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Xunan Feng
Southwestern University of Finance and Economics

Anders C. Johansson
Stockholm School of Economics

Stockholm School of Economics Asia Working Paper
No. 47

November 2017

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Xunan Feng
Southwestern University of Finance and Economics

Anders C. Johansson[1]
Stockholm School of Economics

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[1] Corresponding author, Stockholm School of Economics, P.O. Box 6501, SE-113 83 Stockholm, Sweden. Email: anders.johansson@hhs.se. Johansson acknowledges financial support from the Marianne & Marcus Wallenberg Foundation. Feng acknowledges financial support from the National Natural Science Foundation of China (71672147). We thank Xiangli Gao, Ying Wang, Qiaoli Chen and Xiaoxiang Hong for their research assistance.

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Abstract

Social media platforms are becoming increasingly important channels for information dissemination. This study examines how microblogging by top executives affects the information environment for listed firms in an emerging market. Using manually collected set from Sina Weibo, one of China's most popular and largest social media platforms, we find that a board chair having a Weibo account is associated with the dissemination of more firm-specific information to the capital market. This result holds up to a battery of robustness tests. We also show that the relationship between board chairs' Weibo usage and information dissemination is stronger for smaller firms, firms that went public more recently, and firms characterized by less analyst coverage. Findings in this study have important implications for the understanding of the role of social media in the dissemination process of corporate information.

JEL Classification: G12; G14; M41; N20
Keywords: Social Media; Information dissemination; Capital market; Investors; China

1 Introduction

Over the last decade, the internet has become the most important source for financial news, with thousands of websites providing information that can be accessed by all types of investors (Drake et al., 2017). More generally, it has been shown that consumers increasingly turn to fellow customers rather than expert advice when making their buying decisions (Chen et al., 2014). The growing importance of social media in information dissemination and the influence it has on buy and sell decisions in all walks of life have also transformed how financial information is disseminated and utilized. Previous studies have shown that the internet and social media act as channels for dissemination of corporate information, which in turn may affect the capital market (e.g. Hu et al., 2013; Blankespoor et al., 2014; Chen et al., 2014). The Securities and Exchange Commission (SEC) in the United States recognized the growing importance of this new information channel and announced that it would allow firms to disclose news through social media in 2013.

The goal of this study is to examine how social media usage by top executives acts as an information intermediary for the firms they control. To do this, we collect official Sina Weibo accounts of board chairs in Chinese listed firms and analyze how the activation of a microblog account influences the dissemination of information. Sina Weibo is the largest microblogging service in China with 361 million monthly active users as of June 2017. Similar to Twitter, it is a popular platform for quick dissemination of news and opinions, and is thus suitable for examining the research questions in this study.

We hypothesize that microblogging by board chairs in Chinese listed firms complements traditional information sources by helping to improve information

dissemination to the market. Moreover, if microblogging by board chairs indeed helps decrease information asymmetries in the financial markets, we believe that the impact of board chairs' activity over social media on firm-specific information dissemination will increase for firms characterized by low transparency. Typical firms with lower transparency include smaller firms, firms that recently went public, and firms with less analyst coverage.

We collect data on board chairs' Weibo accounts and analyze their effect on information pertaining to stock price returns between 1 January 2010 and 31 December 2016. We find that only a small percentage (from 1 percent in 2010 to approximately 2.5 percent in 2016) of the board chairs of all listed firms have signed up for a Weibo account. In our benchmark analysis, we find that there is a significant and negative relationship between board chairs on Weibo and stock return synchronicity. This means that a board chair with a Weibo account is positively related to a better information environment for the firms under his or her control. We confirm this initial baseline result with several robustness tests, including a firm-fixed regression analysis, an instrumental variable two-stage least square analysis, and various matching methods. Next, we examine how specific firm characteristics influence the relationship between board chair' Weibo usage and information dissemination. We find that the effect of Weibo usage by board chairs is significantly stronger for smaller firms, newly listed firms, and firms with less analyst coverage. In addition, we find that the relationship between board chair' Weibo usage and information dissemination is greater for family firms. For additional robustness, we also carry out an analysis in which we exclude firms in the finance industry and observations from 2015 as that was an unusually turbulent year for the Chinese stock market. Last but not least, we exclude alternative

explanations for our findings. To sum up, our empirical findings support the hypothesis that activity over social media by board chairs in Chinese listed firms helps improve the information environment for the firms in question and that this relationship is dependent on several firm characteristics that are associated with transparency.

This study connects to several strands of literature. First, we contribute to a large body of literature that examines the information environment for listed firms. Previous research has analyzed capital market effects of professional reports (e.g., Drake et al., 2014; Dai et al., 2015), press coverage (Fang and Peress, 2009; Kothari et al., 2009; Bushee et al., 2010), and different types of internet intermediaries (Drake et al., 2017). Our study builds on this research by examining how social media usage by top executives affects the incorporation of firm-specific information in the capital market. Second, we extend the literature on social media and corporations. Previous studies have shown that firms use social media to reduce information asymmetry and increase liquidity of their stocks (Blankespoor et al., 2014), engage their customers (Lee et al., 2017), attempt to control the negative effects of product recalls (Lee et al., 2015), and for the strategic dissemination of news (Jung et al., 2017). We contribute to this strand of literature by providing evidence for how corporations can utilize social media to improve their information environment.

Third, there is a growing literature on the relationship between social media and capital markets. For example, Bollen et al. (2011) examine how the mood on Twitter can help predict future stock market movements. Park et al. (2013) conduct an experiment on a stock message board to analyze the role of confirmation bias among investors. Chen et al. (2014) and Jame et al. (2016) analyze how crowd sourced opinions of investors relate to stock market movements. Blankespoor et al. (2014) show

how firm news disseminated via Twitter is related to lower bid-ask spreads and higher market liquidity. We extend this burgeoning literature by shedding light on how social media usage by key personnel in listed firms affects the stock market.

The rest of the study is organized as follows. Section 2 introduces the Chinese microblogging service provided by Sina Weibo and explains why we have chosen this particular social media platform for our analysis. Section 3 presents the data and methodological approach. Section 4 provides the results of the benchmark model as well as alternative model specifications and robustness tests. Section 5 examines different types of firm-specific characteristics that may influence the relationship between board chairs' Sina Weibo usage and the capital market. Section 6 provides further robustness tests that focus on the data sample and the measurement of information dissemination. Finally, Section 7 concludes the study.

2 Sina Weibo - Microblogging in China

The Chinese government has long enforced a policy of both encouraging the use of the internet while also maintaining vigorous control (Sullivan, 2012). One direct effect of this strategy is that the ecological social media system found in most other countries around the world is not present in China. The global microblogging platform Twitter was established in 2006 and was soon used by Chinese netizens as well. As early as 2007, several Chinese microblogs services (including TaoTao, Jiwai, Fanfou, and Zuosa) similar to Twitter were operational (Qin et al., 2017). However, none of these platforms managed to attract a larger user base. In 2009, microblogging had begun to play an important role as a channel for free-flowing information on current events.

However, this was not to last. In July 2009, a series of violent riots broke out in Urumqi, the capital city of the Xinjiang Uyghur Autonomous Region in China. The Chinese government quickly blamed the ethnic riots that resulted in the death of more than 200 people on the uninhibited flow of information and rumors online. Subsequently, the use of international social media platforms such as Twitter and Facebook was banned. The news portal Sina.com presented a plan for a new microblog social media platform that would control incoming posts by tracking and blocking content that was deemed to be too sensitive (Sullivan, 2012). The company's CEO was well trusted by the government and Sina Weibo was launched in August 2009. Several competitors including NetEase, Sohu and Tencent soon launched similar services. However, Sina Weibo has remained the most popular platform for microblogging in China.

Today, Sina Weibo, typically called Weibo, is one of China's biggest social media platforms. While it is often called "China's Twitter", Weibo is more versatile and can in many ways be regarded as a combination of Twitter and Facebook. Weibo posts are limited to 140 characters, and photos, videos, images, and gifs can be uploaded as well. There are also significant differences between Twitter and Weibo in terms of user behavior (Gao et al., 2012). Weibo users tend to be more active and disclose more information about themselves (in contrast to Twitter users, Weibo users also post more during the weekends). While Twitter is a popular channel for political news flows and opinions, Weibo users, for natural reasons, tend to avoid issues that relate to political organizations and other institutions.

While some observers have argued that new rules established in 2015 requiring users to register with their real names would result in a strong decline and even death

of Weibo, user trends between 2015 and 2017 say otherwise. In the 2017 June-ended quarter, Sina Weibo reported that it had reached 361 million monthly active users, an increase of 28 percent from the same period the previous year. This can be compared to Twitter reporting 319 million monthly active users for the same quarter. A 2016 report from China Internet Network Information Center (CNNIC) shows that the main purpose of using Weibo is to obtain trending news in time. Thus, Weibo constitutes a dominant source of news content which enables its users to acquire, share, and comment on a variety of subjects. The importance of Weibo as a channel for dissemination of new information also means that it is suitable for the analysis of how top executives' use of social media affects the information environment of their firms.

3 Data and Methodology

3.1 Board Chairs' Sina Weibo Usage

We first identify the board chair for all listed companies during the period 2010-2016. The sample starts in 2010 since Sina Weibo was launched the previous year. The main reason we focus on the board chair rather than the CEO is because the chair often has the most authority in terms of making operation decisions in Chinese companies (Kato and Long, 2006; Feng and Johansson, 2017).[2] For each board chair, we then collect information on whether he or she has opened up an official Weibo account. Panel A in Table 1 presents the number of all listed firms and the number of board

[2] Feng and Johansson (2016) note that the board chair in Chinese companies is often called *yi ba shou* (number one), while the CEO is *er ba shou* (number two).

chairs with Weibo accounts for each year throughout the sample period. As is evident in the table, only a small fraction of board chairs in listed companies have a Weibo account. In 2010, as few as 18 or less than 1 percent of the total number of board chairs had a Weibo account. The number of board chairs with Weibo accounts has increased slowly but steadily throughout the sample period, with a total of 67 or 2.7 percent of the total number of board chairs having a Weibo account in 2016.

Panel B in Table 1 presents the distribution of listed firms by industry and the number of firms characterized by having a board chair with a Weibo account. Most of the firm observations are within manufacturing and that is also where most of the observations of firms with a board chair using Weibo is found. However, the highest percentage of firms characterized by having a board chair with a Weibo account are found in the hotel and catering, culture, sports and entertainment, and information technology industries.

[TABLE 1 HERE]

3.2 Stock Return Synchronicity

To measure informativeness in the capital market, we use a firm-specific return variation measure. A similar approach has been used in several studies on stock market information (e.g., Durnev et al., 2003; Durnev et al., 2004; Jin and Myers, 2006; Feng et al., 2016). More specifically, we follow Morck et al. (2000) and calculate the stock

return synchronicity for each firm. We first obtain the R^2 from an expanded index model[3]:

$$r_{i,t} = \alpha + \beta_{m,t} r_{m,t} + \beta_{IND,t} r_{IND,t} + \varepsilon_{i,t}. \quad (1)$$

Here, $r_{i,t}$ is the return of stock *i* in week *t*. $r_{m,t}$ is the market return in week *t*, calculated as the weekly tradable market value-weighted returns of all Chinese A-share. Finally, $r_{IND,t}$ is the industry return in week *t*, calculated as the tradable market value-weighted industry index, excluding firm *i*. R^2 is the coefficient of determination from the estimation of model (1). As R^2 ranges from 0 to 1, we then follow Morck et al. (2000) and use a logistic transformation to obtain a suitable measure of stock return synchronicity:

$$Synch = LOG\left(R^2/(1 - R^2)\right). \quad (2)$$

A high value of Synch suggests that less firm-specific information is included in the stock return and that it is instead market-wide information that is driving the price (Roll, 1988; Morck et al., 2000). Correspondingly, a smaller value means that more firm-specific information is incorporated into the stock market.

[3] Using other commonly used models to calculate stock synchronicity does not alter our results.

3.3 Firm Data

We obtain firm-level data for all listed firms with A-shares on the Shenzhen and Shanghai stock exchanges from the China Security Market and Accounting Research (CSMAR) database. CSMAR provides detailed annual financial information on all listed firms in China. Appendix 3 presents summary statistics for the variables used in the empirical analysis and Appendix 4 displays correlation between them. *Synch* is the measure for stock return synchronicity defined in the previous section and *Weibo* is a dummy variable that equals one if the firm has a board chair with a Weibo account and zero otherwise.

The remaining variables are firm-specific control variables and include: *Size*, the natural logarithm of total assets of the firm; *Leverage*, the ratio of total liabilities to total assets; *ROE*, net profits divided by total equity; *Sales Growth*, or the growth in sales over the last year; *Segments*, used to capture firm-level complexity, measured as the number of business segments exceeding 30% of the firm's total sales; *Volume*, defined as the natural logarithm of trading volume of the firm; *Volatility*, the standard deviation of the stock return of the firm; *Illiquidity*, the average ratio of daily absolute returns to the daily trading volume, multiplied by 10^9; *%INST*, the ratio of mutual funds' holdings, measured as the aggregate number of shares held by mutual funds, scaled by outstanding shares of the firm; *Analyst*, the natural logarithm of one plus the number of analysts that cover the firm, *Investibility*, the ratio of shares which can be traded in the secondary market; *HHI*, the Herfindahl-Hirschman Index, an indicator of competition estimated by using all listed firms' sales from the same industry; *Family Firm*, a dummy variable which equals one if the firm is ultimately controlled by individuals and zero

otherwise; *Control-Ownership*, a proxy for the ultimate owner's control in excess of their ownership rights, defined as the difference between the ultimate owner's control rights and ownership; *Ownership*, the cash flow rights owned by the ultimate owner; *Synchronous Fundamentals*, the Spearman correlation between the firm's ROA and its industrial average ROA over the past ten quarters.

4 Microblogging and the Capital Market

4.1 Baseline Results

We begin our analysis of the relationship between board chair' Weibo usage and stock return synchronicity with an overview of R^2 and *Synch* for firms with and without board chairs with a Weibo account. Panel A in Table 2 presents the mean and median, as well as tests for differences between the two groups of firms. The results show that firms characterized by having a board chair with a Weibo account have a smaller R^2 and *Synch*. The difference is significant for both the mean and median values of the two measures. While preliminary, these findings indicate that board chairs using Weibo is associated with more firm-specific information in their stock prices and thus provide a better information environment for investors.

Although these initial results support our research hypothesis, we need to control for firm-specific variables that may influence stock return synchronicity. To do this, we run a baseline ordinary least square regression and a Fama and MacBeth (1973) panel regression using the following model specification:

$$Synch_{i,t} = \alpha + \beta_0 Weibo_{it} + \beta \mathbf{x}_{it} + \gamma \mathbf{z}_i + \varepsilon_{it}. \quad (3)$$

$Synch_{it}$ is the measure for stock return synchronicity for firm *i* in year *t*, which is defined in Section 3.2 and $Weibo_{it}$, the main explanatory variable, is a dummy variable which equals one if the board chair of firm *i* had a Weibo account in year *t* and zero otherwise. $\mathbf{x}_{it}$ is a vector of the additional control variables introduced in Section 3.3, $\mathbf{z}_i$ is a vector of year- and industry-fixed effects. We cluster standard errors by firm and year (Petersen, 2009; Thompson, 2011).

The results for two regressions are presented in Panel B of Table 2. In both estimations, the main explanatory variable *Weibo* is significantly negative. These results corroborate the initial findings of a significant positive relationship between board chairs' Weibo usage and firm-specific information imputed in the market. Microblogging board chairs are thus associated with a better information environment for investors.

[TABLE 2 HERE]

4.2 Alternative Model Specifications

While the empirical analysis in the preceding section supports our hypothesis, it assumes that Weibo usage is exogenously and randomly determined. To see if the baseline results are robust, we now relax this assumption. In addition, it is possible that unobserved or omitted variables that are difficult to measure affect our main

explanatory variable *Weibo* as well as the dependent variable *Synch*. For example, it could be argued that it is not Weibo usage by the board chair, but instead good corporate governance that results in a higher level of firm-specific information transmission in the capital market. To remedy this potential issue, we have included *Control-Ownership* and *Ownership* as control variables as well since expropriation by the ultimate owner is a key corporate governance issue in China.

To further handle with the potential endogeneity problem, we run a fixed-effect regression. The fixed-effect model allows us to control for firm-specific effects, and thereby to control for unobservable firm-related factors that may influence stock return synchronicity. It also helps us address the issue of potential reverse causality in the baseline regression. The fixed-effect variable regression model includes the same dependent variables as the benchmark regression, but excludes *Control-Ownership* and *Segments*, as these typically change very slowly. The number of reservations in the fixed-effect regression is reduced somewhat since each firm needs at least two observations to be included. The fixed-effect regression results are presented in Table 3. The key explanatory variable *Weibo* is still negatively significant at the 1 percent level, suggesting that the initial results supporting our hypothesis are robust.

[TABLE 3 HERE]

The results from the fixed-effect regression at least partially alleviate the concerns for potential endogeneity. However, the model specification in that analysis assumes that the potential unobserved heterogeneity we address is constant over time. To address the possibility of time-varying omitted variables, we also conduct a two-

stage instrumental variable (IV) analysis. In the first stage, we construct a selection model for board chairs to open a Weibo account. In the second stage, we include *Predicted Weibo* as an independent variable. We construct a measure for board chair personality by identifying his or her personal characteristics in the news. We first flag all news articles we find that contain at least the company name/abbreviation/code and the name of the board chair. Several individuals involved in the project then read the articles in detail to ascertain personal characteristics of the board chair. If at least three different sources claim that the board chair is good at social interaction (*shejiao*), we define the dummy variable *Social* as one and zero otherwise. We use the following news sources for the collection of this data: GTA Financial News Database, Genius Finance, INFOBANK, and China Core Newspapers Full-text Database.

Panel A in Table 4 presents the summary statistics of the IV *Social*. On average, board chairs with a Weibo account are clearly seen as better at social interaction in Chinese media. Board chairs with a Weibo account have higher mean and median scores for Social and simple tests for difference in mean and median of Social are significant at the 1 percent level. Next, we run the two-stage regression analysis. Panel B in Table 4 presents the results, with the first column displaying the first-stage results and the second column showing the second-stage results. In the first-stage regression, the coefficient for Social is positively significant at the 1 percent level, indicating that the IV Social indeed is strongly related to Weibo usage. In the second-stage regression, *Predicted Weibo* is negatively significant at the 1 percent level. To be sure of the suitability of the estimation, we also carry out tests for exogeneity, relevance and validity of instruments. The Shea partial R^2 values and the *F*-statistic provide further support for the relevance of our IV in the first stage. The Anderson–Rubin *F*-statistic

rejects the null hypothesis, thereby indicating that the endogenous regressor is relevant. Finally, the Hansen *J*-statistic is unable to reject the null hypothesis that the instrument is valid and orthogonal to the residuals. The exclusion of them in the main estimated equation is thus appropriate. To conclude, the two-stage regression again supports the main initial result, namely that microblogging board chairs are positively associated with a better information environment.

[TABLE 4 HERE]

It is always a challenge to identify a good IV for a two-stage regression analysis. We acknowledge this and conduct additional robustness tests based on matching samples. Our main aim here is to use matching methods to identify samples of control firms with similar characteristics but without board chairs who have Weibo accounts. If the matching models are well designed, the difference between the treatment sample and the control sample will be driven by the key explanatory variable *Weibo*. For comprehensiveness, we use four alternative matching methods commonly found in the literature: firm size and industry; firm size, industry, board chair age, and board chair education; caliper matching; Kernel matching. The first two matching methods are based on firm- and individual-specific characteristics, while the latter two are statistical propensity score matching methods. Table 5 presents the average treatment effects, or the difference between the outcome of treated and non-treated (control) firms. The results show that the level of stock return synchronicity is significantly lower for treated firms, i.e. firms characterized by a board chair with a Weibo account. This finding holds

up for all four alternative matching methods, thus providing further support to our previous findings.

[TABLE 5 HERE]

To look at the strength of our results in Table 5, we also conduct a difference-in-difference (DiD) test to analyze the average treatment effects. To do this, we first construct firm samples for "Pre-Weibo usage", with the three-year average stock return synchronicity before the board chair of the firm in question opens up a Weibo account. We create corresponding subsamples for "Post-Weibo usage". We then match each of these subsamples using the four different matching methods discussed earlier. By doing this, we can analyze the difference between pre- and post-Weibo usage by board chairs and compare this difference for the treatment and control groups.

Table 6 presents the results for all four DiD tests. Panel A presents the results for the size- and industry-matched firm groups. Looking at the first two lines, we find that the difference in stock return synchronicity is highly significant for the treatment group, but insignificant for the control group. That is, Weibo significantly reduces stock return synchronicity for treated firms but not for control firms. Next, the first two columns show that the difference in stock return synchronicity for treated and control firms is not significant before Weibo usage, but their difference becomes significant after Weibo usage. That is, the information environment is similar for treated and control firms before Weibo usage, but after a board chair opens a Weibo account, more firm-specific information is incorporated into the stock market.

The remaining three panels exhibit the same results for tests using alternative matching methods. These results show that firms experience a significant improvement in the dissemination of information to the market when their board chair opens up a Weibo account.

[TABLE 6 HERE]

5 The Role of Firm-Specific Characteristics

Having established a significant relationship between board chairs' Weibo usage and firm-specific information in the capital market, we now turn to examining firm-specific characteristics that may influence this relationship. As mentioned in the introduction, we hypothesize that Weibo usage by board chairs is likely to influence stock return synchronicity more for small firms, recently listed firms, and firms with less analyst coverage. The main premise behind this hypothesis is that these firms are typically characterized by a poorer information environment, suggesting that introducing a new channel such as a microblog by their leading figure may have a relatively larger impact. To analyze this, we create three new variables: *Smaller Firm*, a dummy variable that equals one if the firm's market capitalization is less than the median value of the sample and zero otherwise; *Younger Firm*, a dummy variable that equals one if the firm's listing year is lower than the corresponding median value of the sample and zero otherwise; *Fewer Analysts*, a dummy variable that equals one if the number of analyst covering a firm is less than the median value of the sample and zero

otherwise. We then run separate OLS and two-stage regressions in which we include the interaction between *Weibo* and each of these variables.

The results of the regressions that focus on these firm characteristics are presented in Table 7. Panel A displays the result for the analysis of firm size. The interaction variable *Weibo*Smaller Firms* is negatively significant at the 1 percent level, suggesting that the size of the firm is driving the influence board chairs' Weibo usage has on the information environment. Indeed, when we include the interaction term, the coefficient for *Weibo* on its own is no longer statistically significant. Panel B presents the results for the analysis that focuses on listing date. The interaction variable *Weibo*Younger Firm* is negatively significant at the 1 percent level, suggesting that how recent the firm is listed influences the effect board chair usage has on the information environment for the firm. Finally, Panel C presents the results for the analysis of analyst coverage. Similar to the previous two firm characteristics, the interaction variable *Weibo*Fewer Analysts* is negatively significant at the 1 percent level, indicating that the effect board chairs' Weibo usage has on stock return synchronicity and thereby the firm-specific information environment is influenced by the number of analysts covering the firm.

[TABLE 7 HERE]

6 Further Robustness Checks

It could be argued that certain characteristics of the data sample are driving our results. To test the robustness of our results further, we look at three potential issues

with the firm sample: firm ownership, financial firms, and extreme market events. For firm ownership, it could for example be argued that the general information environment differs between firms under private and state control, respectively. We therefore separate the sample into two groups, family and non-family firms, and run new estimations on each of the two subsamples. Table 8 presents the results for three different estimations for each of the two subsamples: a standard OLS, a Fama-MacBeth, and a two-stage regression. The coefficient for the main explanatory variable *Weibo* is negatively significant in all six estimations. The significance is somewhat weaker in the case of non-family firms.[4] This could suggest that Weibo usage may play a larger role as a complementary information channel for family firms compared to non-family firms. Overall, however, the results indicate that the relationship between board chairs' Weibo usage and information efficiency is not driven by ownership type.

[TABLE 8 HERE]

Next, we exclude financial firms. It is generally argued that including them may lead to spurious results as they typically exhibit skewed fundamentals, including very high leverage. In addition, the finance industry in China is highly regulated, resulting in financial firms exhibiting significantly different characteristics from other firms. Second, periods of unusual stock market activity may affect the analysis. During the

[4] Unreported tests show that the Weibo coefficient for the family firm sample is significantly different from that for non-family firms at the 1 percent level.

sample period used in this study, 2015 marked a year with very high turbulence. As Figure 1 shows, there was an extremely strong bull-market run leading to what many regarded as the burst of a bubble in June that year. A third of the value of A-shares was lost within a month and market volatility remained high for an extended period.

To take these potential sample issues into account, we run two new sets of regressions, one without financial firms and one in which we exclude all firm observations for 2015. For each of these new samples, we run three separate regressions: a standard OLS regression, a Fama-MacBeth regression, and a two-stage regression. The results of these estimations are presented in Table 9. As can be seen in the table, the coefficient for our key explanatory variable *Weibo* is negatively significant at the 1 percent level in all six estimations. We can therefore conclude that our initial results on the relationship between board chairs' Weibo usage and firm-specific information in the stock market also hold up when we take potential data sample issues into consideration.

[TABLE 9 HERE]

A final but crucial issue is the question of what stock return synchronicity actually signifies. In this study, we have used it as a measure of firm-specific information dissemination. However, it has been argued that a low R^2, and a corresponding high level of synchronicity, may not constitute a good measure of information content in stock prices (e.g., Ashbaugh-Skaife et al., 2005; Kelly, 2014). In our setting, when a board chair opens a Weibo account, noise-trading may for example increase as a result because the board chair may post publicly disclosed

information. That is, if individual investors fail to realize that the information already is publicly disclosed, noise trading will increase, which may in turn lead to a decrease in stock return synchronicity. This conjecture could provide an alternative explanation for the negative relationship between board chairs' Weibo usage and stock return synchronicity.

To verify that our synchronicity measure indeed does capture the amount of firm-specific information impounded in firms' stock prices, we run a new test that focuses on the association between returns and earnings. Gul et al. (2010) argue that if the synchronicity measure captures firm-specific information, the return-earnings association should be weaker for firms with high synchronicity. This is because corporate earnings are typically regarded as the most important firm-specific information that is publicly available. To test this, we run a model similar to that of Gul et al. (2010):

$$MAR_{i,t} = \alpha_0 + \alpha_1 NI_{i,t} + \alpha_2 NI_{i,t} * Syn\_Decile_{i,t} + \sum_k \alpha_k NI_{i,t} * Control_{i,t}^k + Industry + Year + \varepsilon_{i,t}. \quad (4)$$

Here, $MAR_{i,t}$ is the market-adjusted monthly returns compounded over a 12-month period that ends the fourth month after the end of firm *i*'s fiscal year; NI is net income deflated by the market value of equity for firm *i* at the beginning of year *t*; $Syn\_Decile_{i,t}$ is the scaled decile rank score. To control for determinants of the relationship between returns and earnings, we include a set of control variables, $Control_{i,t}^k$: *Firm Size*, defined as the natural logarithm of the market capitalization; *Tobin's Q*, the ratio of the

sum of market value of equity and book value of liabilities over the book value of total assets; *Leverage*, the ratio of total liabilities to total assets. Finally, we control for industry and year fixed effects by including dummies for each of them.

The results of the regression on the return-earnings association are presented in Table 10. The coefficient for $NI_{i,t}$ is significantly positive, suggesting that earnings are associated with stock returns. Moreover, the coefficient for $NI_{i,t} * Syn\_Decile_{i,t}$ is significantly negative, indicating that the market assigns a lower value to earnings of firms characterized by a higher stock return synchronicity, and that information on corporate earnings is less impounded in stock prices for them. These findings support the argument that our measure of stock return synchronicity captures the extent to which firm-specific information incorporated into stock prices in our sample.

[TABLE 10 HERE]

7 Conclusion

This study examines how the usage of social media in the form of microblogging by corporate executives in China is affecting the information environment for their firms. We provide strong empirical evidence that Chinese listed firms with a board chair who owns a Weibo account are characterized by a significantly better dissemination of information compared to other listed firms. This finding holds up to a battery of robustness tests, including tests on the measure for firm-specific information dissemination itself. In addition, we find that certain characteristics such as firm size, how recent a firm went public, and analyst following are influential factors

behind the relationship between board chairs' social media usage and firm-specific information dissemination. A plausible reason for these findings is the potential effect on information dissemination for smaller firms, firms that were listed more recently, and firms with less analyst coverage is larger since they constitute firms characterized by a lower level of information being disseminated to the market in general.

These findings suggest that social media can act as an effective information channel that complements traditional channels such as public information by the firm, the media, and analyst reports. The results also show the importance for firms to have top executives who understand and can use social media as a platform for information dissemination. This is especially true for firms with certain characteristics, including being of smaller size, having gone public recently, or having less analysts following them. Finally, and on a more general note, our findings show that the role of social media for companies has gone beyond that of being solely a channel to reach and engage with customers. The potential advantages of disseminating selected information over social media can have direct effects on how the market perceives the company and it should thus be considered to play a possible role in companies' overall communication and operational strategy.

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Table 1. The sample

Panel A: Distribution of Firms with a Board Chair on Sina Weibo
This panel presents the distribution of A-share listed firms by year during 2010-2016. Firms with Board Chair are defined as firms whose board chair has opened a Sina Weibo account.

Year	Number of all listed firms	Firms with Board Chair Weibo	
		Number	As percentage of all listed firms (%)
2010	1858	18	0.969
2011	2013	46	2.285
2012	2101	54	2.570
2013	2114	58	2.744
2014	2178	65	2.984
2015	2306	67	2.905
2016	2447	67	2.738
Total	15017	375	2.497

Table 1. The sample (contd.)

Panel B: Industry Distribution of Firms with a Board Chair on Sina Weibo
This panel presents the distribution of A-share listed firms by industry in 2010-2016. Firms with Board Chair are defined as firms whose board chair has opened a Sina Weibo account.

Industry	Number of all listed firms	Firms with Board Chair Weibo	
		Number	As percentage of all listed firms (%)
Agriculture, Forestry, farming & fishery	240	0	0.000
Mining	441	0	0.000
Manufacturing	9065	224	2.471
Utilities	626	12	1.917
Construction	442	10	2.262
Wholesale and retail	955	25	2.618
Transportation	540	12	2.222
Hotel & catering industry	76	6	7.895
Information transmission、software & information technology service	586	26	4.437
Finance	369	0	0.000
Real estate	864	36	4.167
Leasing & commerce service	196	6	3.061
Scientific research & technology service	70	0	0.000
Water conservancy, environment & public facilities management	141	5	3.546
Education	15	0	0.000
Hygienism & social work	28	0	0.000
Culture, sports & entertainment	202	13	6.436
Comprehensive	161	0	0.000
Total	15017	375	2.497

Table 2. Stock Return Synchronicity and Board Chair Weibo.

Panel A: Summary Statistics

This panel presents the summary statistics for the sample portfolios with and without board chair weibo. Mean (median) is the average (median) value across all firms and years. All continuous variables are winsorized at the top and bottom 1%. The last column reports *T*–test/ Wilcoxon-Mann-Whitney test for the difference between *with* and *without* board chair weibo. ***,** and * denote significance at 1%, 5%, and 10%, respectively.

Mean			
	Weibo		T-statistic for
	With (1)	Without (2)	the difference between （1） and （2）
R^2	0.325	0.347	2.31**
Synch	-0.446	-0.373	2.91***

Median			
	Weibo		Wilcoxon-Mann-Whitney test for
	With (1)	Without (2)	the difference between （1） and （2）
R^2	0.321	0.348	2.14**
Synch	-0.324	-0.272	2.11**

Table 2. Stock Return Synchronicity and Board Chair Weibo (contd.)
Panel B: Multivariate Regression Analysis

This table presents the multivariate regression results for board chair Weibo and stock return synchronicity. The sample period is from 2010 to 2016. The dependent variable is *Synch*, a commonly used stock return synchronicity measure calculated as $\log(R^2/(1-R^2))$. R^2 is from regressions of the market model of return of the firm against the stock market index and industry index using weekly data. *Weibo* is a dummy variable which equals one when the board chair of firm *i* posted weibo at year *t,* and zero otherwise. *Size* is the natural logarithm of market capitalization of firm *i* at the beginning of year *t. Leverage* is defined as the book value of all liabilities scaled by total assets, again measured at the beginning of the year *t*. *ROE* is the ratio of net profits divided by total equities at the beginning of the year *t*. *Sales Growth* is the ratio of sales growth from last year to this year. *Segments* is the number of segments, including only those with sales that exceed 30% of firm *i*'s total sales at the beginning of year *t. Volume* is the natural logarithm of trading volume of firm *i* at year *t. Volatility* is the standard deviation of the stock return of firm *i* at year *t. Illiquidity* is defined as the average ratio of daily absolute returns to the daily trading volume at year *t,* multiplied by 10^9. *%INST* is the ratio of mutual funds' holdings, measured as the aggregate number of shares held by mutual funds, scaled by outstanding shares of firm *i* in year *t. Analyst* is the natural logarithm of one plus the number of analysts that cover firm *i* at year *t. Investibility* is the investibility measure of firm *i* at year *t. HHI* (Herfindahl-Hirschman Index) is an indicator of competition, estimated by using all listed firms' sales from the same industry at the beginning of year *t*. *Family Firm* is a dummy variable which equals one if the firm is ultimately controlled by individuals, and zero otherwise. (C*ontrol – Ownership*) is the difference between the ultimate owner's control rights and ownership. *Ownership* is defined as the cash flow rights of the ultimate owners. *Synchronous fundamentals* is defined as the Spearman correlation between the firm's ROA and its industrial average ROA over the past ten quarters. Model (1) presents the results from the OLS in which year and industry dummies are included but not reported. *t*-statistics are given in parentheses and computed using heteroskedasticity-robust standard errors clustered by firm and year (Petersen, 2009; Thompson, 2011). Column (2) presents Fama and MacBeth(1973) panel results. Industry dummies are included but not reported and *t*-statistics are computed using heteroskedasticity-robust standard errors clustered by industry. All continuous variables are winsorized at the top and bottom 1%.***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	OLS	**Fama and MacBeth (1973)**
	(1)	**(2)**
Weibo	-0.069***	-0.067***
	(-3.11)	(-3.09)
Size	-0.023***	-0.024*
	(-2.66)	(-1.78)
Leverage	-0.060***	-0.056**
	(-3.25)	(-2.42)
ROE	0.096	0.088

	(1.19)	(1.23)
Sales Growth	-0.009	-0.002
	(-1.51)	(-0.06)
Segments	-0.010	-0.008
	(-0.98)	(-0.20)
Volume	0.110***	0.130***
	(16.47)	(7.86)
Volatility	-6.427***	-7.992***
	(-29.14)	(-13.18)
Illiquidity	-1.487	-1.144
	(-1.44)	(-0.72)
%INST	-0.341***	-0.233***
	(-8.77)	(-5.43)
Analyst	0.012***	0.011**
	(3.41)	(2.10)
Investibility	-0.059***	-0.034***
	(-3.07)	(-2.82)
HHI	-1.269***	-1.650***
	(-5.11)	(-4.25)
Family Firm	-0.086***	-0.084***
	(-10.34)	(-4.11)
Control – Ownership	0.203***	0.207**
	(3.97)	(2.32)
Ownership	0.016	0.023
	(0.60)	(0.24)
Synchronous fundamentals	0.040***	0.037**
	(2.89)	(2.18)
Intercept	-1.757***	-2.345***
	(-10.03)	(-5.07)
Year Dummy	Yes	No
Industry Dummy	Yes	Yes
N	15017	15017
Adjusted R^2	0.391	0.226

Table 3. Firm Fixed Effects

This table presents the firm fixed effect regression results for board chair weibo and stock return synchronicity. The sample period is from 2010 to 2016. The dependent variable is *Synch*, a commonly used stock return synchronicity measure, calculated as $\log(R^2/(1-R^2))$. R^2 is from regressions of the market model of return of the firm against the stock market index and industry index using weekly data. *Weibo* is a dummy variable which equals one when the board chair of firm *i* posted weibo at year *t,* and equals zero otherwise. *Size* is the natural logarithm of market capitalization of firm *i* at the beginning of year *t. Leverage* is defined as the book value of all liabilities scaled by total assets, again measured at the beginning of the year *t*. *ROE* is the ratio of net profits divided by total equities at the beginning of the year *t*. *Sales Growth* is the ratio of sales growth from last year to this year. *Volume* is the natural logarithm of trading volume of firm *i* at year *t. Volatility* is the standard deviation of the stock return of firm *i* at year *t. Illiquidity* is defined as the average ratio of daily absolute returns to the daily trading volume at year *t,* multiplied by 10^9. *%INST* is the ratio of mutual funds' holdings, measured as the aggregate number of shares held by mutual funds, scaled by outstanding shares of firm *i* in year *t. Analyst* is the natural logarithm of one plus the number of analysts that cover firm *i* at year *t. Investibility* is the investibility measure of firm *i* at year *t. HHI* (Herfindahl-Hirschman Index) is an indicator of competition, estimated by using all listed firms' sales from the same industry at the beginning of year *t*. *Synchronous fundamentals* is defined as the Spearman correlation between the firm's ROA and its industrial average ROA over the past ten quarters. Year dummies are included but not reported and *t*-statistics are computed using heteroskedasticity-robust standard errors clustered by year. All continuous variables are winsorized at the top and bottom 1%.***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	Firm Fixed Effect
Weibo	-0.014***
	(-5.19)
Size	0.209***
	(12.50)
Leverage	-0.141***
	(-3.02)
ROE	0.149***
	(3.77)
Sales Growth	0.015**
	(1.99)
Volume	0.168***
	(19.52)
Volatility	0.528***
	(2.91)
Illiquidity	26.680***
	(17.04)
%INST	-0.077
	(-1.50)

Analyst	0.036***
	(5.86)
Investibility	0.174***
	(5.96)
HHI	-0.778**
	(-2.37)
Synchronous fundamentals	0.182***
	(10.06)
Intercept	-9.347***
	(-22.95)
Year Dummy	Yes
N	13748
Adjusted R^2	0.527

Table 4. Two-stage Regressions

Panel A: Summary Statistics of Instrument Variables

This panel presents the summary statistics of instrument variables. The mean value is provided in column (1) and (2), and the corresponding median value is in parenthesis. The last column provides T-statistic （Wilcoxon-Mann-Whitney test） for the difference between firms with and without board chair weibo. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	Weibo		T-statistic（Wilcoxon-Mann-Whitney test） for the difference between（1）and（2）
	With	Without	
Social	0.384 （0.000）	0.102 （0.000）	11.12*** （17.17***）

Table 4. Two-stage Regressions (contd.)

Panel B: Two-stage Regression Results

This panel presents the two-stage regression results of Weibo and stock return synchronicity. Predicted Weibo is the predicted probability of Weibo based on the estimation in the first-stage model. The dependent variables in the second stage model are stock return synchronicity. The lower part of this panel shows the partial *F*-statistic and the partial R_2 from the first stage regression and the values for Anderson–Rubin *F*-statistic test and Hansen *J*-statistic.

	First stage	**Second stage**
	Weibo	***Syn***
Predicted Weibo		-0.084***
		(-12.75)
Social	0.015***	
	(7.68)	
Size	0.005	-0.019***
	(1.54)	(-2.81)
Leverage	0.012	-0.053***
	(0.34)	(-3.62)
ROE	0.003	0.097
	(0.70)	(1.03)
Sales Growth	0.006	-0.009
	(1.19)	(-1.41)
Segments	0.021	-0.010
	(0.79)	(-1.24)
Volume	0.041	0.103***
	(1.24)	(12.63)
Volatility	0.168	-6.234***
	(0.95)	(-18.32)
Illiquidity	-0.018	-1.439
	(-0.50)	(-1.21)
%INST	0.035	-0.343***
	(1.26)	(-5.69)
Analyst	0.061	0.014***
	(1.08)	(3.75)
Investibility	0.007	-0.063***
	(1.34)	(-3.21)
HHI	0.040	-1.261***
	(0.25)	(-5.85)

Family Firm	0.043	-0.081***
	(0.28)	(-9.40)
Control – Ownership	0.006	0.214***
	(0.17)	(3.65)
Ownership	0.006	0.013
	(0.15)	(0.83)
Synchronous fundamentals	0.001	0.045**
	(0.76)	(2.17)
Intercept	-0.134*	-2.566***
	(-1.79)	(-18.54)
Year Dummy	Yes	Yes
Industry Dummy	Yes	No
N	15017	15017
Pseudo /Adjusted R^2	0.281	0.415
	Tests of Exogeneity, Relevance and Validity of Instruments	
Partial F-statistic: First Stage	31.654	
Partial R^2*: First Stage*	0.227	
Anderson–Rubin F-statistic		25.492
Hansen J-statistic		0.237

Table 5. Matching method for effects of weibo on stock return synchronicity
This table presents average treatment effects, i.e. the difference between outcomes of treated and control firms with similar characteristics or propensity scores. (1) and (2) are dimension-by-dimension matching methods. (3) and (4) are propensity score matching methods. "Size/Industry matching" matches each treated firm with control firm which has the nearest market capitalization and is also in the same industry. "Size/Industry and Chair Age/Gender/Education matching" matches each treated firm with a control firm that has the nearest market capitalization, is in the same industry, and whose chair has the nearest age, same gender and educational attainment. The propensity score is estimated using the prediction model in the first stage as seen in Table 3. "Caliper matching" presents the treatment effect using caliper matching with a caliper of 0.05. "Kernel matching" gives the treatment effect using kernel matching. *T*-statistics are calculated using bootstrapping. ***, **, and * denote significance at the 1%, 5% and 10% level, respectively.

Matching Methods	**Stock return synchronicity**
(1)Size/Industry matching	-0.073***
(2)Size/Industry and Chair Age/Gender/Education matching	-0.076***
(3)Caliper matching	-0.082***
(4)Kernel matching	-0.084***

Table 6. Difference-in-Difference Method

This table presents average treatment effects, using the difference-in-difference (DiD) method. "Pre-weibo usage" is the three-year average stock return synchronicity before the board chair opened a Weibo account. "Post-weibo usage" is the three-year average stock return synchronicity after the board chair opened a Weibo account. The corresponding median is given in parentheses. The last column reports a *T*–test (Wilcoxon-Mann-Whitney test) for the difference between "Post-weibo usage" and "Pre-weibo usage". The last row reports a *T*–test (Wilcoxon-Mann-Whitney test) for the difference between Firms with and without Weibo. All variables are winsorized at the top and bottom 1%. *** ,**, and * denote significance for the difference between two samples at 1%, 5%, and 10%, respectively.

Panel A. Size/Industry matched (N=62)

"Size/Industry matching" matches each treated firm with a control firm that has the nearest market capitalization and is in the same industry.

	Pre- Weibo	**Post-Weibo**	**Difference between post- and pre-Weibo**
(1) Firms with Weibo	-0.377 (-0.329)	-0.552 (-0.505)	2.76*** (2.62***)
(2) Firms without Weibo	-0.381 (-0.338)	-0.401 (-0.352)	0.45 (0.22)
Difference (1) and (2)	0.04 (0.08)	2.03** (2.42**)	3.18*** (3.57***)

Panel B. Size/Industry and Chair Age/ Gender/Education matched (N=56)

"Size/Industry and Chair Age/Gender/Education matching" matches each treated firm with a control firm that has the nearest market capitalization, is in the same industry, and whose board chair has the nearest age, same gender and education degree.

	Pre-Weibo	**Post-Weibo**	**Difference between post- and pre-Weibo**
(1)Firms with Weibo	-0.376 (-0.327)	-0.550 (-0.501)	2.79*** (2.68***)
(2)Firms without Weibo	-0.380 (-0.331)	-0.397 (-0.348)	0.24 (0.16)

Difference (1) and (2)	0.05 (0.07)	2.06** (2.51**)	3.21*** (3.62***)

Table 6. Difference-in-Difference Method (contd.)

Panel C. Caliper matching (N=52)

The propensity score is estimated using the prediction model in the first stage as seen in Table 3. "Caliper matching" presents the treatment effect using caliper matching with a caliper of 0.05.

	Pre-Weibo	Post- weibo	Difference between post- and pre-Weibo
(1)Firms with Weibo	-0.378 (-0.331)	-0.554 (-0.509)	2.75*** (2.60***)
(2)Firms without Weibo	-0.380 (-0.336)	-0.391 (-0.347)	0.45 (0.22)
Difference (1) and (2)	0.04 (0.06)	2.35** (2.51**)	3.31*** (3.72***)

Panel D. Kernel matching (N=54)

The propensity score is estimated using the prediction model in the first stage as seen in Table 3. "Kernel matching" gives the treatment effect using kernel matching.

	Pre-Weibo	Post-Weibo	Difference between post- and pre-Weibo
(1)Firms with Weibo	-0.378 (-0.331)	-0.553 (-0.507)	2.73*** (2.58***)
(2)Firms without Weibo	-0.382 (-0.336)	-0.390 (-0.344)	0.41 (0.20)
Difference (1) and (2)	0.05 (0.06)	2.01** (2.37**)	3.28*** (3.67***)

Table 7. Firm Characteristics

This table presents the multivariate regression results of the effect of board chair Weibo on stock return synchronicity by firm characteristics. The sample period is from 2010 to 2016. The dependent variable is *Synch*, a commonly used stock return synchronicity measure, calculated as $\log(R^2/(1-R^2))$. R^2 is from regressions of the market model of return of the firm against the stock market index and industry index using weekly data. *Weibo* is a dummy variable which equals one when the board chair of firm *i* posted weibo at year *t,* and equals zero otherwise. The focus in this table are *Weibo*Smaller Firm* (Panel A)*, Weibo* Younger Firm* (Panel B) *and Weibo* Fewer Analysts* (Panel C)*,* which are the interaction terms of Weibo and different firm characteristics. *Size* is the natural logarithm of market capitalization of firm *i* at the beginning of year *t. Leverage* is defined as the book value of all liabilities scaled by total assets, again measured at the beginning of the year *t*. *ROE* is the ratio of net profits divided by total equities at the beginning of the year *t*. *Sales Growth* is the ratio of sales growth from last year to this year. *Segments* is the number of segments, including only those which sales that exceed 30% of firm *i*'s total sales at the beginning of year *t. Volume* is the natural logarithm of trading volume of firm *i* at year *t. Volatility* is the standard deviation of the stock return of firm *i* at year *t. Illiquidity* is defined as the average ratio of daily absolute returns to the daily trading volume at year *t,* multiplied by 10^9. *%INST* is the ratio of mutual funds' holdings, measured as the aggregate number of shares held by mutual funds, scaled by outstanding shares of firm *i* in year *t. Analyst* is the natural logarithm of one plus the number of analysts that cover firm *i* at year *t. Investibility* is the investibility measure of firm *i* at year *t. HHI* (Herfindahl-Hirschman Index) is an indicator of competition, estimated by using all listed firms' sales from the same industry at the beginning of year *t*. *Family Firm* is a dummy variable which equals one if the firm is ultimately controlled by individuals, and zero otherwise. (C*ontrol – Ownership*) is the difference between the ultimate owner's control rights and ownership. *Ownership* is defined as the cash flow rights of the ultimate owners. *Synchronous fundamentals* is defined as the Spearman correlation between the firm's ROA and its industrial average ROA over the past ten quarters. Model (1) presents the results from the OLS in which year and industry dummies are included but not reported. *t*-statistics are given in parentheses and computed using heteroskedasticity-robust standard errors clustered by firm and year (Petersen, 2009; Thompson, 2011). Column (2) presents Fama and MacBeth(1973) panel results. Industry dummies are included but not reported and *t*-statistics are computed using heteroskedasticity-robust standard errors clustered by industry. All continuous variables are winsorized at the top and bottom 1%.***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Panel A. Small firms
Smaller Firm is a dummy variable which equals one if the firm's market capitalization is less than the corresponding median value of the sample, and zero otherwise.

	OLS	2SLS: Second Stage
	(1)	(2)
Weibo	-0.051	-0.069
	(-1.08)	(-1.51)
Weibo*Smaller Firm	-0.085***	-0.118***
	(-7.97)	(-12.43)
Size	-0.021***	-0.022*
	(-2.59)	(-1.71)
Leverage	-0.061***	-0.056**
	(-3.03)	(-2.23)
ROE	0.096	0.089
	(1.15)	(1.27)
Sales Growth	-0.007	-0.002
	(-1.22)	(-0.13)
Segments	-0.011	-0.008
	(-0.83)	(-0.43)
Volume	0.104***	0.137***
	(12.65)	(9.42)
Volatility	-6.234***	-7.853***
	(-21.86)	(-14.65)
Illiquidity	-1.429	-1.126
	(-1.35)	(-0.95)
%INST	-0.335***	-0.231***
	(-7.46)	(-5.97)
Analyst	0.011***	0.015**
	(3.62)	(2.36)
Investibility	-0.054***	-0.037***
	(-3.51)	(-3.92)
HHI	-1.282***	-1.654***
	(-5.43)	(-4.72)
Family Firm	-0.082***	-0.089***
	(-12.90)	(-4.01)
Control – Ownership	0.203***	0.211**
	(3.13)	(2.64)
Ownership	0.018	0.023
	(0.74)	(0.69)
Synchronous fundamentals	0.041**	0.058**
	(2.43)	(2.39)
Intercept	-1.987***	-2.362***

	(-16.86)	(-5.91)
Year Dummy	Yes	Yes
Industry Dummy	Yes	No
N	15017	15017
Adjusted R^2	0.395	0.421

Table 7. Firm Characteristics (contd.)
Panel B. Newly Listed Firms
Younger Firm is a dummy variable which equals one if the firm's listing year is less than the corresponding median value of the sample, and zero otherwise.

	OLS	2SLS: Second Stage
	(1)	(2)
Weibo	-0.037***	-0.072***
	(-2.96)	(-3.52)
Weibo Younger Firm*	-0.089***	-0.113***
	(-4.74)	(-18.95)
Size	-0.020***	-0.021***
	(-2.61)	(-2.93)
Leverage	-0.053***	-0.058***
	(-3.76)	(-3.82)
ROE	0.091	0.095
	(1.04)	(1.38)
Sales Growth	-0.008	-0.009
	(-1.43)	(-1.28)
Segments	-0.012	-0.013
	(-0.83)	(-1.05)
Volume	0.104***	0.104***
	(15.63)	(10.32)
Volatility	-6.351***	-5.127***
	(-25.86)	(-13.04)
Illiquidity	-1.445	-1.407
	(-1.39)	(-1.35)
%INST	-0.337***	-0.321***
	(-8.82)	(-4.37)
Analyst	0.015***	0.010***
	(3.28)	(3.21)
Investibility	-0.056***	-0.057***
	(-3.58)	(-3.92)
HHI	-1.253***	-1.265***
	(-5.03)	(-3.43)
Family Firm	-0.082***	-0.065***
	(-9.51)	(-7.76)
Control – Ownership	0.201***	0.225***
	(3.82)	(3.97)
Ownership	0.013	0.015
	(0.37)	(0.93)

Synchronous fundamentals	0.043*** (3.91)	0.052** (2.43)
Intercept	-1.986*** (-14.51)	-2.834*** (-12.76)
Year Dummy	Yes	Yes
Industry Dummy	Yes	No
N	15017	15017
Adjusted R^2	0.397	0.416

Table 7. Firm Characteristics
Panel C. Analyst Coverage
Fewer Analysts is a dummy variable which equals one if the number of analysts covering the firm is less than the corresponding median value for the sample and zero otherwise.

	OLS	2SLS: Second Stage
	(1)	(2)
Weibo	-0.043**	-0.071***
	(-2.07)	(-4.25)
Weibo Fewer Analysts*	-0.086***	-0.114***
	(-5.31)	(-18.50)
Size	-0.021***	-0.021***
	(-2.71)	(-3.65)
Leverage	-0.054***	-0.053***
	(-3.21)	(-3.37)
ROE	0.091	0.084
	(1.24)	(1.42)
Sales Growth	-0.009	-0.012
	(-1.32)	(-0.78)
Segments	-0.011	-0.010
	(-0.92)	(-1.15)
Volume	0.104***	0.103***
	(15.82)	(11.72)
Volatility	-6.246***	-6.221***
	(-21.82)	(-19.37)
Illiquidity	-1.433	-1.484
	(-1.24)	(-1.54)
%INST	-0.351***	-0.347***
	(-8.07)	(-5.86)
Analyst	0.013***	0.014***
	(3.97)	(3.75)
Investibility	-0.052***	-0.067***
	(-3.41)	(-4.97)
HHI	-1.281***	-1.268***
	(-5.92)	(-6.93)
Family Firm	-0.087***	-0.082***
	(-8.95)	(-10.09)
Control – Ownership	0.205***	0.212***
	(3.41)	(3.80)
Ownership	0.012	0.034
	(0.45)	(1.25)

Synchronous fundamentals	0.053** (2.25)	0.042** (2.35)
Intercept	-1.865*** (-12.38)	-2.543*** (-19.92)
Year Dummy	Yes	Yes
Industry Dummy	Yes	No
N	15017	15017
Adjusted R^2	0.396	0.418

Table 8. Type of Ownership – Family and Non-Family Firms

This table presents the regression results for board chair Weibo and stock return synchronicity, for subsamples with family and non-family firms. All variables are defined in Appendix 2. Column (1) presents the OLS results. Column (2) presents the Fama and MacBeth (1973) panel results. Column (3) presents the 2SLS second-stage result where Predicted Weibo is included as independent variable. Year/Industry dummies are included but not reported, and *t*-statistics are given in parentheses and computed using heteroskedasticity-robust standard errors clustered by firm/industry and year where appropriate (Petersen, 2009; Thompson, 2011). All continuous variables are winsorized at the top and bottom 1%. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	Family Firms			**Non-Family Firms**		
	OLS	**Fama-MacBeth (1973)**	**2SLS: Second Stage**	**OLS**	**Fama-MacBeth (1973)**	**2SLS: Second Stage**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Weibo	-0.117***	-0.116***	-0.179***	-0.011*	-0.006*	-0.021**
	(-3.99)	(-3.50)	(-21.50)	-(1.73)	(1.91)	(-2.42)
Size	-0.020**	0.004*	-0.012**	-0.044***	-0.050**	-0.037**
	(-2.44)	(-1.91)	(-2.23)	(-3.94)	(-2.19)	(-2.34)
Leverage	-0.080***	-0.077	-0.046***	-0.009	0.006	-0.013
	(-2.98)	(-1.33)	(-3.74)	(-0.37)	(-0.12)	(-1.42)
ROE	0.103**	0.112	0.114	0.094**	0.058	0.062
	(2.31)	(0.88)	(1.52)	(2.34)	(0.62)	(1.51)
Sales Growth	-0.014*	-0.008	-0.010	0.002	0.007	-0.004
	(-1.71)	(-0.53)	(-1.06)	(0.21)	(0.27)	(-1.53)
Segments	-0.058***	-0.058	-0.035*	0.028	0.033	-0.007
	(-3.65)	(-1.36)	(-1.71)	(2.10)	(0.96)	(-1.32)
Volume	0.115***	0.130***	0.108***	0.115***	0.130***	0.123***
	(11.58)	(5.36)	(10.23)	(12.92)	(5.74)	(11.79)
Volatility	-6.024***	-7.589***	-6.651***	-6.921***	-8.564***	-6.753***

	(-19.30)	(-8.64)	(-13.91)	(-22.34)	(-10.17)	(-14.80)
Illiquidity	0.764	6.538	-0.206	-8.314***	-2.887	-1.307
	(0.55)	(1.37)	(-1.36)	(-4.49)	(-1.21)	(-1.95)
%INST	-0.298***	-0.313**	-0.304***	-0.310***	-0.346***	-0.340***
	(-6.02)	(-2.56)	(-4.81)	(-5.94)	(-2.72)	(-5.05)
Analyst	0.001***	0.002**	0.002*	0.021***	0.022*	0.017***
	(3.26)	(2.03)	(1.75)	(4.17)	(1.74)	(3.36)
Investibility	-0.045	-0.005	-0.051***	-0.103***	-0.093*	-0.082***
	(-1.56)	(-0.136)	(-3.85)	(-3.98)	(-1.65)	(-3.18)
HHI	-1.322***	-1.545	-1.472***	-1.146***	-1.245	-1.234***
	(-3.80)	(-0.89)	(-5.93)	(-3.30)	(-0.71)	(-4.46)
Control – Ownership	0.269***	0.246	0.243***	0.124*	0.150	0.206
	(3.68)	(1.23)	(3.92)	(1.73)	(0.83)	(1.35)
Ownership	0.017	0.012	0.015	-0.003	0.021	0.009
	(0.43)	(0.73)	(0.94)	(-0.09)	(0.19)	(0.45)
Synchronous fundamentals	0.056***	0.045*	0.048**	0.012*	0.019**	0.032**
	(2.68)	(1.73)	(2.42)	(1.67)	(2.41)	(2.17)
Intercept	-1.996***	-3.073***	-3.075***	-1.376***	-1.631**	-3.368***
	(-7.12)	(-4.428)	(-11.03)	(-5.90)	(-2.39)	(-14.76)
Year Dummy	Yes	No	Yes	Yes	No	Yes
Industry Dummy	Yes	Yes	No	Yes	Yes	No
N	7759	7759	7759	7258	7258	7258
Adjusted R^2	0.390	0.194	0.423	0.382	0.253	0.401

Table 9. Excluding Observations

This panel presents the regression results of board chair Weibo and stock return synchronicity, for a sample that excludes observations in finance industry and a sample that excludes observations in 2015. All variables are defined in Appendix 2. Columns (1) and (4) presents the OLS results, Columns (2) and (5) presents the Fama and MacBeth(1973) panel results, and Columns (3) and (6) presents the 2SLS second stage result where the Predicted Weibo as the independent variable. Year/Industry dummies are included but not reported, and *t*-statistics are given in parentheses and computed using heteroskedasticity-robust standard errors clustered by firm/industry and year where appropriate (Petersen, 2009; Thompson, 2011). All continuous variables are winsorized at the top and bottom 1%. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	Excluding Observations in finance industry			**Excluding Observations for the Year 2015**		
	OLS	**Fama-MacBeth (1973)**	**2SLS: Second Stage**	**OLS**	**Fama-MacBeth (1973)**	**2SLS: Second Stage**
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Weibo	-0.065***	-0.062***	-0.089***	-0.081***	-0.080***	-0.132**
	(-2.96)	(-3.05)	(-13.26)	(-3.29)	(-3.53)	(-6.86)
Size	-0.020**	-0.018**	-0.019***	-0.014**	-0.022**	-0.032**
	(-2.33)	(-2.31)	(-2.94)	(-2.31)	(-2.54)	(-2.48)
Leverage	-0.043**	-0.041	-0.051***	-0.059***	-0.055	-0.015
	(-2.32)	(-1.10)	(-3.97)	(-2.96)	(-1.37)	(-1.37)
ROE	0.103***	0.098	0.086	0.088***	0.081	0.054
	(3.39)	(1.32)	(1.51)	(2.70)	(1.10)	(1.31)
Sales Growth	-0.009	-0.003	-0.008	-0.006	-0.002	-0.006
	(-1.45)	(-0.16)	(-1.26)	(-0.94)	(-0.10)	(-1.27)
Segments	-0.012	-0.008	-0.011	-0.018	-0.012	-0.011
	(-1.15)	(-0.19)	(-1.36)	(-1.56)	(-0.33)	(-1.09)
Volume	0.110***	0.129***	0.143***	0.125***	0.145***	0.115***
	(16.36)	(7.70)	(15.52)	(17.17)	(8.72)	(10.28)

Volatility	-6.718***	-8.154***	-6.579***	-8.503***	-8.944***	-5.342***
	(-30.21)	(-13.25)	(-17.21)	(-32.27)	(-14.38)	(-15.17)
Illiquidity	-0.845	-1.745	-1.548	-0.628	4.053	-1.525
	(-0.80)	(-0.93)	(-1.35)	(-0.57)	(0.64)	(-1.24)
%INST	-0.299***	-0.322***	-0.361***	-0.339***	-0.357***	-0.301***
	(-8.34)	(-3.65)	(-6.58)	(-8.90)	(-4.17)	(-5.29)
Analyst	0.010***	0.009**	0.011***	0.013***	-0.009	0.012***
	(2.84)	(2.17)	(3.21)	(3.26)	(-0.94)	(3.80)
Investibility	-0.055***	-0.028***	-0.024**	-0.076***	-0.061*	-0.078***
	(-2.75)	(-2.85)	(-2.20)	(-3.67)	(-1.73)	(-3.25)
HHI	-1.324***	-1.616**	-1.012***	-1.340***	-1.919	-1.323***
	(-5.35)	(-2.23)	(-4.43)	(-5.21)	(-1.46)	(-3.31)
Family Firm	-0.079***	-0.079***	-0.080***	-0.080***	-0.077***	-0.085***
	(-9.45)	(-3.84)	(-9.76)	(-8.77)	(-3.67)	(-7.62)
Control – Ownership	0.193***	0.202**	0.212***	0.212***	0.226*	0.235***
	(3.75)	(2.49)	(3.98)	(3.79)	(1.86)	(4.97)
Ownership	0.018	0.026	0.019	0.002	0.020	0.011
	(0.66)	(0.27)	(1.26)	(0.28)	(0.49)	(0.65)
Synchronous fundamentals	0.035**	0.029**	0.049**	0.040***	0.028	0.031**
	(2.47)	(2.32)	(2.45)	(2.67)	(0.70)	(2.12)
Intercept	-1.803***	-2.455***	-2.678***	-2.201***	-2.691***	-2.952***
	(-10.15)	(-5.16)	(-22.47)	(-11.58)	(-5.85)	(-14.31)
Year Dummy	Yes	No	Yes	Yes	No	Yes
Industry Dummy	Yes	Yes	No	Yes	Yes	No
N	14648	14648	14648	12711	12711	12711
Adjusted R^2	0.396	0.221	0.417	0.410	0.250	0.411

Table 10. Stock Return Synchronicity and Return-earnings Associations

This table present the regression results about the effect of stock return synchronicity on return-earnings associations. The dependent variable is MAR, defined as market-adjusted monthly returns compounded over the 12-month period ending the fourth month after the end of a firm's fiscal year; NI is net income deflated by the market value of equity at the beginning of the fiscal year; *Syn_decile* is the scaled decile rank score. Control variables include *MCap*, measured by the natural log of market capitalization; *Leverage*, measured as the ratio of total liabilities over total assets; and *Tobin's Q*, measured as the ratio of the sum of market value of equities and book value of liabilities over book value of total assets. Year and Industry dummies are included but not reported, and *t*-statistics are given in parentheses and computed using heteroskedasticity-robust standard errors clustered by firm and year (Petersen, 2009; Thompson, 2011). All continuous variables are winsorized at the top and bottom 1%. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	MAR
NI	2.175***
	(3.24)
*NI*Syn_decile*	-0.196***
	(-5.71)
*NI*MCap*	0.108***
	(3.83)
*NI*Leverage*	-0.009
	(-1.05)
*NI*Tobin's Q*	0.072***
	(5.79)
Intercept	-0.307***
	(-2.68)
Year Dummy	Yes
Industry Dummy	Yes
N	14878
Adjusted R^2	0.062

Appendix 1. Stock Return Synchronicity

Panel A: Distribution of Sample by Year

This panel presents the distribution of our sample by year during 2010-2016. *Synch* is a commonly used stock return synchronicity measure, calculated as $\log(R^2/(1-R^2))$. R^2 is from regressions of the market model of return of the firm against the stock market index and industry index using weekly data.

		Synch			R^2		
Year	**Number**	**Mean**	**Median**	**STD**	**Mean**	**Median**	**STD**
2010	1858	-0.418	-0.369	0.434	0.313	0.301	0.171
2011	2013	-0.232	-0.190	0.347	0.390	0.393	0.150
2012	2101	-0.210	-0.166	0.358	0.401	0.406	0.162
2013	2114	-0.544	-0.469	0.497	0.270	0.254	0.163
2014	2178	-0.913	-0.808	0.642	0.168	0.135	0.137
2015	2306	-0.174	-0.096	0.421	0.427	0.445	0.170
2016	2447	-0.166	-0.061	0.520	0.442	0.466	0.202
Total	15017	-0.375	-0.273	0.538	0.347	0.348	0.191

Appendix 1. Stock Return Synchronicity (contd.)
Panel B: Distribution of Sample by Industry
This panel presents the distribution of the sample by industry during 2010-2016. Industry is classified according to the Guidelines for the Industry Classification of Listed Companies by CSRC (2012 Revision).

		Synch			R^2		
Industry	**Number**	**Mean**	**Median**	**STD**	**Mean**	**Median**	**STD**
Agriculture, Forestry, farming & fishery	240	-0.462	-0.387	0.502	0.305	0.291	0.177
Mining	441	-0.258	-0.127	0.557	0.403	0.428	0.194
Manufacturing	9065	-0.399	-0.292	0.546	0.338	0.338	0.190
Utilities	626	-0.309	-0.280	0.497	0.369	0.345	0.194
Construction	442	-0.316	-0.212	0.504	0.369	0.381	0.187
Wholesale and retail	955	-0.352	-0.264	0.519	0.353	0.352	0.193
Transportation	540	-0.220	-0.130	0.469	0.407	0.426	0.197
Hotel & catering industry	76	-0.514	-0.449	0.584	0.295	0.262	0.191
Information transmission, software & information technology service	586	-0.484	-0.388	0.588	0.310	0.291	0.198
Finance	369	-0.122	-0.066	0.387	0.449	0.463	0.167
Real estate	864	-0.312	-0.220	0.467	0.365	0.376	0.175
Leasing & commerce service	196	-0.434	-0.288	0.496	0.318	0.340	0.177
Scientific research & technology service	70	-0.378	-0.243	0.599	0.355	0.364	0.191
Water conservancy, environment & public facilities management	141	-0.406	-0.289	0.527	0.332	0.340	0.180
Education	15	-0.486	-0.447	0.498	0.292	0.263	0.197
Hygienism & social work	28	-0.432	-0.355	0.485	0.313	0.307	0.173

Culture, sports & entertainment	202	-0.561	-0.434	0.677	0.294	0.269	0.211
Comprehensive	161	-0.396	-0.294	0.559	0.339	0.337	0.192
Total	15017	-0.375	-0.273	0.538	0.347	0.348	0.191

Appendix 2. Definition of Variables

Variable	Definition
Syn	A commonly used stock return synchronicity measure, calculated as $\log(R^2/(1-R^2))$. R^2 is from regressions of the market model of return of the firm against the stock market index and industry index using weekly data.
Weibo	A dummy variable which equals one if the firm's board chair opens a Weibo account, and zero otherwise.
Size	The natural logarithm of market capitalization of firm *i* at the beginning of year *t.*
Leverage	The book value of all liabilities scaled by total assets at the beginning of the year *t*.
ROE	Net profits divided by total equity at the beginning of the year *t*.
Sales Growth	Sales growth during the last year.
Segments	The number of segments, including only those with sales that exceed 30% of firm *i*'s total sales at the beginning of year *t.*
Volume	The natural logarithm of trading volume of firm *i* at year *t.*
Volatility	The standard deviation of the stock return of firm *i* at year *t.*
Illiquidity	The average ratio of daily absolute returns to the daily trading volume at year *t,* multiplied by 10^9.
%INST	Mutual funds' holdings, measured as the aggregate number of shares held by mutual funds divided by outstanding shares of firm *i* in year *t.*
Analyst	The natural logarithm of one plus the number of analysts that cover firm *i* at year *t.*
Investibility	The investibility measure of firm *i* at year *t*, i.e. the ratio of shares which can be traded in the secondary market.
HHI	Abbreviation for Herfindahl-Hirschman Index, an indicator of competition, estimated by using all listed firms' sales from the same industry at the beginning of year *t*.
Family Firm	A dummy variable which equals one if the firm is ultimately controlled by individuals and zero otherwise.
Control – Ownership	A proxy for the ultimate owner's control in excess of ownership rights, defined as the difference between the ultimate owner's control rights and ownership (similar to that of La Porta et al., 1999).
Ownership	The cash flow rights owned by ultimate owner (similar to that of La Porta et al., 1999).
Synchronous fundamentals	The Spearman correlation between the firm's ROA and its industrial average ROA over the past ten quarters.

Appendix 3. Summary Statistics

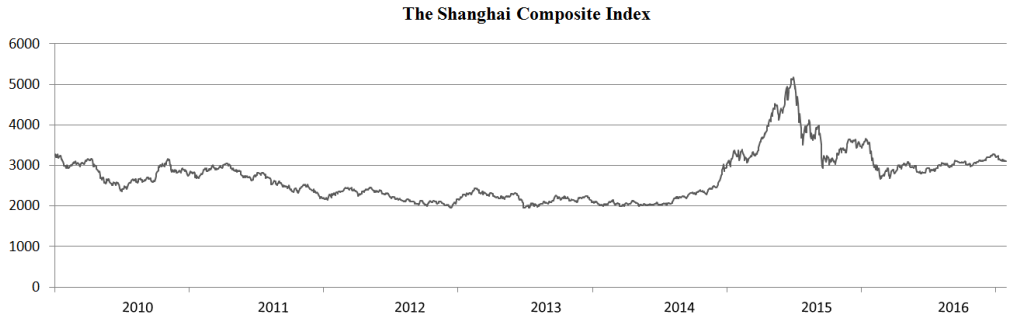
This appendix presents the summary statistics for the main variables in this study.

Variable	Number	Mean	Median	STD	Q1	Q3
Syn	15017	-0.375	-0.273	0.538	-0.595	-0.007
Weibo	15017	0.025	0.000	0.156	0.000	0.000
Size	15017	22.470	22.331	1.010	21.731	23.032
Leverage	15017	0.485	0.487	0.219	0.319	0.648
ROE	15017	0.059	0.065	0.131	0.024	0.111
Sales Growth	15017	0.198	0.096	0.628	-0.047	0.258
Segments	15017	1.136	1.000	0.343	1.000	1.000
Volume	15017	23.645	23.563	1.043	22.914	24.336
Volatility	15017	0.065	0.058	0.026	0.048	0.075
Illiquidity	15017	0.007	0.005	0.006	0.003	0.009
%INST	15017	0.074	0.019	0.125	0.002	0.086
Analyst	15017	1.742	1.792	1.430	0.000	2.996
Investibility	15017	0.790	0.936	0.257	0.599	1.000
HHI	15017	0.038	0.005	0.065	0.005	0.045
Family Firm	15017	0.516	1.000	0.500	0.000	1.000
Control – Ownership	15017	0.052	0.000	0.077	0.000	0.093
Ownership	15017	0.327	0.314	0.164	0.199	0.439
Synchronous fundamentals	15017	0.096	0.104	0.286	-0.094	0.275

Appendix 4: Correlation

This table presents the correlation matrix for the main variables in this study. All variables are defined in Appendix 2. The upper triangle presents the Pearson correlation coefficient. The lower triangle presents the Spearman correlation coefficient. ***, **, and * denote significance at the 1%, 5% and 10% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
(1)Syn	1.000***	-0.027***	0.249***	0.030***	0.054***	-0.013	-0.004	0.347***	0.002	-0.162***	-0.028***	0.053***	0.054***	-0.010	-0.135***	0.023**	0.022	0.152***
(2)Weibo	-0.020***	1.000***	0.052*	-0.011	0.023	-0.007	0.009	0.035*	0.007	-0.053	0.072	0.083	0.018	0.016	0.042*	-0.028	0.003	-0.012
(3)Size	0.288***	0.058*	1.000***	0.077	0.251	0.078	0.022	0.745***	-0.078***	-0.680	0.342	0.567	-0.041	0.075	-0.174***	-0.003	0.218	0.126
(4)Leverage	0.034***	-0.011	0.051	1.000***	-0.139***	0.051	0.016	0.063	-0.031	-0.136	-0.071	-0.057	0.208	0.003	-0.210	0.023***	-0.033	0.064
(5)ROE	0.030***	0.042	0.330	-0.062***	1.000 ***	0.173***	-0.006	0.105***	-0.110***	-0.147***	0.253**	0.326**	-0.108**	0.046*	0.027**	0.029	0.072	0.078
(6)Sales Growth	-0.007	0.024	0.135	0.030	0.343	1.000***	0.002	-0.015	-0.011	0.001	0.097***	0.074**	-0.171**	0.046**	0.036*	0.007	0.024***	0.013
(7)Segments	-0.002	0.009	0.019	0.014	-0.011	0.018	1.000***	0.028	0.003	-0.029**	-0.005	-0.017	0.047	0.068	-0.036***	0.000	-0.009	-0.016
(8)Volume	0.371***	0.031**	0.735***	0.060	0.135***	0.036	0.030	1.000***	-0.009	-0.559	0.165***	0.327***	0.128***	0.048***	-0.136***	-0.024***	0.006	0.140
(9)Volatility	-0.016	0.005	-0.037***	-0.029	-0.160**	-0.084	0.000	0.053	1.000***	0.131***	-0.082***	-0.100***	0.005	0.014	0.105	0.029**	-0.016	0.053
(10)Illiquidity	-0.204***	-0.060	-0.853	-0.132	-0.273***	-0.090	-0.031***	-0.646	0.214***	1.000***	-0.222***	-0.415***	-0.411***	-0.016	0.256	-0.055***	-0.020	-0.059***
(11)%INST	0.125	0.067	0.554	-0.064	0.379***	0.221***	-0.007	0.371***	-0.063***	-0.448	1.000***	0.514***	-0.194***	0.046***	0.036***	0.002	0.009	0.078
(12)Analyst	0.050***	0.081	0.566	-0.054	0.457***	0.242**	-0.017	0.318***	-0.107***	-0.517***	0.646***	1.000***	-0.089***	0.047***	-0.007	0.032	0.113	0.078
(13)Investibility	0.065***	0.018	-0.056	0.200	-0.129*	-0.152**	0.049	0.090***	-0.034	-0.291***	-0.151***	-0.120***	1.000***	-0.004	-0.214	0.071	-0.231	-0.019
(14)HHI	0.140	0.011	0.207	0.123	0.071**	0.056*	0.072	0.199***	0.043	-0.189***	0.027***	0.031**	0.072	1.000***	-0.055***	-0.076	0.037	-0.010
(15)Family Firm	-0.134***	0.042*	-0.160***	-0.217	0.032***	0.036**	-0.036**	-0.136***	0.102	0.247	-0.034**	-0.008	-0.238	-0.133***	1.000***	0.129***	-0.239	-0.036
(16)Control – Ownership	0.004***	-0.018	-0.015	0.032***	0.016	-0.006	-0.002	-0.025***	0.009***	-0.020**	-0.011	0.003	0.062	-0.072	0.215***	1.000***	-0.379	-0.003
(17)Ownership	0.019	0.010	0.193	-0.023	0.096	0.030***	-0.011	-0.002	-0.023	-0.083	0.066	0.116	-0.152	0.089	-0.244	-0.422	1.000***	0.039
(18)Synchronous fundamentals	0.163***	-0.009	0.148	0.064	0.097	0.025	-0.012	0.166	0.079	-0.093***	0.111	0.077	-0.009	0.245	-0.039	-0.014	0.038	1.000***



Note: This figure illustrates the Shanghai Composite Index during the period 1 January 2010 to 31 December 2016.