Exit as governance: Qualified foreign institutional investors and stock price crash risk

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Abstract

This study investigates the impact of the Qualified Foreign Institutional Investors (QFIIs) on stock price crash risk in China through a governance mechanism, threat of exit. Using a sample of 1,944 Chinese A-share listed firms over the period from 2003 to 2015, this study finds that investment horizon and existence of multiple QFIIs in the portfolio firm exert credible exit threat to discipline management, and in turn, reduce stock price crash risk. It further provides empirical evidence that QFIIs exert a strong governance force through site visits to the portfolio firms, and in turn, reduce stock price crash risk. The results are robust when controlling for possible endogeneity.

Keywords: Foreign institutional investment, QFIIs, stock price crash risk, China

JEL Codes: G32, G34, G38

1. Introduction

Market liberalisation and integration have played an important role in world economic development over a few decades, and the influences of foreign institutional investors in portfolio firms have drawn increasing attention from academics and policy-makers. However, there has not yet been any consensus on whether foreign institutional investors can discipline management effectively. One strand of literature argues that foreign ownership is associated with higher corporate transparency and lower information asymmetries (e.g. Aggarwal et al., 2011; He et al., 2013; Chen et al., 2014). The other strand of literature proposes short-termism theory of foreign investors. It is argued that foreign investors are indifferent to domestic investors as they primarily focus on short-term performance and pursue short-term profits, which in turn, has no motivation on disciplining management, and may sabotage firm governance and outputs (Cheng et al., 2011; Manconi et al., 2012; Ferreira et al., 2014).

To better understand whether foreign institutional investors can discipline management of portfolio firms in emerging markets, this study investigates the impact of the Qualified Foreign Institutional Investors (QFIIs) on stock price crash risk in China. Motivations to link QFIIs with stock price crash risk comes from the following reasons. First, China is the largest developing country with the fastest economic growth. In particular, the openness of its stock markets attracts increasing attention to academics and economists. Second, despite record high levels of inward foreign direct investment (FDI), foreign investors had been prevented from trading in the Chinese domestic A-share markets until 2003 in China.[2] The introduction of QFII scheme in December 2002 allows foreign institutional investors to invest in the Chinese domestic A-share markets, which greatly accelerates the opening up process of the Chinese

[2] Foreign investors were allowed to trade B-shares using foreign currency since 1992. The B-shares are traded in US dollars on the Shanghai Stock Exchange and in Hong Kong dollars on the Shenzhen Stock Exchange. In addition, foreign investors are allowed to trade in other stock exchanges, such as, the Hong Kong, the New York Stock Exchanges, and the Singapore Stock Exchanges.

capital markets. Therefore, it is of great importance to examine the impact of QFIIs. Third, the importance of stock price crash risk for portfolio management and asset pricing has been well documented. Studies like Jin and Myers (2006), Kim et al. (2011a, 2011b) state that a major driving factor of crash risk is the poor corporate governance system resulting from the managers' tendency to withhold bad news and overinvestment because of career concerns and short-term compensation. A few Chinese studies, such as Hung and Tseng (2009) and Huang and Zhu (2015) document that QFIIs can provide arm-length monitoring and improve corporate governance. However, to our knowledge, there is little literature to examine whether foreign institutional investors can mitigate stock price crash risk. Fourth, it is argued that foreign investment would expose portfolio firms with international risk (Chen, et al., 2013), and foreign speculators may be responsible for the severity of financial crises (Stiglitz, 2000). For example, it is argued that the herding behaviour and imprudent competition of foreign institutional investors might be one of the triggers of the East Asian financial crisis in 1997 (Corsetti, et al., 1999; King, 2001). As the Chinese stock markets have often been regarded as highly speculative with general poor corporate governance and weak legal protection (Allen et al., 2005), it is of great importance to examine the role of QFIIs on stock price crash risk in China.

Using a sample of 1,944 Chinese A-share listed firms from 2003 to 2015, we find that QFIIs can conditionally reduce stock price crash risk. In addition, we find that the discipline effect of QFIIs is mainly carried out through an indirect mechanism: threat of exit. Theoretical studies like Shleifer and Vishny (1986) and Kahn and Winton (1998) highlight the mechanisms of how institutional investors govern portfolio firms. One is exerting minoring effort by using voting rights (voice) and the other is threat of exit (exit). In the Chinese setting, the average QFII ownership is only 1% in the A-share markets (Huang and Zhu, 2015), so it is expected that in comparison with engaging with management through voting, QFIIs who have little voting power, are more likely to exert discipline effect though threat of exit. A survey conducted by

McCahery et al. (2016) states that threat of exit is an effective channel for institutional investors to exert monitoring efforts through large share holdings, long-term investment, or existence of multiple institutional investors. Therefore, we first examine the effect of exit threat on stock price crash risk through shareholding, investment horizon, and existence of multiple QFIIs. Our study provides empirical evidence that firms with long-term and multiple QFII ownership are prone to be associated with lower stock price crash risk.

It is possible that QFII investment may be based upon a clientele preference. QFIIs may choose to invest in firms with lower stock price crash risk, and therefore, our analysis could be subject to potential endogeneity bias. We address the concern by using two econometric approaches: the propensity score matching model and the Heckman two-stage sample selection model. These results are consistent with our main findings.

One challenge arises in investigating how QFIIs use exit threat as a corporate mechanism to influence manager's behaviours, as the threat of exit is unobservable. McCahery et al. (2016) state that the use of private discussions and negotiations can effectively discipline managers' behaviours. In addition, Cheng et al. (2018) and Jiang and Yuan (2018) document that institutional investors' site visits boost stock returns and firm innovation, respectively. In this study, we shed light on the exit threat mechanism by using corporate site visits as the channel of discipline. The results suggest that firms with QFII ownership tend to receive more site visits from QFIIs. Further, we find that corporate site visits, as an effective discipline channel, significantly reduce stock price crash risk. Therefore, it suggests that QFIIs exert credible exit threat through corporate site visits, which in turn, reduce stock price crash risk.

Finally, to add more evidence of the positive role of QFIIs on effective monitoring, we further examine the impact of QFIIs on cash dividend payments, as dividend payments can significantly prevent managers from bad news hoarding and overinvestment (Kim et al., 2018;

Officer et al., 2011). The results suggest that QFIIs increase dividend payments when QFIIs have higher equity stake and longer investment horizon, as well as the existence of multiple QFIIs.

Our study contributes to the existing literature in several ways. First, it enriches the literature on the controversy of the role of foreign institutional investors in emerging markets. That is, foreign institutional investors can exert effective discipline on management. In addition, prior Chinese studies mainly focus on foreign institutional and individual investors in B- or H-share markets, which are segmented from the main Chinese markets. Our study of QFII ownership in China's A-share markets provides broader implications to policy makers and investors. Second, it extends the existing literature of the impact of foreign institutional investors on stock price crash risk. Prior studies, such as He et al., 2013 and Kim and Yi, 2015, focus mainly on the effect of foreign institutional ownership on stock price informativeness and synchronicity, but little is known about the role of foreign institutional investors in influencing the negative skewness-stock price crash risk. Our study fills this gap and provides empirical evidence of the positive role of foreign institutional investors on reducing stock price crash risk. Third, this study provides empirical evidence for the theory on institutional investors exerting governance through exit threat. Specifically, we find the exit threat is implemented through large equity holdings, long-term investment, and existence of multiple QFIIs. We also provide evidence that site visits are an effective channel for institutional investors to exert threat of exit. Overall, our study provides important implications to policy makers and investors on further development and openness of stock markets and predicting stock price crash risk.

The rest of the paper is organised as follows: Section 2 reviews the related literature and develops hypotheses. Section 3 presents the sample and variables in this study. Section 4 discusses the methodology and results. Section 5 concludes.

2. Literature review and hypothesis development

2.1.Institutional background and related literature on foreign institutional investors

Since the early 1990s, the Chinese government founded the Shanghai and Shenzhen Stock Exchanges. In 1992, a B-share market was established, which allowed foreign investors to trade B-shares in foreign currency. Later in 1993, industry-leading firms were allowed to issue H-shares on the Hong Kong Stock Exchange, N-shares on the New York Stock Exchange, and other major exchanges in the world. After February 2001, Chinese investors were allowed to trade B-shares in foreign currency. Further, with the accession of World Trade Organization (WTO), the process of opening up the Chinese capital markets has entered a new era. On 1st December, 2002, the China Securities Regulatory Commission (CSRC) issued the "Provisional Measures on Administration of Domestic Securities Investments of Qualified Foreign Institutional Investors (QFIIs)" (the CSRC, 2002), which allows selected QFIIs to enter the Chinese A-share markets. The aim was to deepen the openness of the Chinese capital markets and enhance the management skills in the listed firms, and in turn, improve the development of the legal system of the Chinese financial markets.

Under China's QFII framework, foreign financial institutions can be granted the QFII status only if they meet certain requirements, including quantitative benchmarks relating to the assets size and management experience. QFIIs are selected under a quantitative quota system where they need to apply for an approved quota in Chinese currency for developing their investment portfolio in the Chinese A-share markets. In addition, the investment of QFIIs need to be in compliance with shareholding restrictions: first, shares held by each QFII in any single listed firm cannot exceed 10 percent of total outstanding shares of such firm; second, total shares held by all QFIIs in one single listed firms cannot exceed 20 percent of its total outstanding shares of such firm.

In 2006, the CSRC revised and issued "Regulations on Administration of Domestic Securities Investments of Qualified Foreign Institutional Investors", which lowered the assets size requirements, increased the investment quota limit, and simplified the quota approval management system[3]. It signals the Chinese government's intention to encourage the QFIIs as potential strategic investors with long-term investment perspective. By the end of 2016, there were 278 QFIIs in A-share markets with a USD 87.31 billions of total investment (the State Administration of Foreign Exchange, 2016).

Table 1 presents the details of top ten largest QFIIs at the end of 2016. The largest QFII is Monetary Authority of Macao with a USD 3 billions investment capital in the Chinese A-share markets. The top ten largest QFIIs are mainly from regions in Asia and Europe, and entered the Chinese A-share markets after 2014.

[Insert Table 1 about here]

The evidence is mixed in terms of the impact of foreign institutional ownership on firm behaviour and outcomes. One strand of literature argues that foreign institutional investors bring high standards of information disclosure, and provide better managerial and technical expertise, which in turn, improves firm performance (Dyck, 2001; Ferreira and Matos, 2008; Luong, et al., 2017). In addition, foreign institutional investors also improve corporate governance practices, especially in countries with weak legal protection. Using the data from 23 countries over the period from 2003 to 2008, Aggarwal et al. (2011) find foreign institutional investors, compared to domestic institutional investors, can improve corporate governance in emerging markets significantly. Prior studies further state that foreign institutional investors could improve accounting information disclosure and further improve stock price

[3] For more information, please refer to "Regulations on Administration of Domestic Securities Investments of Qualified Foreign Institutional Investors" (the CSRC, 2006).

informativeness and synchronicity (Jiang and Kim, 2004; Gui et al., 2010; He et al., 2013; Kim and Yi, 2015), which in turn, reduces agency problems such as tunnelling (Huang and Zhu, 2015; Zhang et al., 2017). The disciplinary role of foreign institutional investors is also proved in terms of investment efficiency (Chen, et al., 2013; Ferreira and Matos, 2008). As to the monitoring mechanisms, theoretical studies of Hirschamn (1970) and McCahery et al. (2016) demonstrate two theories of how institutional investors influence the management: using voting right (voice) and selling and voting with their feet (exit). Studies like Douma et al. (2006), Chen et al. (2007), Ferreira et al. (2008), and McCahery et al. (2016) base on the traditional theory and find that foreign and independent institutional investors with large holdings and long investment horizon are motivated to use their control rights through intervention in management decisions. Recent theory posits that institutional investors can govern firms even when they have little intervention power (Bharath et al., 2013; McCahery et al., 2016). That is, institutional investors could use exit threat to pressure the management for improvement.

Another strand of literature, however, argues that foreign institutional investors represents "hot money" by pursuing short-term profits with little concern for long-term firm prospects. Ferreira et al. (2014) argue that short-termism of foreign investors may pressure the stock markets, and in turn, increase the risk exposure of listed firms. It is also evidenced that foreign speculators are responsible for the severity of financial crises (Stiglitz, 2000). In addition, Cheng et al. (2011) and Manconi et al. (2012) provide evidence that institutional investors under short-termism theory tend to focus on current earning news and short-term performance excessively.

2.2.Related literature on stock price crash risk

Stock price crash risk measures the asymmetry in risk, and defined as the negative skewness in the distribution of returns for individual stocks (Chen et al., 2001; Jin and Myers, 2006). Prior studies document several theoretical frameworks of generating stock price crash. Cao et al. (2002) argue that traders with less information are hesitated about the trading signals sent by informed traders, and would delay trading until price drops, which generates stock price crash. Hong and Stein (2003) state the key determinants of the stock price crash risk is investor hereogeneity, which potentially blocks the negative information outflow to be fully incorporated into stock prices, therefore increasing stock price crash risk. More recent studies focus on the agency theory framework. Jin and Myers (2006) provide a theoretical analysis linking bad news hoarding by managers with stock price crash risk. They propose that managers tend to withhold bad news to the public due to career concerns. Once the bad news accumulated and reached to a threshold level, stock price crashes.

Prior studies on the determinants of stock price crash risk are heavily framed from an agency perspective. For example, financial reporting can be a key determinant of stock price crash risk. Hutton et al. (2009) and Chen et al. (2017a) find that earnings management, measured by accumulated accruals, is positively related to stock price crash risk. In addition, Francis et al. (2016) investigate the impact of real earnings management on stock price crash risk, and find that firms engage in real earnings management are prone to price crash. Beside accruals and real earnings management, managers also use other methods to manage earnings, such as, corporate tax avoidance. Kim et al. (2011a) find that corporate tax avoidance increases stock price crash risk. In addition, managers may also use voluntary disclosures, such as corporate social responsibility (CSR), to conceal bad news for an extended period. Kim et al. (2014) reveal that firms with better CSR disclosures tend to have lower stock price crash risk. Zhang et al. (2016) argue that corporate philanthropy (a component of CSR) can reduce the stock price

crash risk in China. Another strand of literature investigates the impacts of managerial incentives and characteristics on stock price crash risk. CFO's equity incentive is found to have a positive relationship with stock price crash risk (Kim et al., 2011b). Excess perks of executives in China also increases the risk of price crash (Xu et al., 2014). Further, Kim et al. (2016) reveal that firms have overconfident CEOs are more likely to have high stock price crash risk. CEO age is also documented as one of the factors determining stock price crash risk. Andreou et al. (2017) find that firms with younger CEOs are more likely to experience price crashes, which indicates that CEOs have more incentives to hoard bad news in their early career. Moreover, effective internal and external corporate governance mechanisms are found to play an important role in reducing stock price crash risk. Chen et al. (2017b) find that high quality internal control (control environment, risk assessment, control activities, information and communication, and monitoring) mitigates stock price crash risk. Further, Kim et al. (2018) argue that higher cash dividend payment indicates less minority shareholder expropriation, and therefore, mitigates stock price crash risk. External monitoring such as institutional investors ownership (An and Zhang, 2013; Callen and Fang, 2013) and analyst coverage (Kothari et al., 2009) can alleviate stock price crash risk. Finally, social norm can also influence stock price crash risk. Studies show that more intense religious environment (Callen and Fang, 2015), and high social trust (Cao et al., 2016; Li et al., 2017) are negatively related to stock price crash risk.

2.3. Hypothesis development

A framework of the costs and benefits of monitoring established by Chen et al. (2007) shows that independent institutional investors face lower monitoring costs, compared to investors who have higher risk of damaging the business ties. More specifically, foreign institutional investors, in our case, QFIIs, viewed as independent investors with no potential business ties, have more incentives to stay and monitor the management instead of simply trading. Further, Hung and

Tseng (2009) find that QFIIs are in a better position than domestic institutional investors to monitor corporate insiders and in turn improves firm efficiency by improving information asymmetry and relaxing investment cash-flow sensitivity. Huang and Zhu (2015) also point out that QFIIs have greater influence than domestic institutional investors over the controlling shareholders in Chinese listed firms, as they are less prone to political pressure, and therefore, more likely to provide arm-length negotiation and monitoring. As such, we expect that QFIIs can reduce stock price crash risk by providing effective monitoring.

In the Chinese setting, the block shareholders are mainly the state and legal persons. The state shares are owned by both government agents (the central and local governments) and the state-owned enterprises (SOEs). While legal persons are enterprises or economic entities with a legal status (Chen et al., 2009). With the late entry in 2003, QFII ownership accounts only 1% on average in A-share markets, resulting QFIIs have minor power of voting rights (Huang and Zhu, 2015). As such, QFIIs are expected to have minor effect on promoting governance practices through voting (voice). Therefore, in this study, we examine the effect of QFIIs through another governance channel: exit threat. With the presence of threat of exit, institutional investors, especially the minority investors who have inadequate voting rights, still enable to influence and discipline management (McCahery et al., 2016). In sum, we expect that QFII ownership can be motivated to discipline management, and in turn, are prone to be associated with lower stock price crash risk. We hypothesise that:

Hypothesis 1: QFII ownership is negatively related to stock price crash risk.

3. Sample and variables

3.1. Sample

The initial sample consists of all Chinese A share listed companies from 2003 to 2015[4]. The data in this study is obtained from the China Securities Market and Accounting Research (CSMAR) database. We exclude (1) financial service firms, (2) firms with fewer than 30 trading weeks of stock return data in a fiscal year, (3) firm-year observations with missing information to obtain the control variables. Our final sample includes 12,382 firm-year observations representing 1,944 individual firms. To mitigate the effects of outliers, we winsorize continuous variables at the 1% and 99% levels.

Panels A and B of Table 2 show the sample firm-year observations and QFIIs distribution across industries and by year, respectively. The industry classification is based on the 2012 CSRC industrial classification of listed companies with 17 industries.[5] Panel A shows that the majority of our sample observations are in the manufacturing industry (58.65%). Similarly, the majority of the firms with QFII ownership are from the manufacturing industry (62.58%). While transport, storage and postal services industry accounts for 9.63%, and wholesale and retail accounts for 6.77% of firms with QFII ownership. Panel B reports the chronological distribution of our sample firms and firms with QFII ownership. There are more observations in the later sample period, indicating the underlying growth in China's capital markets. In terms of firms with QFIIs, it reveals an overall increasing trend of QFIIs representative from 2003 to 2015, except for a sharp decrease in 2007 and 2008, which could be driven by the global financial crisis, and a slight decrease in 2012 and 2013, which could be due to the overall bad performance of the Chinese A-share markets in 2012.

[4] QFIIs are allowed to invest in A-share market from 2003.
[5] For more details, please refer to the CSRC, 2012. Beijing: "The Guidelines for the Industrial Classification of Listed Companies (No. 31)".

[Insert Table 2 about here]

3.2. Measuring firm-specific crash risk

Following Chen et al. (2001), Hutton et al. (2009), and Kim et al. (2011a, 2011b), we measure firm-specific crash risk using two measures. We first estimate firm-specific weekly returns, denoted W, by using the following equation:

$$R_{i,t}= \alpha_i+\beta_1 R_{m,t-2}+ \beta_2 R_{m,t-1}+ \beta_3 R_{m,t}+ \beta_4 R_{m,t+1}+ \beta_5 R_{m,t+2}+ \varepsilon_{i,t} \quad (1)$$

where $R_{i,t}$ is the return on stock i in week t and $R_{m,t}$ is the value-weighted A-share market return on week t. The firm-specific weekly returns for firm i in week t are measured by $W_{i,t}=\ln(1+\varepsilon_{i,t})$.

The first measure of crash risk is the negative coefficient of skewness, NCSKEW, calculated by taking the negative of the third moment of firm-specific weekly returns for each sample year and dividing it by the standard deviation of firm-specific weekly returns raised to the third power. Specifically, the equation is as follows:

$$NCSKEW= -[n(n-1)^{3/2} \sum w_{j,\tau}^3]/[(n-1)(n-2)(\sum w_{j,\tau}^2)^{3/2}] \quad (2)$$

where n is the number of trading weeks of firm i in year t. A higher the NCSKEW, a firm is more likely to crash.

The second measure is the down-to-up volatility, DUVOL, calculated as the logarithm of the ratio of the standard deviation of firm-specific weekly returns in "down" weeks to the standard deviation of firm-specific returns in "up" weeks. If a firm's specific weekly return is higher than the mean value over year t, then the week is a "up" week, otherwise a "down" week. Specifically, the equation is as follows:

$$DUVOL_{j,\tau}=\log\{(n_u-1)\sum_{Down} w_{j,\tau}^2/(n_d-1)\sum_{Up} w_{j,\tau}^2\} \quad (3)$$

where n_u and n_d are the number of "up" and "down" weeks over year t, respectively. A higher value of DUVOL, a firm is more likely to crash.

3.3. Measuring QFIIs ownership

We have four measures of QFIIs ownership in Chinese listed firms. The presence of QFII ownership, QFII, is a dummy variable that equals one if a listed firm has QFII ownership, zero otherwise. QFII ownership concentration, Top10, refers to a dummy variable that equals one if a firm has QFII ownership in its top ten shareholders list, zero otherwise. QFII investment horizon, Long, is a dummy variable that equals one if a firm has QFIIs in the top ten shareholders list, whose investment horizon is longer than six months in the observation year, zero otherwise. Existence of multiple QFIIs, MultiQFII, is a dummy variable that equals to one if a firm has more than one QFII in its top ten shareholders list in the observation year, zero otherwise.

3.4. Control variables

We also include a series of control variables that are known to influence stock price crash likelihood. The lagged variable of crash risk ($NCSKEW_{t-1}$ or $DUVOL_{t-1}$) is included to control the potential serial correlation. Following Chen et al. (2001), and Kim et al. (2011a, 2011b), we include the following control variables that commonly used in the prior studies as the predictors of crash risk. First, we include Dturn, the detrended stock trading volume, a proxy of investor opinion heterogeneity, which is positively related to stock price crash risk (Hong and Stein, 2003). Second, we include Return and Sigma, measured by the average firm-specific weekly return over the past year and the standard deviation of weekly firm-specific stock returns over the past year, respectively. Past returns and volatility are related to future crash

risk given that firms with higher returns and volatility are more likely to undergo a future price crash (Chen et al., 2001). Further, some firm-level control variables are included: Size, is calculated as the natural logarithm of total assets. Leverage refers to the ratio of total liabilities to total assets. ROA refers to return on assets. MB refers to market to book equity ratio; and ABACC[6], the absolute value of abnormal accruals, which is a proxy of earnings management (Hutton et al., 2009; Kim et al., 2011a, 2011b; Kim and Zhang, 2016). Studies like Hutton et al. (2009) find that firms with large size, low leverage ratio, poor performance, high growth, and more earnings management are more prone to crash. In addition, it is expected that firms with poor corporate governance are more like to have high stock price crash risk (Andreou et al., 2017; Chen et al., 2017a). Therefore, for the internal corporate governance variables, we follow Xu et al. (2014) and include State, which is a dummy variable equal to one if the ultimate controller is the State. Top1 refers to the percentage of top one shareholding. Independence, refers to a ratio of the number of independent directors to the total number of directors on the board; and Board size is measured by the natural logarithm of the total number of directors on the board.

4. Empirical tests and results

4.1. Descriptive statistics

Table 3 displays the summary statistics of the variables in our study[7]. The detailed description of each variable is shown in the Appendix A. In our sample, the average value for NCSKEW and DUVOL are -0.262 and -0.079, respectively, which are similar to those reported in Li et al. (2017). The four measures of QFIIs have the average values of 0.101, 0.058, 0.037, and 0.009, respectively. That is, 10.1% of the sample have QFII ownership, and 5.8% of them have

[6] The construction of ABACC is detailed in the Appendix B.
[7] We test the correlations between the variables and find no significant multicollinearity problems.

QFIIs in their top ten shareholder list. In addition, 3.7% of the sample have long-term QFIIs (more than six months) in their top ten shareholder lists, and 0.9% of them have more than one QFII in their top ten shareholder lists.

[Insert Table 3 about here]

4.2. Baseline regression analysis

4.2.1. QFII ownership and stock price crash risk

To investigate the impact of QFII ownership on firm-specific future stock price crash risk, we apply the following model:

$$\begin{aligned} CrashRisk_{t+1} = \alpha + \beta_1 QFII_t \,/\, Top10_t \,/\, Long_t \,/\, MultiQFII_t \\ + \gamma \times Control\ variables + Industry\ dummies + Year\ dummies + \varepsilon_t \end{aligned} \quad (4)$$

where the dependent variable, $CrashRisk_{t+1}$ is measured by NCSKEW or DUVOL. Following stock price crash risk literature, we measure all independent variables in year t, which is a one-year lag from the dependent variable. As such, it allows us to examine the effect of QFII ownership in year t on predicting the crash risk in year t+1. The key independent variables are the four measures of QFII ownership. The Equation (4) controls for industry and year fixed effects. Further, we cluster the standard errors by both the firm and time level to alleviate concerns of potential cross-sectional and time-series dependence in the data (Kim et al., 2011a; 2011b; Xu et al., 2014; Li et al., 2017).

Table 4 reports the regression results. Long and MultiQFII are both negatively and significantly related to stock price crash risk in the Models (4), (7) and (8) at the 5% and 10% levels. Moreover, Long and MultiQFII are economically significant with magnitudes of 0.96%, 0.77%,

and 1.50%[8] in the Models (4), (7), and (8), respectively. It suggests that long-term QFIIs are able to exert effective monitoring to discipline management, which in turn, reduce stock price crash risk. The results are consistent with the findings of Douma et al. (2006), Chen et al. (2007), Ferreira and Matos (2008), and McCahery et al. (2016). In addition, consistent with McCahery et al. (2016), the results reveal that the existence of multiple QFIIs strengthens the effectiveness of monitoring. However, the results show little evidence that QFII ownership (QFII and Top10) have mitigating effect on stock price crash risk. This is reasonable because the overall QFII ownership is still minor in Chinese listed firms.

The lagged variable of crash risk ($NCSKEW_t$ or $DUVOL_t$) is positively and significantly related to crash risk in all the models at the 1% level, indicating crash risk is persistent (Chen et al., 2001; Callen and Fang, 2015; Li et al., 2017). Consistent with the findings of Chen et al., 2001; Kim et al., 2011a, 2011b; Callen and Fang, 2015; Li et al., 2017), Return and Sigma are both positively and significantly related to crash risk, which suggests that firms with higher return and volatility are more prone to undergo a future price crash. In addition, there is a positive and significant relationship between MB and crash risk in all the models at the 1% level, which is in line with the findings of prior studies that growth stocks are more likely to crash (Harvey and Siddique, 2000; Chen et al., 2001, Callen and Fang, 2015; Xu et al, 2014; Li et al., 2017). Surprisingly, leverage ratio is negatively and significantly related to stock price crash risk at the 10% level in the Models (5) to (8). Hutton et al. (2009) explain that the negative relation most likely reflects endogeneity in firms' capital structure choices, that firms with less crash-prone firms are able to establish higher level of indebtedness.

[Insert Table 4 about here]

[8] We use the standard deviation of the independent variable multiplied by the coefficient of the independent variable and divided by the standard deviation of the dependent variable to calculate the economic significance of an independent variable.

4.3. Endogeneity issue

We first use the propensity score matching approach to address the potential endogeneity issue. The mechanism of propensity score matching is to produce two groups of firms that can be matched optimally according to the included control variables. In our case, the treatment groups are the firms with QFII ownership, QFIIs in top ten shareholders list, QFII investment period longer than six months, or multiple QFIIs, control groups vice versa. The treatment and control groups are made to be as statistically alike as possible for the control variables.

In the first-stage analysis, we estimate the following probit model to predict the presence of QFII ownership:

$$\begin{aligned} QFII_t/\ Top10_t/\ Long_t/\ MultiQFII_t = {} & \beta_0 + \beta_1 Size_t + \beta_2 Leverage_t + \beta_3 ROA_t + \beta_4 MB_t \\ & + \beta_5 ABACC_t + \beta_6 State_t + \beta_7 Top1_t + \beta_8 Indenpendence_t \\ & + \beta_9 Boardsize_t + \beta_{10} Return_t + \text{Industry dummies} \\ & + \text{Year dummies} + \varepsilon_t \end{aligned} \quad (5)$$

The dependent variables are the four measures of QFII ownership. The independent variables are commonly used in the literature for controlling firm performance and corporate governance perspectives. The model is fixed at the industry and year levels[9].

Prior studies state that foreign institutional investors are inclined to invest in markets with stronger shareholder rights, and in firms with less information asymmetry. Studies based on the home bias theory argue that foreign portfolio investors exhibit a large home bias against countries with poor governance and different cultures (Ahearne et al., 2004; Kho et al., 2009; Anderson et al., 2011). Furthermore, Aggarwal et al. (2005) use the portfolio holdings of 576 US mutual funds invested in emerging markets and investigate the portfolio preferences of

[9] We also test the model with firm and year fixed effects, and the results are very similar.

foreign institutional investors at both country-level and firm-level disclosure and polices. It is stated that foreign institutional investors are more likely to invest in markets with strong accounting standards and legal protection, and good corporate governance such as greater accounting transparency at the firm level. Panel A in Table 5 represents the results of the determinants of QFII presence. It shows in the Model (1) that QFIIs are more likely to invest in large size, low leverage, good operating performance, high growth, and low earnings management firms. Similarly, QFIIs with ownership concentration, long investment horizon and multiple QFIIs are also inclined to stay in firms with good operating performance and good corporate governance measures, which is consistent with Aggarwal et al. (2005), Ferreira and Matos (2008), and Liu et al. (2014). Further, the results reveal that QFIIs are more likely to invest in the state controlled firms in China for the purpose of building strong connection with the Chinese government (Liu et al., 2014).

In the second-stage regression, we use a sample containing two groups of firms (treated group and control group) which are generated from the probit models in the Equation (5), and re-run the regression shown in the Equation (4). In Panel (B) of Table 5, the results show that Long and MultiQFII are both negatively and significantly related to stock price crash risk at the 10% levels, as shown in the Models (7) and (8). It suggests that long investment horizon and multiple existence of QFIIs are prone to reduce the stock price crash risk. The results are consistent with our main findings.

[Insert Table 5 about here]

Second, we also apply the Heckman (1979) two-stage approach to alleviate the potential endogeneity of QFII ownership. We further obtain the inverse Mills ratio (Lambda) from the probit model conducted in the first-stage of the propensity score matching analysis. Then, we add Lambda into the Equation (4) to control for self-section concerns.

Table 6 presents the results of the second-stage of Heckman two-stage model. The inverse Mills ratio (Lambda) is insignificant in all the models, suggesting that there is no self-selection in our sample. Importantly, we continue to find that QFIIs with long-term investment and existence of multiple QFIIs are negatively and significantly associated with stock price crash risk at the 10% levels, as shown in the Models (3), (4), (7), and (8). The results support our argument that QFIIs can exert effective monitoring to discipline the management and reduce stock price crash risk.

[Insert Table 6 about here]

4.4.Corporate site visits and stock price crash risk

Corporate site visits are one of the most prevalent and important typed of information acquisition activities in the market (Brown et al., 2015; McCahery, et al., 2016). It is documented that institutional investors can acquire useful information by observing the operation of a firm or directly communicating with managers by visiting a firm's headquarter and its operation facilities (Cheng et al., 2015). In addition, through site visits, institutional investors can exert effective monitoring to discipline managers, which in turn, increase stock returns (Cheng et al., 2018) and firm innovation (Jiang and Yuan, 2018). Therefore, we expect that corporate site visits by QFIIs can be the effective channel through which QFIIs reduce stock price crash risk.

We obtain the data of corporate site visits from the China Stock Market and Accounting Research (CSMAR) database. Since the site visit data is only available from 2012, our sample period starts from 2012 to 2015. We use Sitevisits, a dummy variable that equals one if any QFIIs visit a firm's site in the observation year, otherwise zero.

Table 7 reports the results. In Panel A, we use the probit model to examine the impact of QFIIs on corporate site visits. It shows that a firm with QFII ownership, QFIIs in top ten shareholders list, long-term QFIIs, and multiple QFIIs, are more likely to attract site visits from QFIIs. Furthermore, Panel B shows that corporate site visits can significantly reduce stock price crash risk at the 10% level in both models. It suggests that firms with QFIIs exert better monitoring by their site visiting, which in turn, are prone to have lower stock price crash risk.

[Insert Table 7 about here]

4.5.Additional test: QFII ownership and dividend policy

Agency theory suggests that cash dividend payments reduce the free cash flow problem (Jensen, 1986), and in turn enhance minority shareholder protection. Kim et al. (2018) find that dividend payments mitigate stock price crash risk by curtailing overinvestment decisions by managers. As such, in this study, we examine the impact of QFII ownership on dividend policy. We use Excessdiv, measured as a firm's cash dividend payout ratio (cash dividend per share to total assets per share) minus the industry average dividend payout ratio in the same observation year. The results in Table 8 shows that the presence of QFII, QFIIs with large equity holdings, long-term investment, and existence of multiple QFIIs are positively and significantly related to dividend payments at the 1% level in the full sample. The results indicate that QFIIs influence portfolio firms to pay more dividends, which may indirectly mitigate stock price crash risk.

[Insert Table 8 about here]

5. Conclusions

This study investigates the role of QFIIs in China on stock price crash risk from 2003 to 2015 through a governance mechanism: exit threat. We find that QFIIs play an important role of governing firm management, even when the direct intervention power, by using voting rights,

is inadequate. The effectiveness of crash risk mitigation analysis suggests that QFIIs can exert credible exit threat to discipline management if they have long-term investment and the existence of multiple QFIIs. In addition, it reveals that QFIIs exert effective discipline through visiting portfolio firm's sites. That is, firms visited by QFIIs are better monitored, which in turn, have lower stock price crash risk. Our results are robust to alternative empirical specifications and endogeneity concerns.

In summary, this study sheds light on an important research question on the impact of Qualified Foreign Institutional Investors (QFIIs) on stock price crash risk. We encompass the conditions of QFIIs for the effectiveness of stock price crash risk mitigation. It also provides important implications to policy makers on further openness of Chinese stock markets, and implies to investors that QFIIs may serve as one of the indicators when predicting and eschewing future stock price crash risk.

Appendix A. Definitions of the variables in this study

Variable	Definition
NCSKEW	The negative coefficient of skewness, calculated by taking the negative of the third moment of firm-specific weekly returns for each sample year and dividing it by the standard deviation of firm-specific weekly returns raised to the third power. See Eq. (2) for details.
DUVOL	The down-to-up volatility. For any stock i in year t, we separate all of the weeks with firm-specific weekly returns below the annual mean (down weeks) from those with firm-specific weekly returns above the annual mean (up weeks) and compute the standard deviation for each of these subsamples separately. We then take the natural logarithm of the ratio of the standard deviation of the down weeks to the standard deviation of the up weeks. See Eq. (3) for details.
QFII	A dummy variable equals one if a firm has QFII ownership in the observation year, zero otherwise.
Top10	A dummy variable equals one if a firm has QFII ownership in its top ten shareholders, zero otherwise
Long	A dummy variable equals one if a firm has QFIIs in the top ten shareholders list with investment longer than six months in the observation year, zero otherwise.
MultiQFII	A dummy variable equals to one if a firm has more than one QFII in its top ten shareholders list in the observation year, zero otherwise.
Return	The mean of firm-specific weekly returns over the fiscal year.
Sigma	The standard deviation of firm-specific weekly returns over the fiscal year.
Dturn	The detrended stock trading volume, calculated as the average monthly share turnover for the current fiscal year minus the average monthly share turnover for the previous fiscal year, where the monthly share turnover is the monthly trading volume divided by the total number of floating shares on the market in that month.
Size	The natural logarithm of the book value of total assets at the end of the fiscal year.
Leverage	Firm financial leverage, calculated as total liabilities divided by total assets.
ROA	Firm profitability, calculated as income before extraordinary items divided by total assets.
MB	The market-to-book ratio of firm i in year t, i.e., (market price at the end of fiscal year × number of shares outstanding + net asset value per share × number of non-tradable outstanding shares)/book value of equity.
ABACC	The absolute value of discretionary accruals, where discretionary accruals are estimated from the modified Jones model (Dechow et al., 1995). See the Appendix B for a detailed explanation.
State	A dummy variable equals one if a firm's ultimate controller is the state, zero otherwise.
Top1	The percentage of the largest shareholding.
Independence	Independence of the board, measured as the ratio of the number of independent directors over the total number of directions on the board.
Boardsize	The natural logarithm of the number of directors on the board.

Excessdiv	A firm's cash dividend payout ratio (cash dividend per share to total assets per share) minus the industry average dividend payout ratio in the same observation year.
Sitevisits	A dummy variable equals one if any QFII visits a firm's site in the observation year, otherwise zero.

Appendix B. Measuring of firm-specific earnings management (ABACC)

We employ the modified Jones model (Dechow et al., 1995) to estimate discretionary accruals, which is a common measure of earnings management. Specifically, we first estimate the following cross-sectional regressions for each industry for each year from 2003 to 2015:

$$\frac{TA_{i,t}}{Asset_{i,t-1}}=\alpha_0\times\frac{1}{Asset_{i,t-1}}+\beta_1\times\frac{\Delta Sales_{i,t}}{Asset_{i,t-1}}+\beta_2\times\frac{PPE_{i,t}}{Asset_{i,t-1}}+\varepsilon_{i,t} \quad (B.1)$$

The estimated coefficients from Equation (B.1) are then used to calculate discretionary accruals ($DiscACC_{i,t}$) using the following equation:

$$DiscACC_{i,t}=\frac{TA_{i,t}}{Asset_{i,t-1}}-(\widehat{\alpha_0}\times\frac{1}{Asset_{i,t-1}}+\widehat{\beta_1}\times\frac{\Delta Sales_{i,t}-\Delta AR_{i,t}}{Asset_{i,t-1}}+\widehat{\beta_2}\times\frac{PPE_{i,t}}{Asset_{i,t-1}} \quad (B.2)$$

where $TA_{i,t}$ is total accruals from firm i in year t, calculated as operating profits minus cash flow from operations; $Asset_{i,t-1}$ is the book value of total assets from firm i at the beginning of year t; $\Delta Sales_{i,t}$ is the change in total revenue of firm i in year t; $\Delta AR_{i,t}$ is the change in accounts receivable for firm i in year t; and $PPE_{i,t}$ is the gross amount of fixed assets for firm i at the end of year t. The variable $ABACC_{i,t}$ is the absolute value of discretionary accruals for firm i at year t.

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Table 1. The top ten largest QFIIs

This table lists the information of the top ten largest QFIIs in China at the end of 2016, including the names, origins, trustee bank, registration date, and the amount of investment quota of QFIIs.

Ranking	QFIIs	Origins	Trustee bank	Registration date	Investment Quota (in billions)
1	**Monetary Authority of Macao**	Macao	Bank of China	27-10-16	3.00
2	**Norges Bank**	Norway	National city Bank of New York	13-02-15	2.50
3	**ABU Dhabi Investment Authority**	United Arab Emirates	Hong Kong and Shanghai Banking Corporation	25-12-15	2.50
4	**Hong Kong Monetary Authority**	Hong Kong	National city Bank of New York	22-09-14	2.50
5	**UBS AG**	Switzerland	National city Bank of New York	28-11-16	2.19
6	**Société Générale**	France	Hong Kong and Shanghai Banking Corporation	27-10-16	1.70
7	**JF Asset Management Limited**	Hong Kong	China Construction Bank	27-07-16	1.53
8	**Fubon Life Insurance Co. Ltd**	Taiwan	National city Bank of New York	28-09-15	1.50
9	**Kuwait Investment Authority**	Kuwait	Industrial and Commercial Bank of China	22-01-14	1.50
10	**Oppenheimer Funds, Inc.**	United State	Hong Kong and Shanghai Banking Corporation	28-11-16	1.50

Table 2. Sample distribution

Panel A and B of Table 2 show the sample firm-year observations and QFIIs distribution across industry and year, respectively.

Panel A: By industry				
Industry	**Firm-year observation**	**Percentage (%)**	**Firms with QFII ownership**	**Percentage (%)**
Agriculture, forestry	183	1.48	14	1.11
Mining	394	3.18	30	2.39
Manufacturing	7,263	58.65	783	62.58
Electric power, heat, gas and water	650	5.25	56	4.46
Construction	286	2.33	22	1.75
Wholesale and retail	699	5.64	85	6.77
Transport, storage and postal services	554	4.47	121	9.63
Accommodation	66	0.53	11	0.88
Information transmission, software and information technology services	424	3.42	25	1.99
Real estate	875	7.06	64	5.18
Leasing and commercial service	170	1.37	21	1.67
Scientific research and technical service	37	0.30	0	0.00
Water conservancy, environment and public facility management	141	1.14	7	0.56
Education	12	0.10	0	0.00
Health and social work	28	0.23	0	0.00
Culture, sports and entertainment	154	1.24	7	0.56
Others	179	1.45	6	0.48
Total	12,382	100	1,252	100
Panel B: By year				
Year	**Firm-year observation**	**Percentage (%)**	**Firms with QFII ownership**	**Percentage (%)**
2003	773	6.25	9	0.80
2004	773	6.25	35	2.87
2005	778	6.28	88	7.01
2006	858	6.93	162	12.90

2007	425	3.43	82	6.53
2008	345	2.79	67	5.33
2019	736	5.94	100	7.96
2010	900	7.27	128	10.19
2011	997	8.05	119	9.47
2012	1416	11.43	104	8.28
2013	1,455	11.75	95	7.56
2014	1,451	11.72	122	9.71
2015	1,475	11.92	141	11.39
Total	12,382	100	1,252	100

Table 3. Descriptive statistics

This table reports the summary statistics of the variables included in the analysis. The full description of all variables are summarised in the Appendix A.

Variables	Observations	Mean	Min	Max	Std. Dev.
$NCSKEW_{t+1}$	12,382	-0.262	-4.621	4.792	0.728
$DUVOL_{t+1}$	12,382	-0.079	-1.123	1.143	0.218
$QFII_t$	12,382	0.101	0.000	1.000	0.301
$Top10_t$	12,382	0.058	0.000	1.000	0.234
$Long_t$	12,382	0.037	0.000	1.000	0.188
$MultiQFII_t$	12,382	0.009	0.000	1.000	0.093
$NCSKEW_t$	12,382	-0.235	-4.621	6.214	0.725
$DUVOL_t$	12,382	-0.070	-1.015	1.512	0.216
$Return_t$	12,382	-0.001	-0.119	0.000	0.002
$Sigma_t$	12,382	0.047	0.006	0.491	0.020
$Dturn_t$	12,382	-0.074	-1.866	1.849	0.257
$Size_t$	12,382	21.996	18.814	25.683	1.136
$Leverage_t$	12,382	0.483	0.008	0.974	0.193
ROA_t	12,382	0.040	-0.984	0.775	0.069
MB_t	12,382	2.566	0.325	10.998	1.774
$ABACC_t$	12,382	0.062	0.000	1.614	0.072
$State_t$	12,382	0.683	0.000	1.000	0.465
$Top1_t$	12,382	0.372	0.003	0.894	0.157
$Independence_t$	12,382	0.362	0.000	0.714	0.054
$Boardsize_t$	12,382	2.200	1.386	2.944	0.205
$Excessdiv_t$	12,382	-0.021	-0.270	0.760	0.117
$Sitevisits_t$	12,382	0.049	0.000	1.000	0.217

Table 4. QFII ownership and stock price crash risk

This table presents the results of the relationship between QFII ownership and stock price crash risk of sample from 2003 to 2015. QFII is a dummy variable equal to one if a firm has QFII ownership, zero otherwise; Top10 is a dummy variable equal to one if a firm has QFII ownership in its top ten shareholders list, zero otherwise; Long is a dummy variable equal to one if a firm has QFII investment longer than six months in the observation year, zero otherwise; MultiQFII is a dummy variable equal to one if a firm has more than one QFII in the observation year, zero otherwise. The full description of all variables are summarised in the Appendix A. A superscript *, ** or *** denotes significance at the 10%, 5% or 1%, respectively. All models control for industry and year fixed effect with the Huber-White standard error clustered by both firm and year.

	$NCSKEW_{t+1}$				$DUVOL_{t+1}$			
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
$QFII_t$	0.033				0.010			
	(1.21)				(1.5)			
$Top10_t$		-0.003				-0.006		
		(-0.11)				(0.81)		
$Long_t$			-0.436				-0.018*	
			(-1.66)				(-2.01)	
$MultiQFII_t$				-0.075**				-0.035**
				(-2.24)				(-2.41)
$NCSKEW_t$	0.064***	0.064***	0.064***	0.064***				
	(3.93)	(3.94)	(3.94)	(3.92)				
$DUVOL_t$					0.058***	0.058***	0.058***	0.058***
					(4.14)	(4.14)	(4.13)	(4.12)
$Return_t$	20.170**	19.888**	19.809**	19.855**	7.589**	7.494**	7.469**	7.486**
	(2.26)	(2.21)	(2.21)	(2.21)	(2.74)	(2.69)	(2.69)	(2.68)
$Sigma_t$	3.883**	3.843**	3.825**	3.831**	1.153***	1.138***	1.133***	1.135***
	(2.82)	(2.79)	(2.79)	(2.78)	(3.14)	(3.1)	(3.10)	(3.09)
$Dturn_t$	-0.018	-0.018	-0.018	-0.018	0.006	0.006	0.006	0.006
	(-0.57)	(-0.56)	(-0.54)	(-0.54)	(0.73)	(0.74)	(0.75)	(0.74)
$Size_t$	0.023	0.025*	0.026*	0.025*	0.003	0.003	0.004	0.003
	(1.69)	(1.81)	(1.86)	(1.83)	(0.52)	(0.66)	(0.71)	(0.66)

Leverage$_t$	-0.103	-0.107	-0.111	-0.109	-0.025*	-0.027*	-0.028*	-0.028*
	(-1.65)	(-1.74)	(-1.77)	(-1.75)	(-1.79)	(-1.92)	(-1.96)	(-1.92)
ROA$_t$	0.143	0.150	0.154	0.152	0.024	0.027	0.028	0.028
	(0.72)	(0.76)	(0.78)	(0.77)	(0.35)	(0.39)	(0.41)	(0.41)
MB$_t$	0.041***	0.041***	0.042***	0.042***	0.011***	0.011***	0.011***	0.011***
	(4.08)	(4.11)	(4.07)	(4.10)	(3.53)	(3.55)	(3.52)	(3.32)
ABACC$_t$	0.044	0.043	0.043	0.042	-0.009	-0.010	-0.009	-0.009
	(0.59)	(0.58)	(0.58)	(0.57)	(-0.35)	(-0.38)	(-0.37)	(-0.37)
State$_t$	0.003	0.003	0.005	0.003	0.003	0.003	0.003	0.003
	(0.14)	(0.16)	(0.22)	(0.17)	(0.35)	(0.37)	(0.44)	(0.38)
Top1$_t$	0.000	0.000	-0.000	0.000	0.000	0.000	0.000	0.000
	(-0.08)	(-0.07)	(-0.06)	(-0.07)	(0.35)	(0.37)	(0.38)	(0.39)
Independence$_t$	-0.131	-0.134	-0.133	-0.133	-0.015	-0.015	-0.015	-0.015
	(-1.17)	(-1.19)	(-1.18)	(-1.18)	(-0.47)	(-0.48)	(-0.48)	(-0.48)
Boardsize$_t$	-0.027	-0.027	-0.027	-0.028	-0.002	-0.002	-0.002	-0.002
	(-0.72)	(-0.73)	(-0.72)	(-0.74)	(-0.17)	(-0.19)	(-0.18)	(-0.22)
Industry fix effect	YES	YES	YES	YES	YES	YES	YES	YES
Year fix effect	YES	YES	YES	YES	YES	YES	YES	YES
Adj R-square	0.0838	0.0874	0.0839	0.0838	0.0831	0.0865	0.0834	0.0833
Observations	12,382	12,382	12,382	12,382	12,382	12,382	12,382	12,382

Table 5. QFII ownership and stock price crash risk: Propensity score matching model

This table presents the results of propensity score matching estimations. Panel A presents the presence of QFII ownership. Panel B presents the results of the relationship between QFII ownership and stock price crash risk using the match sample obtained from the tests in Panel A based on the propensity score. The full description of all variables are summarised in the Appendix A. A superscript *, ** or *** denotes significance at the 10%, 5% or 1%, respectively. The models in Panel A control for industry and year fixed effect with the Huber-White standard error. The models in Panel B control for industry and year fixed effect with the Huber-White standard error clustered by both firm and year.

Panel A

	$QFII_t$	$Top10_t$	$Long_t$	$MultiQFII_t$
$Size_t$	0.298***	0.303***	0.323***	0.282***
	(14.35)	(12.45)	(11.36)	(6.05)
$Leverage_t$	-0.844***	-0.890***	-1.007***	-1.121***
	(-7.35)	(-6.54)	(-6.16)	(-3.97)
ROA_t	1.504***	1.623***	1.771***	2.818***
	(5.07)	(4.73)	(4.31)	(4.34)
MB_t	0.047***	0.045***	0.052***	0.003***
	(3.90)	(3.27)	(3.11)	(3.27)
$ABACC_t$	-0.501*	-0.329	-0.263	-0.140
	(-1.90)	(-1.02)	(-0.67)	(-0.22)
$State_t$	0.113***	0.068*	0.506***	0.132
	(2.83)	(1.91)	(7.74)	(1.33)
$Top1_t$	0.001	0.001	0.002	0.007***
	(1.08)	(1.04)	(1.40)	(2.66)
$Independence_t$	-0.458	0.392	0.230	0.188
	(-1.44)	(1.01)	(0.49)	(0.24)
$Boardsize_t$	-0.137	0.061	0.108	-0.330
	(-1.49)	(0.56)	(0.84)	(1.44)
Industry effects	YES	YES	YES	YES
Year effects	YES	YES	YES	YES
Log-likelihood	-3622.9444	-2471.2370	-1674.7594	-512.9987
Observations	12,305	12,305	12,305	12,305

Panel B								
	$NCSKEW_{t+1}$				$DUVOL_{t+1}$			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$QFII_t$	0.018				0.006			
	(0.62)				(0.75)			
$Top10_t$		0.037				0.001		
		(1.31)				(0.09)		
$Long_t$			-0.041				-0.023*	
			(-1.10)				(-1.96)	
$MultiQFII_t$				-0.053				-0.046*
				(-0.74)				(-1.80)
$NCSKEW_t$	0.088***	0.096***	0.052**	0.064***				
	(5.52)	(3.09)	(2.45)	(3.92)				
$DUVOL_t$					0.091***	0.050*	0.025	0.058***
					(5.27)	(1.99)	(1.71)	(4.12)
$Return_t$	20.207**	128.043	210.900*	19.855**	7.244***	22.420	62.660**	7.486**
	(2.94)	(1.38)	(2.17)	(2.21)	(3.63)	(1.25)	(2.85)	(2.68)
$Sigma_t$	4.254**	10.019**	14.737*	3.831**	1.264**	1.933	4.275**	1.135***
	(2.23)	(1.60)	(2.09)	(2.78)	(2.45)	(1.56)	(2.85)	(3.09)
$Dturn_t$	0.059	0.121	-0.040	-0.018	0.008	0.036	0.043	0.006
	(0.56)	(1.39)	(-0.28)	(-0.54)	(0.24)	(1.69)	(1.26)	(0.74)
$Size_t$	0.027	0.032	0.062	0.025*	0.004	0.004	0.007	0.003
	(1.73)	(1.42)	(1.78)	(1.83)	(0.73)	(0.77)	(0.85)	(0.66)
$Leverage_t$	-0.071	-0.118	-0.217	-0.109	-0.019	-0.021	-0.011	-0.028*
	(-0.92)	(-0.86)	(-1.29)	(-1.75)	(-0.62)	(-0.52)	(-0.24)	(-1.92)
ROA_t	0.077	0.510	-0.205	0.152	-0.019	0.139	0.009	0.028
	(0.19)	(1.41)	(-0.49)	(0.77)	(-0.14)	(1.43)	(0.09)	(0.41)
MB_t	0.048***	0.035**	0.047**	0.042***	0.014***	0.007	0.011**	0.011***
	(3.59)	(2.23)	(2.44)	(4.10)	(3.65)	(1.27)	(2.24)	(3.32)
$ABACC_t$	0.060	0.210	0.596	0.042	-0.036	0.108	0.100	-0.009

	(0.44)	(0.70)	(1.23)	(0.57)	(-0.77)	(1.02)	(0.84)	(-0.37)
State$_t$	-0.031	-0.077*	-0.106*	0.003	-0.012	-0.027*	-0.034	0.003
	(-0.80)	(-2.13)	(-1.95)	(0.17)	(-1.04)	(-1.91)	(-1.47)	(0.38)
Top1$_t$	0.000	0.001	-0.002	0.000	0.000	0.001	-0.000	0.000
	(0.13)	(0.65)	(-0.106)	(-0.07)	(0.07)	(0.89)	(-0.07)	(0.39)
Independence$_t$	-0.079	0.108	-1.042*	-0.133	0.045	-0.011	-0.274*	-0.015
	(-0.31)	(0.40)	(-1.94)	(-1.18)	(0.54)	(-0.15)	(-1.86)	(-0.48)
Boardsize$_t$	0.055	-0.002	-0.191	-0.028	0.044**	0.004	-0.012	-0.002
	(1.07)	(-0.02)	(-1.25)	(-0.74)	(2.74)	(0.18)	(-0.33)	(-0.22)
Industry fix effects	YES	YES	YES	YES	YES	YES	YES	YES
Year fix effects	YES	YES	YES	YES	YES	YES	YES	YES
Adj R-squared	0.0953	0.1014	0.0786	0.0790	0.0928	0.0859	0.0705	0.0433
Observations	2,504	1,446	912	218	2,504	1,446	912	218

Table 6. QFII ownership and stock price crash risk: Heckman two-stage model

This table presents the results of Heckman two-stage analysis. Panel A presents the presence of QFII ownership. Panel B presents the results of the relationship between QFII ownership and stock price crash risk with the inverse Millis ratio (Lambda) obtained from the tests in Panel A of Table 5. The full description of all variables are summarised in the Appendix A. A superscript *, ** or *** denotes significance at the 10%, 5% or 1%, respectively. The models in Panel A control for industry and year fixed effect with the Huber-White standard error. The models in Panel B control for industry and year fixed effect with the Huber-White standard error clustered by both firm and year.

The second-stage

	$NCSKEW_{t+1}$				$DUVOL_{t+1}$			
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
$QFII_t$	0.033				0.010			
	(1.28)				(1.62)			
$Top10_t$		-0.002				-0.006		
		(-0.08)				(-0.81)		
$Long_t$			-0.044*				-0.018*	
			(-1.78)				(-2.12)	
$MultiQFII_t$				-0.058*				-0.030*
				(-2.01)				(-2.03)
$NCSKEW_t$	0.064***	0.064***	0.064***	0.064***				
	(3.96)	(3.99)	(3.95)	(3.92)				
$DUVOL_t$					0.058***	0.058***	0.057***	0.058***
					(4.07)	(4.11)	(4.05)	(4.12)
$Return_t$	20.281**	20.021**	19.912**	19.855**	7.695**	7.607**	7.571**	7.486**
	(2.23)	(2.18)	(2.18)	(2.21)	(2.67)	(2.63)	(2.62)	(2.68)
$Sigma_t$	3.852**	3.810**	3.791**	3.831**	1.139**	1.123**	1.118**	1.135***
	(2.74)	(2.71)	(2.71)	(2.78)	(3.02)	(2.90)	(2.99)	(3.09)
$Dturn_t$	-0.015	-0.015	-0.014	-0.018	0.007	0.007	0.008	0.006
	(-0.47)	(-0.46)	(-0.44)	(-0.54)	(0.89)	(0.88)	(0.91)	(0.74)
$Size_t$	0.035	-0.015	0.039	0.025*	0.007	-0.008	0.016	0.003
	(0.21)	(-0.10)	(0.25)	(1.83)	(0.14)	(-0.17)	(0.33)	(0.66)

Leverage$_t$	-0.143	0.004	-0.155	-0.109	-0.040	0.006	-0.068	-0.028*
	(-0.31)	(0.01)	(-0.32)	(-1.75)	(-0.28)	(0.04)	(-0.47)	(-1.92)
ROA$_t$	0.212	-0.061	0.230	0.152	0.050	-0.036	0.098	0.028
	(0.22)	(-0.07)	(0.25)	(0.77)	(0.16)	(-0.13)	(0.35)	(0.41)
MB$_t$	0.043	0.036	0.043	0.042***	0.011	0.009	0.013	0.011***
	(1.61)	(1.47)	(1.65)	(4.10)	(1.32)	(1.13)	(1.54)	(3.32)
ABACC$_t$	0.022	0.088	0.032	0.042	-0.018	0.003	-0.020	-0.009
	(0.08)	(0.45)	(0.20)	(0.57)	(-0.21)	(0.05)	(-0.38)	(-0.37)
State$_t$	0.008	-0.05	0.026	0.003	0.005	0.000	0.023	0.003
	(0.12)	(-0.15)	(0.11)	(0.17)	(0.21)	(0.03)	(0.32)	(0.38)
Top1$_t$	0.000	-0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.02)	(-0.26)	(0.06)	(-0.07)	(0.31)	(0.02)	(0.47)	(0.39)
Independence$_t$	-0.145	-0.178	-0.116	-0.133	-0.022	-0.029	-0.005	-0.015
	(-0.51)	(-0.74)	(-0.73)	(-1.18)	(-0.22)	(-0.40)	(-0.11)	(-0.48)
Boardsize$_t$	-0.034	-0.036	-0.024	-0.028	-0.005	-0.006	0.001	-0.002
	(-0.41)	(-0.64)	(-0.34)	(-0.74)	(-0.20)	(-0.38)	(0.05)	(-0.22)
Lambda	0.052	-0.150	0.046	-0.706	0.020	-0.045	0.044	-0.251
	(0.08)	(-0.26)	(0.09)	(-1.13)	(0.10)	(-0.24)	(0.27)	(-1.00)
Industry fix effects	YES	YES	YES	YES	YES	YES	YES	YES
Year fix effects	YES	YES	YES	YES	YES	YES	YES	YES
Adj R-squared	0.0836	0.0834	0.0836	0.0795	0.0828	0.0827	0.0829	0.0766
Observations	12,305	12,305	12,305	12,305	12,305	12,305	12,305	12,305

Table 7. Corporate site visits and stock price crash risk

This table presents the results of how QFIIs affect stock price crash risk through corporate site visits from 2012 to 2015. Sitevisits is a dummy variable equal to one of any QFIIs visit a firm's site in the observation year, otherwise zero. The full description of all variables are summarised in the Appendix A. A superscript *, ** or *** denotes significance at the 10%, 5% or 1%, respectively. Panel A presents the Probit model results. Models in Panel B control for industry and year fixed effectwith the Huber-White standard error clustered by both firm and year.

Panel A				
Dependent variable	**$Sitevisit_t$**			
Independent variables				
$QFII_t$	0.235***			
	(3.04)			
$Top10_t$		0.456***		
		(5.76)		
$Long_t$			0.279***	
			(2.69)	
$MultiQFII_t$				0.312*
				(1.68)
Year effects	YES	YES	YES	YES
Industry effects	YES	YES	YES	YES
Log likelihood	-1,855.785	-1,844.481	-1,856.770	-1,858.900
Observations	5,781	5,781	5,797	5,797

Panel B		
	$NCSKEW_{t+1}$	**$DUVOL_{t+1}$**
	(1)	**(2)**
$Sitevisit_t$	-0.062*	-0.019*
	(-3.13)	(-2.71)
$NCSKEW_t$	0.066*	
	(2.85)	
$DUVOL_t$		0.061*
		(2.7)
$Return_t$	113.799	39.384
	(1.56)	(1.82)
$Sigma_t$	11.426	3.550
	(2.09)	(2.30)
$Dturn_t$	-0.054	-0.007
	(-1.37)	(-0.53)
$Size_t$	0.005	-0.004
	(0.29)	(-0.61)
$Leverage_t$	-0.012	-0.013
	(-0.12)	(-0.68)
ROA_t	0.160	0.025
	(0.67)	(0.35)
MB_t	0.028*	0.007
	(2.42)	(1.79)

ABACC$_t$	0.129	0.021
	(1.39)	(0.56)
State$_t$	0.024	0.012
	(0.82)	(1.00)
Top1$_t$	0.000	0.000
	(0.22)	(0.35)
Independence$_t$	-0.101	-0.051
	(-0.85)	(-1.13)
Boardsize$_t$	-0.053*	-0.011
	(-3.03)	(-1.53)
Industry fix effects	YES	YES
Year fix effects	YES	YES
Adj R-squared	0.0450	0.0393
Observations	5,797	5,797

Table 8. QFII ownership and dividend policy

This table presents the results of the impact of QFII ownership on dividend payout ratio of sample firms from 2003 to 2015. Excessdiv is measured as a firm's cash dividend payout ratio (cash dividend per share to total assets per share) minus the industry average dividend payout ratio in the same observation year. The full description of all variables are summarised in the Appendix A. A superscript *, ** or *** denotes significance at the 10%, 5% or 1%, respectively. All models control for industry and year fixed effect with the Huber-White standard error clustered by firm.

	Excessdiv$_t$			
	(1)	**(2)**	**(3)**	**(4)**
QFII$_t$	0.022***			
	(4.37)			
Top10$_t$		0.026***		
		(3.57)		
Long$_t$			0.036***	
			(2.61)	
MultiQFII$_t$				0.061***
				(3.23)
Size$_t$	0.024***	0.025***	0.025***	0.025***
	(10.68)	(10.90)	(11.05)	(10.91)
Leverage$_t$	-0.086***	-0.087***	-0.087***	-0.088***
	(-8.35)	(-8.44)	(-8.51)	(-8.54)
ROA$_t$	0.615***	0.616***	0.618***	0.616***
	(14.68)	(14.70)	(14.68)	(14.67)
MB$_t$	0.003**	0.003**	0.003**	0.003**
	(2.23)	(2.27)	(2.30)	(2.36)
State$_t$	-0.012***	-0.012***	-0.012***	-0.012***
	(-2.91)	(-2.87)	(-2.87)	(-2.88)
Top1$_t$	0.001***	0.001***	0.001***	0.001***
	(4.43)	(4.43)	(4.35)	(4.37)
Independence$_t$	-0.047*	-0.050*	-0.048*	-0.050*
	(-1.69)	(-1.78)	(-1.73)	(1.76)
Boardsize$_t$	0.014*	0.013*	0.013*	0.014*
	(1.86)	(1.76)	(1.76)	(1.84)
Industry fix effect	YES	YES	YES	YES
Year fix effect	YES	YES	YES	YES
Adj R-square	0.2556	0.2553	0.2545	0.2550
Observations	12,382	12,382	12,382	12,382