Does microblogging convey firm-specific information? Evidence from China

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HIGHLIGHTS

- The impact of Microblogging on stock market is investigated.
- Idiosyncratic volatility is chosen as the proxy for firm-specific information.
- Microblogging conveys firm-specific information.
- The empirical results have practical implications to securities regulators.

ARTICLE INFO

ABSTRACT

This paper investigates the impact of opening microblogging account in Sina Weibo on the diffusion of firm-specific information in Chinese stock market. With the unique sample of firms opening their official accounts, the empirical results show that this newly emerged information diffusion channel, i.e., Sina Weibo, plays an important role in conveying firm-specific information to the market. Generally speaking, these empirical findings have practical implications to securities regulators who have interest in monitoring the diffused information via social media.

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1. Introduction

Sina Weibo is the largest microblogging website in China. It has more than 500 million registered users and 100 million messages are posted each day by the third quarter of 2015.[1] Due to its growing popularity, some listed companies have opened the official accounts in Sina Weibo with the aim of diffusing more firm-specific information to investors. In financial theory, the market efficiency is realized through the diffusion of the information and therefore opening official accounts in Sina Weibo could be considered as an alternative channel for information diffusion [1,2]. However, the real impact of this newly emerged information channel on the diffusion of firm-specific information is less investigated.

Recently, scholars in finance and econophysics began to employ Internet information for financial research [3–13]. In particular, Da et al. [14] construct the Search Volume Index (SVI) with search frequency in Google Trends and show that the

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SVI can predict stock prices in the following 2 weeks, abnormal first-day return as well as the long-term underperformance of IPO stocks in the US stock market. Preis et al. [15] also show that the searching pattern in Google Trends can be considered as the "early warning signs" of movement in stock market. Bollen et al. [16] show that the collective mood reflected in Twitter can predict the directional changes in the closing prices of Dow Jones Industrial Average. Zhang et al. [17] further show that the daily happiness sentiment extracted from Twitter can provide additional explanatory power for index return as well as influences the index return and intraday volatility in 11 international stock markets. As for the Chinese stock market, Zhang et al. [18] firstly employ the search frequency of stock name from Baidu Index as the direct proxy for investor attention and investigate the association between investor attention and abnormal stock return and trading volume, respectively. Shen et al. [19] and Zhang et al. [20] employ the number news from Baidu News as the proxy for information flow and show that this information flow can significantly reduce the volatility persistence for both index return and individual stock return. All these empirical studies provide strong evidence that Internet information is closely correlated to the overall market performance, i.e., trading volume, stock returns and volatility.

This paper is also in line with the above-mentioned studies, but differs in the following three aspects. First of all, unlike existing study on Microblogging in China [2], we exclusively focus on the companies opening official accounts in Sina Weibo, and thus reduce the potential impact of noise trading on the market [21]. Because the unofficial accounts are usually operated by individuals and they may take advantage of this information channel to manipulate the market.[2] Secondly, to the best of our knowledge, we are the first to investigate the impact of microblogging on the diffusion of firm-specific information, while other studies focus on the overall market performance [2,14,17], i.e., returns, trading volume and volatility. In financial theory, volatility of stock returns consists of market return variation and firm-specific return variation. We rule out the part of market return variation with the regression models and focus exclusively on the firm-specific return variation. In particular, we employ two distinct proxies for firm-specific information in the paper. Thirdly, we consider both the short-term and long-term impact of microblogging on firm-specific information with the event study methodology. In particular, we focus on the pre (post) 60 and 120 trading days, respectively, corresponding to the time intervals from three months to half a year.

This paper is organized as follows. Section 2 describes the data. Section 3 illustrates the model setup. Section 4 presents the main findings and Section 5 concludes.

2. Data description

There are two sources of data in this paper. The first refers to the microblogging start date for certain stocks retrieved from the Sina Weibo (http://weibo.com/). The second refers to the capital data, including the return rate after the dividend reinvestment for individual stock and the market index return from the China Stock Market and Accounting Research Database, the Fama–French three factors from the RESSET Database as well as the 3-month SHIBOR interbank rate from its official website (http://www.shibor.org/). We employ the industry code from the China Securities Regulatory Commission (CSRC) as the criteria to classify individual stocks into certain subgroups. All the variables are on the daily basis. In particular, we choose the Shanghai Shenzhen CSI 300 Index (CSI 300) return as the market index return for the reason that the CSI 300 is the first index representing both the Shanghai and Shenzhen stock markets. In order to obtain the representative sample for the investigation, we focus on the long-lived constituent stocks from April 2005 to July 2013 in the CSI 300 that opening the official microblogging in Sina Weibo. This gives us a final sample of 32 stocks. These stocks are the best-known stocks in China and they have established information diffusion network. Therefore, the potential impact of opening microblogging in Sina Weibo as an alternative information diffusion channel on information diffusion is minimized. If we find some evidence in these parsimonious sample, the conclusion would be more convincing. Table 1 reports the 32 companies' stock code and their start date. We can see that the start data spans from 1 June, 2010 to 6 May, 2013. This distribution confirms that our empirical results are not biased by macroeconomic conditions [22,23] when utilizing the event study methodology. In order to investigate the impact of microblogging on the diffusion of firm-specific information at different intervals, we enlarge the sample period to 2 years before the earliest start date and 2 year after the latest start date.

3. Model setup

In line with [24], we calculate the stock-level firm-specific return variation (FSRV) with the following models:

$$R_{i,t} = \alpha_i + \beta_{i,1} \times R_t^{MKT} + \beta_{i,2} \times R_{i,t}^{IND} + \varepsilon_{i,t} \tag{1}$$

$$\varphi_i = \ln\left(\frac{1 - R_i^2}{R_i^2}\right) \tag{2}$$

where $R_{i,t}$ is the daily individual stock return for stock i at time t, R_t^{MKT} is the corresponding market return at time t, $R_{i,t}^{IND}$ is the equal-weighted industry return excluding stock i at time t, α_i is the constant, $\beta_{i,1}$ and $\beta_{i,2}$ are the coefficients. R_i^2

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[2] A notable example is that the CSRC announced that they would monitor the information diffused on social media in June 2013.