025**	0.988	0.012**
-7	-2.330	0.020**	0.990	0.010**	-2.407	0.016**	0.992	0.008***
-6	-0.055	0.956	0.522	0.478	-0.158	0.875	0.563	0.437
-5	0.349	0.727	0.364	0.636	0.255	0.799	0.400	0.600
-4	-1.036	0.301	0.850	0.150	-1.173	0.241	0.879	0.121
-3	-1.067	0.287	0.857	0.143	-1.137	0.256	0.872	0.128
-2	-1.190	0.235	0.883	0.117	-1.224	0.221	0.889	0.111
-1	0.313	0.754	0.377	0.623	0.300	0.765	0.382	0.618
0	2.479	0.014**	0.007***	0.993	2.427	0.016**	0.008***	0.992
1	3.725	0.000***	0.000***	1.000	3.698	0.000***	0.000***	1.000
2	2.407	0.016**	0.008***	0.992	2.335	0.020**	0.010**	0.990
3	2.573	0.010**	0.005***	0.995	2.483	0.013**	0.007***	0.993
4	1.380	0.168	0.084*	0.916	1.321	0.187	0.094*	0.906
5	-0.143	0.886	0.557	0.443	-0.200	0.841	0.579	0.421
6	0.664	0.507	0.254	0.746	0.608	0.543	0.272	0.728
7	0.918	0.359	0.180	0.820	0.876	0.381	0.191	0.809
8	1.088	0.277	0.138	0.862	1.042	0.298	0.149	0.851
9	0.862	0.389	0.195	0.805	0.846	0.398	0.199	0.801
10	1.812	0.071*	0.035**	0.965	1.784	0.075*	0.038**	0.962
11	0.841	0.401	0.201	0.799	0.889	0.375	0.187	0.813
12	0.114	0.910	0.455	0.545	0.146	0.884	0.442	0.558
13	-0.320	0.749	0.625	0.375	-0.294	0.769	0.615	0.385
14	1.156	0.248	0.124	0.876	1.188	0.236	0.118	0.882
15	-1.167	0.244	0.878	0.122	-1.139	0.255	0.872	0.128
16	0.110	0.913	0.456	0.544	0.114	0.909	0.455	0.545
17	0.475	0.635	0.317	0.683	0.485	0.628	0.314	0.686
18	0.988	0.324	0.162	0.838	0.994	0.321	0.160	0.840
19	0.304	0.761	0.381	0.619	0.317	0.751	0.376	0.624
20	-1.373	0.170	0.915	0.085*	-1.368	0.172	0.914	0.086*

See Notes of Table 5a

Table 11: Robustness - Corrado rank test results of the Schedule 13D abnormal returns

Models	Market Model	Carhart Model	GARCH	EGARCH	GJR-GARCH
Event Day					
-20	0.758	0.428	0.684	0.580	0.490
-19	0.990	0.641	0.998	0.887	0.834
-18	0.964	0.608	0.980	0.861	0.809
-17	0.964	0.913	0.793	0.787	0.914
-16	0.948	0.998	0.641	0.661	0.763
-15	0.850	0.902	0.592	0.610	0.718
-14	0.851	0.959	0.645	0.668	0.776
-13	0.592	0.764	0.424	0.470	0.526
-12	0.405	0.587	0.298	0.374	0.376
-11	0.332	0.429	0.192	0.254	0.246
-10	0.205	0.370	0.162	0.221	0.225
-9	0.192	0.375	0.160	0.219	0.198
-8	0.107	0.212	0.076*	0.099*	0.096*
-7	0.121	0.202	0.060*	0.093*	0.086*
-6	0.127	0.208	0.070*	0.114	0.096*
-5	0.169	0.251	0.092*	0.126	0.112
-4	0.125	0.184	0.084*	0.108	0.099*
-3	0.125	0.169	0.066*	0.082*	0.087*
-2	0.114	0.145	0.060*	0.061*	0.076*
-1	0.124	0.175	0.072*	0.071*	0.082*
0	0.157	0.195	0.086*	0.091*	0.100
1	0.140	0.221	0.093*	0.074*	0.098*
2	0.184	0.280	0.117	0.110	0.123
3	0.231	0.323	0.146	0.142	0.162
4	0.274	0.362	0.168	0.167	0.185
5	0.270	0.334	0.160	0.152	0.189
6	0.254	0.327	0.171	0.145	0.189
7	0.245	0.289	0.163	0.124	0.181
8	0.256	0.317	0.182	0.123	0.205
9	0.314	0.382	0.229	0.165	0.256
10	0.349	0.387	0.263	0.183	0.260
11	0.388	0.401	0.274	0.195	0.266
12	0.343	0.353	0.244	0.173	0.221
13	0.399	0.357	0.284	0.220	0.273
14	0.421	0.373	0.263	0.208	0.267
15	0.425	0.401	0.288	0.234	0.288
16	0.375	0.400	0.286	0.246	0.295
17	0.415	0.435	0.327	0.289	0.328
18	0.431	0.417	0.266	0.262	0.264
19	0.465	0.504	0.306	0.297	0.284
20	0.536	0.525	0.319	0.329	0.329

Notes: This table reports the p-values of the Corrado rank test on the statistical significance of the abnormal returns. The abnormal returns of each stock are estimated using an estimation window of 212 observations (Schedule 13D and non-voice) and 198 observations (voice), respectively. * indicates statistical significance at level 10%; ** indicates statistical significance at level 5%;*** indicates statistical significance at level 1%.

Table 12: Robustness - Corrado rank test results of the voice abnormal returns

Models	Market Model	Carhart Model	GARCH	EGARCH	GJR-GARCH
Event Day					
-20	0.537	0.152	0.203	0.171	0.169
-19	0.933	0.335	0.411	0.399	0.394
-18	0.962	0.424	0.517	0.485	0.476
-17	0.889	0.489	0.555	0.522	0.526
-16	0.975	0.680	0.770	0.708	0.666
-15	0.849	0.816	0.889	0.834	0.773
-14	0.755	0.925	0.990	0.950	0.893
-13	0.491	0.774	0.682	0.738	0.805
-12	0.360	0.646	0.714	0.644	0.599
-11	0.340	0.738	0.823	0.718	0.709
-10	0.246	0.613	0.688	0.587	0.570
-9	0.190	0.489	0.631	0.517	0.411
-8	0.074*	0.288	0.302	0.230	0.142
-7	0.036**	0.222	0.218	0.172	0.137
-6	0.041**	0.193	0.113	0.131	0.129
-5	0.049**	0.196	0.120	0.148	0.141
-4	0.044**	0.159	0.094*	0.111	0.085*
-3	0.040**	0.171	0.135	0.143	0.114
-2	0.005***	0.014**	0.015**	0.012**	0.013**
-1	0.004***	0.013**	0.015**	0.021**	0.015**
0	0.007***	0.015**	0.016**	0.020**	0.016**
1	0.011**	0.033**	0.017**	0.022**	0.024**
2	0.024**	0.030**	0.024**	0.031**	0.026**
3	0.021**	0.029**	0.029**	0.032**	0.017**
4	0.033**	0.044**	0.041**	0.038**	0.032**
5	0.027**	0.032**	0.026**	0.036**	0.031**
6	0.033**	0.044**	0.037**	0.053*	0.044**
7	0.054*	0.065*	0.040**	0.055*	0.068*
8	0.037**	0.050*	0.043**	0.061*	0.065*
9	0.054*	0.070*	0.062*	0.061*	0.066*
10	0.043**	0.074*	0.056*	0.069*	0.062*
11	0.053*	0.094*	0.079*	0.090*	0.089*
12	0.044**	0.068*	0.097*	0.070*	0.082*
13	0.066*	0.090*	0.115	0.095*	0.103
14	0.073*	0.116	0.146	0.125	0.126
15	0.041**	0.102	0.113	0.113	0.102
16	0.047**	0.107	0.111	0.109	0.082*
17	0.054*	0.092*	0.093*	0.104	0.077*
18	0.053*	0.117	0.101	0.111	0.077*
19	0.066*	0.126	0.113	0.119	0.103
20	0.057*	0.113	0.114	0.106	0.095

Notes: This table reports the p-values of the Corrado rank test on the statistical significance of the abnormal returns. The abnormal returns of each stock are estimated using an estimation window of 212 observations (Schedule 13D and non-voice) and 198 observations (voice), respectively. * indicates statistical significance at level 10%; ** indicates statistical significance at level 5%;*** indicates statistical significance at level 1%.

Table 13: Robustness - Corrado rank test results of the non-voice abnormal returns

Models	Market Model	Carhart Model	GARCH	EGARCH	GJR-GARCH
Event Day					
-20	0.842	0.970	0.697	0.791	0.943
-19	0.727	0.855	0.469	0.564	0.624
-18	0.745	0.856	0.452	0.540	0.597
-17	0.736	0.544	0.256	0.313	0.366
-16	0.713	0.517	0.196	0.273	0.286
-15	0.585	0.417	0.153	0.221	0.250
-14	0.593	0.469	0.183	0.272	0.295
-13	0.414	0.400	0.139	0.240	0.216
-12	0.384	0.360	0.132	0.212	0.191
-11	0.339	0.313	0.100	0.172	0.156
-10	0.304	0.346	0.110	0.184	0.184
-9	0.288	0.322	0.094*	0.172	0.140
-8	0.245	0.277	0.075*	0.133	0.111
-7	0.286	0.285	0.070*	0.144	0.111
-6	0.310	0.307	0.089*	0.180	0.132
-5	0.364	0.350	0.123	0.201	0.162
-4	0.328	0.323	0.133	0.201	0.179
-3	0.317	0.281	0.120	0.170	0.159
-2	0.364	0.306	0.149	0.186	0.188
-1	0.408	0.357	0.176	0.224	0.216
0	0.463	0.397	0.208	0.264	0.241
1	0.408	0.392	0.195	0.218	0.220
2	0.465	0.450	0.220	0.262	0.251
3	0.518	0.498	0.257	0.303	0.288
4	0.574	0.560	0.307	0.352	0.350
5	0.585	0.553	0.306	0.342	0.349
6	0.548	0.531	0.293	0.323	0.339
7	0.500	0.441	0.265	0.263	0.296
8	0.538	0.472	0.281	0.261	0.339
9	0.605	0.532	0.335	0.313	0.398
10	0.658	0.590	0.393	0.373	0.443
11	0.698	0.631	0.424	0.404	0.480
12	0.692	0.628	0.428	0.405	0.488
13	0.740	0.607	0.474	0.456	0.533
14	0.743	0.584	0.412	0.399	0.470
15	0.762	0.597	0.420	0.408	0.484
16	0.679	0.599	0.409	0.445	0.480
17	0.727	0.652	0.450	0.497	0.528
18	0.754	0.625	0.379	0.463	0.442
19	0.770	0.692	0.396	0.472	0.451
20	0.829	0.748	0.443	0.528	0.509

Notes This table reports the p-values of the Corrado rank test on the statistical significance of the abnormal returns. The abnormal returns of each stock are estimated using an estimation window of 212 observations (Schedule 13D and non-voice) and 198 observations (voice), respectively. * indicates statistical significance at level 10%; ** indicates statistical significance at level 5%;*** indicates statistical significance at level 1%.