Market Feedback: Evidence from the Horse's Mouth

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Market Feedback: Evidence from the Horse's Mouth

Abstract

We surveyed 3,626 Chinese public firms to examine the real effects of financial markets. More than 90% of firms reported that they closely monitor the stock market for the purposes of learning information to guide real investment decisions and of accessing external financing. These findings provide direct evidence for the wide existence of market feedback via a learning channel and a financing channel. Firms are more likely to monitor their stock prices for the learning purpose when their stocks have higher analyst coverage, their managers are less informed, and market traders are more informed. Firms are more likely to monitor prices for the financing purpose when they are more financially constrained and when they have greater capital needs. We also show what firms do is highly consistent with what they report in our survey by exploring their actions on trading suspensions, real investments, equity financing, and price informativeness. Overall, our analysis suggests that financial markets are not only a side show, but instead, do affect the real economy.

Key words: Market feedback, corporate investment, learning, financing

JEL number: G14, G31, D25

1. INTRODUCTION

Financial markets are not just a side show and can feed back into the real economy, either through providing capital or through proving useful information to real decision makers such as firm managers and creditors. In the primary market,[1] the well-functioning of financial markets helps to facilitate the companies' access to external capital, thereby allowing them to tap into good investment opportunities. The literature labels this financing channel as the "capital budgeting" channel (e.g., Brogaard, Ringgenberg, and Sovich, 2019; Goldstein, Yang, and Zuo, 2022). In the secondary market, the financial market aggregates useful information from various market participants, who trade on their private information, and this information can guide the decision of real decision makers. This learning channel is often labeled as an "informational feedback effect" in the literature (See Bond, Edmans, and Goldstein (2012) for a survey on this effect).

It is difficult to test the real effects of financial markets because of various endogeneity considerations. For instance, the information sets of market participants and real decision makers are unobservable and hence it is particularly challenging to test the informational feedback effect. Even some basic conceptual questions remain debatable: Do firm managers really learn information from financial markets given that they are supposed to be the most informed players? The existing literature typically runs regressions from real investment on price informativeness measures as well as control variables and rely on the investment-to-price sensitivity to draw inferences on whether real decision makers learn information from asset prices.[2] However, this inference, at its best, is only indirect and suggestive. Instead, in this paper, we provide direct evidence for market feedback by conducting a survey on companies. Here, by "market feedback", we mean the general notion that the processes affecting prices in financial markets feed back into the real economy, either through capital provision in the primary market or through information provision in the secondary market.

Specifically, we designed and administered a survey to elicit the opinions of Chinese public firms

[1] By "primary market", we refer to the marketplace in which securities are created. It includes both the initial public offering (IPO) (creating shares of a private corporation to the public in a new stock issuance) and the seasoned equity offering (SEO) (creating new shares by an already publicly traded company).

[2] See, for example, Luo (2005), Chen, Goldstein, and Jiang (2007), Bakke and Whited (2010), Foucault and Frésard (2012, 2014), Dessaint, Foucault, Frésard, and Matray (2019), and Jayaraman and Wu (2020), among others.

about market feedback. We asked all 3,628 firms listed on the Shanghai and Shenzhen stock exchanges whether they pay close attention to their own or peer firms' stock prices, and if they do, the reasons for which they monitor these prices. Our questions aim to test the theories on market feedback more directly than the usual method of trying to identify such effects by examining the outcomes of firm decisions. Nearly all firms—more specifically, 3,626 firms—responded to the survey, and thus, our study is not subject to the sampling bias problem that is commonly seen in other survey studies. We also believe that the information we collected from the survey is reliable because (1) the information typically was provided by top executives or by teams specializing in capital market affairs, who are all highly knowledgeable about their firms' challenges and strategies; and (2) the respondents were unlikely to hide their true opinions as we carefully asked plain, purely academic questions without "correct" answers and sticked to a strict "limited use" policy in the survey.

We find direct support for the existence of market feedback by asking two questions. In the first question, we asked firms whether they monitor the stock market. Among the 3,626 responding firms, 271 (7.5%) firms reported that they only care about their own stock prices; 36 (1.0%) firms reported that they only care about peer firms' stock prices; and 3,049 (84.1%) firms reported that they care about both prices. Taken together, 92.6% of Chinese public firms reported that they pay close attention to the stock market. This result holds across all industries, and the probability of monitoring stock prices ranges from 85.9% (non-banking finance industry) to 98.1% (defense industry).

In the second question, we asked firms why they care about their own stock prices. Among the 3,320 firms monitoring their own stock prices, 75.2% of them reported that they care about stock prices for learning new information that is relevant for real investment decisions. This new information is incorporated into stock prices by various market participants via trading, who could provide additional information about the cash flow and value of the proposed investments at the aggregate, sector, firm, and project levels. At the same time, 66.1% of firms reported that they care about stock prices for financing purpose. These two reasons that firms care about stock prices—learning new information and financing—correspond respectively to the above-mentioned informational feedback channel and capital budgeting channel. The third important reason that firms

care about stock prices is pressure from boards and shareholders, and 35.6% of the firms pointed to this reason. Other reasons, such as incentive pay and avoiding being acquired, were not very prevalent among responding firms, which is probably because these practices are not very popular yet in the Chinese market.

We further use the responding firms' characteristics and behaviors, observable in the public market, to understand what factors are important in determining firms' responses about market feedback and the learning and financing channels behind it.[3] These firm characteristics include variables influencing price informativeness (analyst information, managerial information, and trader information), financial constraints, capital needs, and many others. We find that firms are more likely to monitor stock prices for the learning purpose when their stocks have higher analyst coverage, their managers are less informed, and market traders are more informed. Intuitively, higher analyst coverage implies a more informative stock price either through better interpretation of existing data or through encouraging more information production by traders (Goldstein and Yang, 2015, 2019). This therefore encourages the firm to pay closer attention to stock prices and learn more information about investments. Similar arguments apply to managerial information and trader information. In terms of the financing channel, we find that firms are more likely to monitor their stock prices for the financing purpose when they are more financially constrained and when they have greater capital needs. Intuitively, when a firm wants to expand its investment and/or when it is financially constrained, the firm needs to get financing through the stock market and so it will pay more attention to the stock market.

Additionally, we find that the learning (financing) channel is more (less) pronounced among profitable firms with a high Tobin' Q, partly because these firms intend to learn information about investment opportunities but are not short of capital. We also show that those firms that have a longer history, pledge more shares, and are not cross listed are less likely to learn for investment information. By contrast, those firms with more pledged shares are more likely to monitor stock prices for financing purposes. In addition, we find that firms with CEO-chairperson duality and managers with

[3] Methodologically, this approach integrating survey and field data has one advantage that our subject of interest is immune from some biases introduced by the survey method. For instance, when survey responses are used for both dependent variables and independent variables, correlated measurement errors on both sides of the regression can significantly bias the coefficients (Bertrand and Mullainathan, 2001). Our approach can mitigate this bias.

professional service backgrounds are more likely to monitor stock prices for investment information, but CEO-chairpersonmen duality is negatively correlated with the financing channel.

Finally, we conduct three exercises to connect firms' responses (what they say) to their actions (what they do) to ensure the information from our survey is meaningful. In the first exercise, we explore the responding firms' active trading suspensions in the financial market, which is a unique feature of the Chinese stock market and direct evidence that firms care about and intervene in the stock market. Exploring the fact that public firms have some discretion on suspending their stocks' trading in the Chinese stock market, we find that firms reporting the learning channel in our survey are less likely to suspend trading, because the stock price resulting from trading provides a signal to guide firms' real investments. In addition, when prices drop significantly, firms reporting the financing channel are more likely to suspend trading to maintain certain price levels and financing opportunities.

In the second exercise, we reproduce the main tests in Chen, Goldstein, and Jiang (2007) in different subsamples to check whether firms' investment decisions in the real sector are consistent with their responses. In the methodology of Chen, Goldstein, and Jiang (2007), a significant sensitivity of real investment to the product of price informativeness and Tobin's Q suggests that firms do use information in the stock prices to guide their real investments. We find such evidence for Chinese public firms. More importantly, the result is primarily driven by the subsample of firms reporting that they care about the stock market for the learning purpose in our survey. In the same spirit of the tests on firm investment, we also run a parallel regression of firm equity financing on Tobin's Q, which is a proxy for firm valuation and financing cost. Again, we find supporting evidence: Chinese public firms respond to higher valuation by increase equity financing, and the results are driven by the subsample reporting the monitor stock prices for the financing purpose.

In the third exercise, we further address primitive questions about the learning channel: Are stock prices truly informative? Or is it that firms "think" that stock prices are informative? The predictability of stock price on future cash flows is critical in justifying firms' efforts on monitoring stock prices and explaining the prevalence of market feedback. Following the exercises by Bai, Philippon, and Savov (2016) and Carpenter, Lu, and Whitelaw (2021), we show that stock prices can forecast firm

earnings in the next year, and the predictability is stronger among firms reporting that they care the stock market for learning purpose. Overall, the above three exercises suggest that firms indeed act on what they report in our survey and that our findings on market feedback are economically meaningful.

Our paper is closely related to two strands of literature. First, it contributes to the literature on the real effects of financial markets, in particular, on the informational feedback effect. As mentioned above, the existing literature uses regression analysis to make indirect inference on the informational feedback effect (e.g., Chen, Goldstein, and Jiang, 2007; Foucault and Frésard, 2012, 2014; Carpenter, Lu, and Whitelaw, 2021). The most recent literature tries to overcome the endogeneity issues by exploring various settings (e.g., Foucault and Frésard, 2012, 2014; Dessaint, Foucault, Frésard, and Matray, 2019). Still, the evidence is indirect and suggestive. By contrast, our paper provides direct evidence for the real consequences of financial markets, both through the informational feedback effect of the secondary market and through the capital budgeting channel of the primary market, and further identifies when these channels are important.

Second, our paper contributes to the growing literature that uses surveys to identify and measure the importance of various economic channels. Graham and Harvey (2001) and Graham, Harvey, and Rajgopal (2005) use survey data to examine the cost of capital, capital budgeting, capital structure, and corporate financial reporting. Glaser and Weber (2007) and Dorn and Sengmueller (2009) have used survey data to study the excessive trading puzzle. Choi and Robertson (2020) rely on survey data to compare many factors that may affect investment decisions. Giglio, Maggiori, Stroebel, and Utkus (2021a, 2021b) employ survey-based expectations to analyze people's belief dynamics. Edmans, Gosling and Jenter (2021) survey directors and investors on how they set CEO pay in practice and find a number of departures from mainstream academic theories. Liu, Peng, Xiong, and Xiong (2022) propose a new approach to combining subjective survey responses with observational data to study behavioral biases of investors in Chinese stock market. Our paper offers the first study to examine the real effects of financial markets, and our survey data is comprehensive and does not suffer the sampling bias that is commonly seen in other survey studies.

2. THE SURVEY

2.1 *Questionnaire*

Starting from 2017, the PBC School of Finance at Tsinghua University and the China Securities Regulatory Commission (CSRC henceforth, which is the China's counterpart of the U.S. Securities and Exchange Commission) have jointly surveyed the Chinese public firms every six months to collect opinions on the macro economy and a variety of topics that may be of interests to the policymakers and academia. Every public firm in the Chinese stock market is invited by the CSRC to respond to the surveys, which are designed by researchers from both the PBC school and the CSRC, and later distributed by the CSRC.

In June 2019, we administered a special survey about the real effect of the stock market among the Chinese public firms. Broadly, we asked these firms about (1) in general, whether they keep monitoring stock prices in the public market; and (2) if yes, the reasons for which they monitor stock prices. Specifically, we included the following two questions in the survey:

I. How does your company pay attention to the stock market? (Select one answer)

A. Only care about the price of your own company's stock;

B. Only care about the prices of other similar companies' stocks;

C. Both A and B;

D. Only care about the composite stock index;

E. Do not care about the stock market at all.

*II. If you choose A or C in I: Which of the following is the reason that your company CARE*s *about the stock price of your OWN company? (Select all that apply)*

A. Stock price contains information that is new for investment decisions;

B. Stock price would impact refinancing (SEO / bond issuance / bank loan);

C. Compensation of management is linked to the stock price, or they hold stocks or options;

D. Pressure from the board and shareholders;

E. Avoiding being acquired or merged;

*F. Others, please specify:*_____.

We designed our questions based on the existing indirect evidence on the real effect of the stock market. Question I solicits managers' opinions on whether they monitor the stock market at all and if yes, what asset prices they monitor. Choice A reflects those studies concluding mangers extract information from their own stock prices (e.g., Luo, 2005; Chen, Goldstein, and Jiang, 2007). Choice B reflects those studies suggesting mangers also keep an eye on peer firms' stock prices (e.g., Foucault and Frésard, 2014).

Question II attempts to collect managers' opinions on the exact purposes of monitoring their own stock prices, conditional on that they claim that they care about their own firms' stock prices in the first place (choose A or C in Question I). Answers to this question reveal information about the specific channels of market feedback. Choice A is based on those studies which find managers learn information to guide real investment decisions (e.g., Chen, Goldstein, and Jiang (2007)), and as we mentioned before, we term it as the "informational feedback effect" or the "learning channel." Choice B is based on those studies showing that managers pay attention to stock prices for financing opportunities (e.g., Giammarino et al., 2004; Goldstein, Yang, and Zuo, 2020), and we term it as the "capital-budgeting effect" or "financing channel." Choice C is based on those studies linking stock prices and managerial incentives (e.g., Kang and Liu, 2008; Bond, Edmans, and Goldstein, 2012), and we term it as the "compensation channel." Choice D is based on those studies on the substitution effect between market monitoring and board monitoring, because market monitoring is more powerful with more informative stock prices (e.g., Ferreira, Ferreira, and Raposo, 2011). We term it as the "monitoring channel." Choice E is based on the notion that firm prices can affect the likelihood that the firms become a target of merger and acquisition, and we term it as the "M&A channel." Choice F allows respondents to specify other reasons which are not documented in the literature.

Besides the above questions, we also asked the public firms to provide information on the positions of the respondents who are assigned by the firms to fill in the questionnaire. The identities of the responding firms were also recorded, enabling us to combine the survey data and public information to perform in-depth analyses.

2.2 *Responses*

The questionnaire was distributed to the public firms by the CSRC via its electronic survey system. The key advantage of collaborating with the regulator is that we avoid the nonresponse bias (i.e., some subjects refuse to respond, or the survey is unable to reach every respondent), which is almost impossible to eliminate completely in surveys. We managed to collect responses from 3,626 out of the 3,628 Chinese public firms, representing a response rate of 99.99%. The two non-responding firms include a firm that was listed on the exchange for less than one week and another firm that was financially distressed. Thus, our survey covers almost every public firm in the Chinese market, which implies that our results do not suffer the representativeness issue commonly seen in survey studies.

We also believe that the results of the joint survey are reliable and unlikely to suffer the response bias (i.e., the survey results are different from the actual opinions or facts held by the respondents). Although the questionnaire was distributed to the firms by the CSRC, the respondents had no incentives to provide biased information to cater to the CSRC's needs or to avoid unnecessary troubles because (1) we carefully asked plain, purely academic questions that cannot be used to directly judge a firm's behavior (that is, there are no "correct" answers for these questions); and (2) in the survey, we formally declared that the responses and other relevant information would be used only in policy and academic research in a large sample. The respondents knew that there will be no information released or reported about individual firms.

Furthermore, the opinions provided by the respondents can reveal true information about the public firms. In most of the surveyed firms, members of the top management answered our questions, who are highly informed about their firms' challenges and strategies. Figure 1 shows that in 73.8% (2,678) of the 3,626 responding firms, the respondents take on very important managerial positions including chairperson of the board, director, chief executive officer (CEO), chief financial officer (CFO), and board secretary. In another 23.1% (839) of the firms, the answers are prepared by the office of investor relations, which is a specialized team in charge of capital market affairs led by the board secretary. Only 3.0% (109) of the firms assign other offices such as the general administration to provide the responses.

[Figure 1 about Here]

Note that in Chinese public firms, the board secretary is an important member of the management. Besides handling affairs about the board, shareholder meetings, and communication with the regulators, the board secretary is also responsible for functions about the capital market, including information disclosure, investor relations, and raising capital. This observation explains why most (62.5%) respondents are board secretaries in our survey.

In the following analysis, we divide the respondents into three groups according to their positions: (i) a high-ranking group including chairperson, CEO, director, and CFO; (ii) a medium-ranking group including board secretary; and (iii) a low-ranking group including investor relation office and other functions. When presenting the survey results, along with the full sample results we also report statistics in different groups to test (1) whether our findings are driven by board secretaries and (2) whether low-ranking respondents are sufficiently informed about the questions like their high-ranking peers.

2.3 *Summary Statistics of Responding Firms*

In Table 1 we provide summary statistics for the 3,626 firms responding to our survey. Information on stock prices and firm fundamentals as of 2018 is retrieved from the China Stock Market & Accounting Research Database (CSMAR). Given that the responding sample contains 99.99% of the Chinese public firms, we are essentially summarizing the population of the Chinese public firms.

[Table 1 about Here]

On average, a public firm in the Chinese stock market (and in our survey) is about 20.58 years old since its establishment. It has a total asset of 11.83 billion RMB (1.7 billion in US dollars), and its market capitalization at the end of 2018 is 9.53 billion RMB (1.4 billion in US dollars). The average firm is moderately levered with a leverage ratio of 43%. The valuation of the firm is lower than that in the U.S. market, as the Tobin's Q is around 1.81. It is also less profitable with a return on assets (ROA) of 3.07%. On average, there are 6.14 analysts following a public firm. Meanwhile, 37.54% of the firm's outstanding shares are held by institutional investors including mutual funds, insurance

companies, pension funds, investment banks, and trust firms. Share pledging is an important financing tool in the Chinese market, and the shareholders of the average firm pledge 15.68% of the firm's total shares as the collaterals for loans. The reported insiders' trading activities are relatively thin, as their trading volume only accounts for 0.13% of total shares outstanding. In addition, 32% of the public firms are ultimately owned by the state, and 3% of them are cross listed on stock exchanges outside China mainland.

3. DIRECT EVIDENCE FOR MARKET FEEDBACK

In this section, we summarize firms' responses to our questions to provide direct evidence on market feedback. Through the analysis, we term the behavior of monitoring own or peer firms' stock prices as the general market feedback effect; and use the learning channel and financing channel mentioned in Introduction and Subsection 2.1 to refer to the practices of monitoring own stock prices for investment and financing purposes. Besides survey results in the full sample, we also summarize responses across industries to explore the heterogeneity in firms' behaviors.

3.1 *Prevalence of Market Feedback*

Our first question ("*I. How does your company pay attention to the stock market?"*) concerns the existence of general market feedback, or whether firms monitor stock prices in the first place. We report the responses in Figure 2. According to Panel A, among the 3,626 responding firms (the full sample), 271 (7.5%) firms responded that they only care about their own stock prices (Choice A); 36 (1.0%) firms responded that they only care about peer firms' stock prices (Choice B); 3,049 (84.1%) firms responded that they pay attention to both their own and peer firms' stock prices (Choice C); and 43 (1.2%) firms responded that they only care about the overall market conditions (Choice D). Only 227 (6.3%) firms indicated that they do not care about the stock market at all (Choice E). In other words, 92.6% of the responding firms monitor stock prices for some reasons (Choices A+B+C). Since 99.9% of the Chinese public firms responded to our survey, more than 90% of the Chinese public firms do pay attention to the stock market.

Panels B, C, and D respectively report survey results in different groups of respondents. Regardless of the respondents' ranks in the firms, their opinions are highly consistent and point to

the existence of market feedback. For example, 79.9% of the high-ranking group (chairperson, CEO, director, and CFO) reported they pay attention to both their own and peer firms' stock prices (Choice C). The figures for the medium-ranking group (board secretary) and the low-ranking group (other positions) are 83.8% and 86.6%, respectively. In the high-ranking group, 91.5% of firms monitor stock prices (Choices A+B+C), which is comparable to that of the medium-ranking group (92.3%) and the low-ranking group (93.6%). The above results suggest that our findings are not driven by the reports from medium-ranking board secretaries.

[Figure 2 about Here]

This direct survey evidence on the prevalence of market feedback in Chinese stock market is consistent with the indirect evidence provided by Chen and Liu (2018), who follow the methodology of Chen, Goldstein, and Jiang (2007) and find a positive relation between price informativeness and investment-price sensitivity among the Chinese public firms. Our finding strongly supports that it is a common practice for Chinese public firms to closely monitor the stock market.

3.2 *Channels for Market Feedback*

Our second question ("*II. If you choose A or C in I: Which of the following is the reason that you CARE about the stock price of your OWN company?"*) explores why the firms monitor their own stock prices. The 3,320 firms choosing A or C in question I were asked to respond. Among them, 376 responses were provided by high-ranking respondents, 2,069 by medium-ranking respondents, and 875 by low-ranking respondents. We report the summary of their answers in Figure 3. As the firms can choose more than one answer in this question, these frequency counts of each choice do not necessarily add up to the number of firms.

[Figure 3 about Here]

Panel A reports the results in the full sample. The most important reasons for firms to monitor their own stock prices are to learn information for investments (the learning channel, Choice A) and to finance investment opportunities (the financing channel, Choice B). Specifically, 2,496 (75.2%) and 2,193 (66.1%) of the 3,320 firms monitoring their own stock prices pick Choice A and Choice B, respectively. The third important reason underlying market feedback is pressure from boards and

shareholders (the monitoring channel, Choice D), and 1,183 (35.6%) firms agree with this statement. The compensation channel (Choice C) is not chosen by many firms (375 firms, 11.3%), probably because equity-linked compensations such as managerial shareholding or stock options are not very popular among Chinese public firms due to relatively strict regulations.[4] The M&A channel (Choice E) is the least frequently chosen reason (337 firms, 10.2%), as hostile takeovers are rarely observed in the Chinese stock market due to higher ownership concentration in public firms. In addition, a few respondents (36 firms, 1.1%) provide their own reasons in Choice F, such as monitoring the value the collateral for share pledging transactions and managing investor relations.

Again, Panels B, C and D show that the opinions are highly consistent across different groups of respondents. Around 75% of the respondents in the high- (75.5%), medium- (75.1%) and low-ranking (75.3%) groups picked the learning channel (Choice A), more than 65% picked the financing channel (Choice B), and 35% picked the monitoring channel (Choice D). The results suggest that there is a consensus within firms about the purposes of monitoring their own stock prices.

3.3 *Heterogeneity across Industries*

Table 2 summarizes the responses by industry. As shown in Panel A, the general market feedback effect is prevalent across all industries. In the 28 industries, the non-banking finance industry has the lowest ratio of firms monitoring their own or peer firms' stock prices, but this ratio is still quite high at 85.9% (=1.4%+0%+84.5%). Industries that are the mostly likely to monitor stock prices include defense (98.1%), leisure (97.1%), home appliance (96.8%), nonferrous metals (95.8%), and computer (95.2%).

[Table 2 about Here]

Similarly, Panel B presents the summary of reasons for firms monitoring their own stock prices, categorized by industries. For each channel, we rank industries from high to low by the percentage of firms in that industry picking Choice A (i.e., learning information for investments). Pharmaceutical (82.1%), telecommunication (79.4%), and media (79.3%) have the highest fractions of firms picking

[4] As of the end of 2018, on average the management team (excluding members from the board of directors and the board of supervisors) holds 0.65% of these public firms' outstanding shares. During the period from 2006 to 2018, fewer than 40% of these firms have ever implemented managerial incentive plans in terms of stock options, restricted stocks, and stock appreciation rights.

the learning channel, which may reflect the relatively high uncertainty in investments in these industries. Construction (73.9%), nonferrous metals (72.7%), and agriculture (71.8%) are the top 3 industries that pick Choice B, the financing channel, probably because these traditional industries have strong financing needs but are not favored by investors. Computer (20.5%), electronics (16.4%), and textile (16.0%) have the largest fraction of firms picking the compensation channel. Textile (49.3%), commerce (43.7%), and composite (42.5%) are industries that are the most intensively monitored by boards and shareholders. Lastly, for the M&A channel, the leisure industry (21.2%) has the largest number of firms monitoring the stock market to protect them from takeovers. In contrast, in the banking industry, no firms worry about this specific threat.

4. INFOMRATION, BUDGETING, AND MARKET FEEDBACK

In this section, we run regression analyses to understand the driving forces underlying market feedback. We first present the methodology in Subsection 4.1. Then, in Subsections 4.2 to 4.4, we examine firms' responses to Choices A and B in survey question II—i.e., the learning channel and the financing channel—which are the two primary reasons why Chinese public firms monitor the stock market. Finally, in Subsection 4.5, we examine firms' response to Choice D in survey question II (i.e., "the pressure from board and shareholders"), which is the third important reason for Chinese public firms to monitor their stock prices.

4.1 *Sample and Methodology*

We restrict our empirical analysis to the 3,320 firms that choose A or C in question I (i.e., firms responding that they monitor their own stock prices for some purposes). We exclude firms that are financially distressed, listed for fewer than 6 months, in the process of delisting, suspended for trading, in the financial industry, or with missing key information, leaving a sample of 3,042 firms for regression analysis.

We construct two variables about market feedback, *Learn* and *Fin*, based on firms' responses to question II. *Learn* (*Fin*) is defined as a dummy variable that equals one if a firm chooses A (B) in question II and indicates that it monitors its own stock price for investment information (financing opportunities), and zero otherwise. We then employ the following specification to explore factors

influencing market feedback via the learning and the financing channels:

$$Feedback = a + b*Factor + c*Controls + \varepsilon, \quad (1)$$

where *Feedback* represents the dummy variables defined above (*Learn* and *Fin*). *Factor* denotes factors such as the informational environment, financing needs, and other market or firm characteristics that may affect a firm's behavior of monitoring stock prices in the public market. Across regressions we also include the natural logarithm of firm assets (*LnAssets*), firm leverage (*Leverage*), and the state-owned enterprise dummy (*SOE*) to control for the influences of size, capital structure, and state ownership. In addition, the respondent position, industry, province, stock exchange fixed effects are included to absorb any influences varying only with the respondent's rank in the firm, industry, the firm's geographical location, and the listing stock exchange. All independent variables are constructed with information as of 2018. Since *Feedback* is a binary choice variable, we run Probit regressions to estimate equation (1).

4.2 *Information and Market Feedback*

In this subsection, we examine how the information environment affects firms' decision on monitoring stock prices to collect investment information (i.e., the learning channel). We expect that firms are more likely to choose the learning channel if their prices contain more information and/or if their own information is less precise.[5] We consider three different types of information that can be incorporated into stock prices and influences firms' decisions. The first type is information produced by financial analysts, who are active information producers about firms they cover (e.g., Brennan, Jegadeesh, and Swaminathan, 1993; Hong, Lim, and Stein, 2000; Cheng et al., 2016). The second type of information we consider is managerial information, as managers are insiders who are aware of firms' operations and decisions. The third type of information is trader information injected into stock prices via stock trades, because stock prices can reveal traders' private information that is otherwise not available to managers (Grossman and Stiglitz 1980; Easley and O'Hara, 1987).

4.2.1 *Analyst Information*

[5] Goldstein, Yang, and Zuo (2022) provide a theoretical model and show that the sensitivity of investment to the stock price is decreasing in in the precision of managerial information and increasing in the precision of the information in the price that is new to the firm manager (which corresponds to the analyst information and the trader information in our setting).

We use the number of analysts following a firm (*NAnalysts*) and the number of earning forecasts produced in 2018 (*NForecasts*) to measure the information that is generated by analysts and incorporated into stock prices. We expect more information contained in stock prices if more analysts follow a firm and produce more earnings forecasts. This is either because analysts help to interpret and spread existing data or because their coverage reduces uncertainty faced by traders and so encourage traders' information production (e.g., Goldstein and Yang, 2015, 2019).

[Table 3 about Here]

We regress *Learn* on the analyst information proxies using equation (1) and focus on coefficient *b*. Columns (1) and (2) of Table 3 report the Probit regression results. The marginal effects of *NAnalysts* and *NForecasts* are 0.0017 and 0.0008, which are statistically significant at the 5% and 1% levels, suggesting that more analysts following a firm is associated with firms' higher probability of collecting information from public market stock prices for investment purposes. The economic impact is also sizable. A one-standard-deviation increase in *NAnalysts* (*NForecasts*) leads to an increase of 1.8% (2.1%) in the probability of learning.

4.2.2 *Managerial Information*

Stock prices contain managerial information that is made public, but prices may not fully reflect all information possessed by firm managers. For example, corporate insiders, including firm managers, may trade on their private information for excessive returns (e.g., Finnerty, 1976). Managers may also engage in earnings management by using judgement in financial reporting for capital market, contracting or regulatory incentives, making stock prices less informative (e.g., Healy and Wahlen, 1999). In other words, more intensive insider trading and earnings management suggest more private information owned by managers themselves, and they may rely less on the public information contained in stock prices, leading to a weaker market feedback via the learning channel. In the empirical tests, we use insider trading and earnings management to measure the managerial information contained in stock prices. The proxy for insider trading, *InsiderTrade*, is defined as the ratio of shares traded by insiders over total shares outstanding in 2018, and we follow Dechow, Sloan, and Sweeney (1995) and Jones (1991) to construct *EarnMngt*, residual accruals obtained by regressing total

accruals on fixed assets and revenue growth by industry and year, to measure the intensity of earnings management in a firm.

We regress the learning channel dummy *Learn* on *InsiderTrade* and *EarnMngt* to test the effects of managerial information on market feedback, and report the Probit regression results in columns (3) and (4) of Table 3. Using insider trading as a proxy for managerial information, we find that managers are less likely to learn investment information for their stock prices if they more actively buy or sell their firms' stocks: The marginal effects of *InsiderTrade* are negative and significant in column (3); and a one-standard-deviation increase in *InsiderTrade* decreases the probability of learning by 1.8%. Column (4) reports regression results using *EarnMgnt* as the proxy for managerial information. We find a negative, though statistically insignificant, relation between earnings management and learning for investment information.

4.2.3 *Trader Information*

Stock prices can reveal traders' private information that is otherwise not available to managers in the process of trading (e.g., Grossman and Stiglitz 1980; Easley and O'Hara, 1987). We use the ratio of shares held by the largest 3 shareholders (*Top3Share*) to measure trader information and assume large shareholders can produce more information about the firm and incorporate it to stock prices (e.g., Boone and White, 2015). Meanwhile, since traders' information is incorporated into stock prices via stock trades, we also use the intensity of trading, i.e., the turnover rate of floating shares (*Turnover*), to measure traders' information contained in stock prices.

Columns (5) and (6) report the results of regressing firms' choices of the learning channel on trader information variables. We find that trader information is significantly and positively correlated with the learning channel. Specifically, the marginal effects of *Top3Share* in column (5) is 0.1066 and significant at the 1% level. This is consistent with our intuition that block shareholding makes stock prices more informative, and so firm managers are more likely to learn from their own prices. Using *Turnover* to proxy for trader information, we can observe similar patterns by finding a significant and positive effect on the learning channel in column (6).

4.3 *Financial Constraints, Capital Needs, and Market Feedback*

We now explore how firms' financial constraints and capital needs affect their responses regarding the financing channel. If firms are more financially constrained and/or have larger investment plans in the future, they are more likely to monitor the stock market for the purpose of fundraising. This is indeed what we find in the data.

4.3.1 *Financial Constraints*

We first test the effects of financial constraints on the financing channel, using the KZ score (*KZ*) suggested by Kaplan and Zingales (1997) and firm free cash flow (*CF*) calculated as the ratio of net cash flows from operations divided by beginning-of-year book assets to measure firms' financial constraints. We regress the financing channel dummy *Fin* on the financial constraints proxies in equation (1), and report Probit regression results in Table 4.

[Table 4 about Here]

In regressions with *KZ* as an independent variable in column (1), we exclude firm leverage *(Leverage*) as a control variable because it is considered in construction of *KZ*. We find that the marginal effect of *KZ* is positive and significant at the 1% level, suggesting that financially constrained firms are more likely to monitor stock prices for the financing purpose. In column (2), we find that *CF*, a variable negatively measuring financial constraints, is negatively and significantly associated with *Fin*.

4.3.2 *Capital Needs*

We now examine how firms' capital needs affect firms' responses on the financing channel. As mentioned above, we predict that firms with larger capital needs are more likely to monitor stock prices for the financing purpose. We construct two proxies for capital needs: *NSEO18*, the number of seasoned equity offerings in 2018; and *ChgBudget*, a firm's expectation on increases in capital expenditure in 2019 compiled with information from another survey question.[6] These two variables respectively capture a firm's investment intensity in the past and in the future and thus represent the firm's capital needs.

Columns (3) and (4) of Table 4 report results regressing the financing channel dummy *Fin* on

[6] In the survey, we also asked firms about their investment plans in 2019 compared to 2018. We assigned different values to *ChgBudget* according to firms' responses: -2 denotes "large decrease"; -1 denotes "small decrease"; 0 denotes "no change"; 1 denotes "small increase"; and 2 denotes "large increase".

capital needs variables and other controls, based on the specification in equation (1). Column (3) shows that *NSEO18* is positively and significantly correlated to *Fin*. That is, firms raising more capital in the past are more likely to monitor their own stock prices for the financing purpose. Tests based on the expected financing needs, *ChgBudget*, is qualitatively the same. In column (4), the marginal effects of *ChgBudget* are positive and significant.

4.4 *Other Firm and Managerial Characteristics*

In this section, we explore the effects of a battery of other firm characteristics and managerial characteristics—i.e., Tobin's *Q*, profitability, firm age, share pledging, cross listing, managerial tenure, CEO-chairperson duality, and managers' background—on market feedback following the specification in equation (1). In the previous two subsections, we have straightforward theoretical arguments for how the learning channel is affected by information variables and how the financing channel is affected by capital variables. By contrast, for the variables examined in this subsection, we do not always have a clean prediction and thus, we consider their effects on the learning channel and the financing channel simultaneously.

4.4.1 *Tobin'Q and Profitability*

Tobin's Q and profitability measures are widely used in existing empirical studies that seek indirect evidence for the informational feedback effect (e.g., Chen, Goldstein, and Jiang, 2007; Foucault and Frésard, 2014). In this subsection, we examine how these measures affect firms' direct responses to our survey questions (i.e., the learning channel and the financing channel) and report the Probit regression results in Table 5. Panel A reports results with *Learn* being the dependent variable, while Panel B reports the *Fin* results. Interestingly, we find that these measures often have opposite effects on the firms' tendency to select learning versus financing channels.[7]

We first investigate the effects of Tobin's *Q* on market feedback. Column (1) of Panel A presents results of regressing *Learn* on *Q*. Variable *Q* has a positive and significant effect on price-monitoring

[7] One possible explanation for this finding is that the learning channel and the financing channel may represent different views of the responding firms. Specifically, when firms try to learn new information from stock prices, they should perceive the prices contain fundamental information and thus the prices may be close to the fundamentals. By contrast, when firms monitor the stock market for the financing purpose, they may try to time the market by issuing assets and will do so when they perceive the stock prices deviate from the fundamentals.

via the learning channel, which is consistent with the findings in Chen, Goldstein, and Jiang (2007). That is, to the extent *Q* measures investment profitability, firms with more profitable investment opportunities are more likely to learn information from the public stock market to make investment decisions. By contrast, column (1) of Panel B shows Tobin's *Q* is negatively and significantly correlated with price-monitoring via the financing channel, probably because firms with high *Q* are favored by investors and so do not need to worry much about capital raising.

Second, we examine the effects of firm profitability proxied by *ROA*. Column (2) in Panels A and B reports the regression results. Our findings remain qualitatively similar to those from the analysis of *Q*. That is, firms with higher *ROA* have the capacity and intend to make more investments, and so we observe a positive effect of *ROA* on price-monitoring for the leaning purpose (*Learn*) in column (2) of Panel A. Meanwhile, as shown in column (2) of Panel B, these profitable firms can raise capital at lower costs, and so they do not have strong incentives to pay close attention to the stock market for financing opportunities.

[Table 5 about Here]

4.4.2 *Other Firm Characteristics*

Columns (3) to (5) in Panel A of Table 5 report the results of regressing the learning channel variable (*Learn*) on a vector of other firm characteristics, and the same columns of Panel B report results on the financing channel (*Fin*). Column (3) of Panel A shows that firm age (*FirmAge*) is negatively and significantly correlated with market feedback via the learning channel. Firms with a longer history are more experienced in investments and may have other information sources, and so they rely less on the information contained in stock prices to make decisions. The results on the financing channel are statistically insignificant in Column (3) of Panel B.

Column (4) of Panels A and B relates share pledging (*PledgeShare*), defined as the ratio of shares pledged by shareholders as collateral for financing over total shares outstanding, to market feedback. Share pledging is commonly seen in the Chinese market. At the end of 2020, 63.6% (2,632) of public firms had at least one shareholder pledged, and the total pledged shares accounted for 6.83% of the total shares outstanding (He, Liu, and Zhu, 2022). The *Learn* regression results in Column (4) of Panel

A suggest that the more shares are pledged, the less likely firms are to learn investment information. However, the *Fin* regression results in Panel B suggest more pledged shares are related to a higher probability that firms monitor stock prices for refinancing reasons. Intuitively, when more shares are pledged, shareholders are more cautious about firms' operation to maintain a stable share price to avoid unintended liquidation and losses. To accomplish this goal, they would ask the management to cut risky investments and maintain a certain level of financing capacity, suggesting less intensive learning for investment information but more price-monitoring for financing reasons.

Column (5) of Panels A and B reports the effects of cross listing on market feedback. The stock prices of cross-listed firms are more informative because investors from abroad can contribute information to prices (Foucault and Frésard, 2014). In our setting, this implies managers of cross-listed firms are more likely to monitor stock prices. Column (5) of Panel A presents evidence consistent with this prior. The probability of monitoring stock prices for learning investment information (the learning channel) is 4.1% higher among cross-listed firms. The results on the financing channel are statistically insignificant in Column (5) of Panel B.

4.4.3 *Managerial Characteristics*

Columns (6) and (7) report results on the influences of managerial characteristics. Results show that the probability of market feedback via the learning channel (*Learn*) is positively affected by CEO-chairperson duality (*Duality*) (column (6) of Panel A), while the financing channel (*Fin*) is negatively affected by *Duality* (column (6) of Panel B). This can be interpreted as that for firms whose chairpersons also take the role of CEOs, the agency problem between shareholders and managers is alleviated to some extent and thus these firms are able to quickly respond to opportunities with unified leadership (e.g., Brickley, Coles, and Jarrell, 1997). As a result, they are more likely to find investment and financing opportunities. Consequently, they need to monitor stock prices for investment information and pay less attention to prices for financing purposes.

Column (7) reports results on the managers' backgrounds. We define a dummy variable, *Professional*, to measure the managers' backgrounds in professional services including business, accounting, finance, management, and law. We expect that with experiences in professional services, managers are more

likely to use the information contained in stock prices because they are more aware of the functioning of the capital market. The marginal effects of *Professional* are positive and significant in column (7) of Panel A, which supports our prior by large.

4.5 *Market Feedback via the Monitoring Channel*

In our survey, 35.6% of the 3,320 firms that monitoring their own stock prices responded that the underlying reason is "pressure from boards and shareholders" (the monitoring channel, see Subsection 3.2). This is the third most important reason that drives market feedback. We now explore factors influencing this monitoring channel using the framework in Subsection 4.1 and report results in Table A2 in the Appendix. Besides the ordinary controls, we further include volatility of stock returns to control the risk of firms in our analysis.

We first find that stock performance and firm valuation are negatively related to price-monitoring for pressure from boards and shareholders (columns (1) and (2) of Table A2). The marginal effects of *Q* and *Ret12* (stock return in the most recent 12 months) are negative and significant at the 1% level, suggesting outperforming firms are less likely to monitor their stock prices because the concerns from profit-making the boards and shareholders are less severe for those firms.

Second, price-sensitive shareholders induce more intensive market feedback via the monitoring channel (columns (3) and (4) of Table A2). The marginal effects of the ratio of floating shares out of total shares are positive and significant. Since floating shares are tradable, their holders are more concerned with stock prices and are likely to make a lot of efforts on monitoring their firms. Similarly, shareholders that pledged their shares have to watch stock prices closely to avoid liquidation costs, so we observe the same patterns on the ratio of pledged shares.

Finally, directors and executives with longer tenure are more careful and more likely to monitor the firms (columns (5) and (6) of Table A2). More diligent boards, measured by the number of board meetings, are better at monitoring the firms and induce more price-monitoring for board pressure.

5. WHAT FIRMS SAY, WHAT FIRMS DO

We believe respondents are unlikely to provide untruthful information in our survey, because of the academic nature of the questions and the trust relationship we have built over time (see Subsection

2.2 for detailed discussion). In this section, we conduct three exercises to further strengthen this argument by connecting firms' responses (what they say) to their actions (what they do). First, from the financial side, we examine firms' active management on trading suspensions that may influence price informativeness and price levels, which provides further evidence that firms do care about the stock market by directly intervening in the trading process. Second, from the real side, we follow Chen, Goldstein, and Jiang (2007) to explore how market feedback affects firms' real investment decisions. We also extend the framework to consider the effects of market feedback on firms' financing decisions. Third, we attempt to answer the bottom-line question: Are stock prices are indeed informative or is it simply that firms "think" that the stock prices are informative?

5.1 Active Information Management by Trading Suspensions

In the Chinese stock market, the Shanghai and Shenzhen stock exchanges allow public firms to suspend their stocks' trading for multiple reasons, including (1) shareholder meeting, (2) important matters, (3) company reports, (4) abnormal transactions, (5) M&A/restructuring, (6) major risks, (7) media reports, and (8) financing activities, among many others.[8] Some of the reasons (e.g., important matters) are vague enough to give public firms the discretion to strategically suspend the trading of their stocks. In practice, they can easily apply for suspensions for "important matters", in which it is unnecessary for them to disclose the true reasons to the market.

We attempt to connect public firms' trading suspensions (what firms do) to their responses about market feedback in our survey (what firms say), and confirm whether respondents provide meaningful opinions. First, public firms can actively use trading suspension to influence the information contained in their stock prices, because suspended trading stops traders from incorporating information into prices. We expect that those firms that monitor the stock market for the learning purpose are less likely to suspend trading, because trading suspension shrinks the firms' information set by one signal, the stock price.[9] Second, in bad market circumstances, public firms can also suspend trading to avoid extreme price drops (e.g., Huang, Shi, and Zhao, 2019), which hinders their capacity of raising capital

[8] Source: http://www.sse.com.cn/lawandrules/sselawsrules/stock/main/listing/c/c_20210128_5311968.shtml.

[9] A counter argument is that if stock prices are very noisy, the shutdown of trading may increase price informativeness in the long run. We do not think Chinese stock prices are so noisy, because we follow Bai, Philippon, and Savov (2016) and Carpenter, Lu, and Whitelaw (2021) and show prices can forecast future cash flows at least in the short run in China (see Subsection 6.3 for detailed discussion).

from the market. Thus, we hypothesize that if stock price drops a lot and firms care about the stock prices for the financing purpose, they will suspend trading more frequently.

We collect the trading suspension data for each Chinese public firm from the CSMAR database, including suspension dates, horizons, and reasons. Our sample period spans from July 2019 to June 2021, which is a 24-month period following the survey. Table 6 reports summary statistics on trading suspensions of the surveyed 3,626 firms. During the period, there were 1,170 suspensions in total (0.16 suspension per firm in one year), and on average a suspension lasts for 23.6 trading hours. 99% suspensions are longer than 4 trading hours (one trading day, i.e., 9:30am to 11:30am and 1:00pm to 3:00pm). The most frequently used reason is "important matters" (73%), followed by "major risk" (16%) and M&A/restructure (8%).

[Table 6 about Here]

Following Liu, Trzcinka, and Zhao (2021), we exclude suspensions shorter than one day (4 trading hours) to construct the research sample. We only include trading suspensions with reason "important matters" as firms have the most discretion power on suspension by using this reason (suspensions with other reasons, e.g., abnormal transactions, may be compulsory according to the exchanges' rules). We then estimate the following Probit regression at the firm-month level:

$$Susp_{i,t} = b_t + c*Feedback_i*PriceDrop_{i,t} + d*Feedback_i + e*PriceDrop_{i,t} + Controls_i + \varepsilon_{i,t}, \qquad (2)$$

where $Susp_{i,t}$ is a dummy variable indicating whether firm i suspends trading for the "important matters" reason in month t. $Feedback_i$ represents the dummy variables about the learning and financing channels (*Learn* and *Fin*) defined in Subsection 4.1. $PriceDrop_{i,t}$ captures large price declines, which is a dummy variable that equals one if firm i's stock return in month t ranks in the bottom decile among all firm-months (the cutoff value for the bottom decile is -11.4%), and zero otherwise. *Controls* includes all the firm-level control variables as in equation (1). In addition, we include the year-month, position, industry, province, and stock exchange fixed effects across regressions.

[Table 7 about Here]

Columns (1) and (2) of Table 7 report the regression results with *Learn* being the independent variable. In column (1), the marginal effect of *Learn* is -0.19% and significant at the 5% level. Hence,

for public firms reporting the learning channel in our survey, the probability of suspending trading in each month is 0.19% lower than those non-learning firms. Considering the unconditional suspension probability being 0.90% in our sample, this impact is sizable. In column (2), we insert *Feedback*PriceDrop* into the regression. The marginal effect of the interaction term is statistically insignificant, and the marginal effect of *Learn* is significantly negative. This suggests, if firms care about stock prices for learning investment information, their suspension decisions do not vary with price movements. The above results confirm that firms reporting the *Learn* channel act on what they say. They actively use fewer trading suspensions to increase the informativeness of their prices, from which they can learn valuable investment information.

Columns (3) and (4) of Table 7 report the regression results with *Fin* being the independent variable. Column (3) shows that, in general firms reporting monitoring stock prices for the financing purpose do not suspend more frequently, as the marginal effect of *Fin* is insignificant. However, the marginal effect of *PriceDrop* and *Fin*PriceDrop* are both positive and significant in column (4), suggesting (1) that firms suspend trading more frequently after significant price drops (plausibly to maintain price levels); and (2) that if stock prices drop a lot and firms care about prices for the financing purpose, they suspend more frequently. Again, these results confirm our prediction that those firms reporting the *Fin* channel act on what they say.

5.2 Price Informativeness, Investment, and Financing

In this subsection, we first replicate the tests in Chen, Goldstein, and Jiang (2007) in different samples to check whether firms' real investment decisions (what firms do) are consistent with their responses (what firms say) in our survey. We then extend the framework and test the relation between SEOs and firm valuation to examine whether what firms do are consistent with what they say in the context of financing.

5.2.1 Investment

The following three samples spanning from 2014 to 2018 are used in our analyses on firms' real investments: (1) all firms choosing A or C in survey question I (i.e., those firms monitoring their own stock prices) (the *Full* sample of monitoring firms), (2) the subsample of firms reporting monitoring

their own stock prices in question I and market feedback via the learning channel in question II (the *Learn* subsample), and (3) the subsample of firms reporting monitoring their own stock prices in question I but not for the learning channel in question II (the *NoLearn* subsample).[10] Intuitively, we expect the relation between investment-price sensitivity and stock price informativeness is more pronounced among firms reporting the learning channel. In addition, with this exercise we are also able to examine the power of the classical empirical tests on market feedback (the learning channel in particular) in the Chinese market.

Specifically, following Chen, Goldstein, and Jiang (2007) we run the following regression at the firm-year level:

$$Capex_{i,t+1} = a_t + b_t + c*Q_{i,t}*Info_{i,t} + d*Q_{i,t} + e*Info_{i,t} + Controls_{i,t} + \varepsilon_{i,t}, \quad (3)$$

where *Capex* denotes a firm's capital expenditure scaled by the beginning-of-year assets; *Q* denotes Tobin's Q; and *Info* denotes price informativeness measures. *Controls* is a vector of control variables including net free cash flows from operation divided by book assets (*CF*), stock return in the recent three months (*Ret3*), and the inverse of book assets (*InvAst*). We also include firm and year fixed effects in regressions to absorb any influence varying only with firm and time. According to Chen, Goldstein, and Jiang (2007), a significant estimate for coefficient *c* in equation (3) provides indirect evidence in favor of an informational feedback from the stock market to real investments.

The informativeness measures we consider are the proxies commonly used in previous studies examining market feedback, including (1) 1-R^2, the R^2-based price nonsynchronicity measure proposed by Roll (1988) and Durnev, Morck, and Yeung (2004); (2) *PIN*, probability of information-based trading constructed according to Easley, Kiefer, and O'Hara (1996); (3) *D1*, the price delay measure suggested by Hou and Moskowitz (2005); and (4) *FPE*, the forecasting price efficiency measure suggested by Bai, Philippon, and Savov (2016).

[Table 8 about Here]

We proxy *Info* with the above informativeness measures and estimate equation (3) in different samples. Columns (1) to (3) of Table 8 report the OLS regression results with 1-R^2 being the price

[10] We use a shorter sample period (five years) in our analysis, because firms' responses in our survey can only reflect the firms' opinions in recent years. In remote years, firm fundamentals and managers could be very different.

informativeness measure. The coefficient estimate on the variable of interest, $Q^*(1\text{-}R^2)$, is positive and significant at the 1% level in the *Full* sample (Column (1)). This provides indirect evidence that Chinese public firms learn information from the stock market to guide real investment decisions, under the logic of Chen, Goldstein, and Jiang (2007). More importantly, this result is driven by firms in the *Learn* subsample rather than by those in the *NoLearn* subsample, as the coefficient estimate on the interaction term is significant in column (2) but insignificant in column (3). We also find similar patterns for price informativeness measures *D1* and *FPE* in columns (7) to (12). In addition, columns (4) to (6) report results with *PIN* as the informativeness measure and we find insignificant results. This may suggest that *PIN* fails to capture price informativeness in the Chinese stock market.

5.2.2 Financing

In the same spirit of the tests by Chen, Goldstein, and Jiang (2007), we investigate the relation between SEOs and firm valuation to examine the consistency between firms' responses on the financing channel and their real financing behaviors. We follow the exercises in Subsection 5.2.1 and use the following three samples: (1) the *Full* sample choosing A or C in survey question I, (2) the *Fin* subsample reporting monitoring their own stock prices in question I and market feedback via the financing channel in question II, and (3) the *NoFin* subsample reporting monitoring their own stock prices in question I but not the financing channel in question II. We postulate that firms' financing behaviors are more responsive to valuation if they report monitoring their stock prices for the financing purpose.

Specifically, we run the following regression at the firm-year level:

$$SEO_{i,t+1} = a_i + b_t + c^*Q_{i,t} + Controls_{i,t} + \varepsilon_{i,t}, \qquad (4)$$

where *SEO* denotes the number (*NSEO*) or amount (*AmtSEO*) of a firm's seasoned equity offerings. We control for firm free cash flow, recent stock return, asset, and firm and year fixed effects in regressions. Similar to the logic of Chen, Goldstein, and Jiang (2007), a significant estimate for coefficient *c* in equation (4) provides indirect evidence in favor of market feedback driven by the financing channel.

[Table 9 about Here]

Columns (1) to (3) of Table 9 report the OLS regression results with SEO number (*NSEO*) being the dependent variable. The coefficient estimate on Q is positive and significant at the 1% level in the *Full* sample (Column (1)). That is, firms reporting the financing channel respond to financing opportunities more actively. This result is driven by firms in the *Fin* subsample rather than those in the *NoFin* subsample, as the coefficient estimate on Q is significant in column (2) but insignificant in column (3). Columns (4) to (6) report results on SEO amount, and the results stay qualitatively similar.

5.3 Price and Future Cash Flows

In this subsection, we attempt to address the bottom-line question about the learning channel: Are stock prices indeed informative? Or is it that firms "think" stock prices are informative but actually not? In other words, are these learning firms able to collect true and valuable information about investment opportunities and benefit from such information? If so, though it is costly at least in terms of managers' time, learning would be a rational choice by a public firm.

Empirically, we follow Bai, Philippon, and Savov (2016) and Carpenter, Lu, and Whitelaw (2021) and test whether prices can forecast future cash flows in China with the following equation:

$$\frac{E_{i,t+1}}{A_{i,t}} = a_t + b_t \log\left(\frac{M_{i,t}}{A_{i,t}}\right) + c_t \log\left(\frac{E_{i,t}}{A_{i,t}}\right) + \varepsilon_{i,t+1} \qquad (5)$$

where $E_{i,t}$ denotes firm *i*'s net profit in year *t*, and $M_{i,t}$ denotes equity market capitalization. We deflate all nominal variables using the GDP deflator. We include the industry fixed effects in our regression based on CSRC's one-digit industry classification. The predicted variation $b_t \times \log\left(\frac{M_{i,t}}{A_{i,t}}\right)$ is a form of price efficiency, i.e., forecasting price efficiency (FPE), and measures stock prices' ability on forecasting future cash flows. Since our survey is conducted in June 2019, we use the prices in 2019 to forecast 2020 earnings (i.e., we take *b*=1 in the model by Bai, Philippon, and Savov (2016)). Our analysis covers all non-financial firms that responded to our survey.

[Table 10 about Here]

Table 10 reports estimation results in the *Full*, *Learn*, and *NoLearn* samples defined in Subsection 5.2.1 but in year 2019. In the *Full* sample, the coefficient estimate on $\log\left(\frac{M}{A}\right)$ is positive and

statistically significant (column (1)). This suggests in China stock prices are able to forecast earnings in general, which is consistent with the findings of Carpenter, Lu, and Whitelaw (2021). Column (2) shows the similar pattern among firms that report the learning channel (i.e., the *Learn* subsample), and the coefficient estimate is larger than that in the *NoLearn* subsample. More importantly, the FPE measure $b_t \times \log\left(\frac{M_{i,t}}{A_{i,t}}\right)$ is 0.017 in the learning subsample, which is 52% higher than that (0.011) in the *NoLearn* subsample that reports monitoring their own stock prices but not for the learning purpose. This is consistent with our prior that firms are more likely to collect investment information from the stock market if prices contain more information about future cash flows.

6. CONCLUSION

In this paper, we take a survey approach to examining the real effects of financial markets. Our survey is comprehensive, covering 3,626 Chinese public firms and representing a response rate of 99.99%. We find that more than 90% of firms pay attention to the stock market and that the most salient reasons for them to monitor markets is to learn information from the stock market and to access external financing. These findings provide direct evidence for the wide existence of market feedback effect via a learning a channel and a financing channel. We demonstrate (i) that firms are more likely to monitor their stock prices for the learning purpose when their stocks have higher analyst coverage, their managers are less informed, and market traders are more informed; and (ii) that firms are more likely to monitor prices for the financing purpose when they are more financially constrained and when they have greater capital needs. Finally, we show what firms do is highly consistent with what they report in our survey by exploring their active management of informativeness via trading suspension, the relation between their responses and investment and financing, and the forecasting price efficiency in China. Overall, our analysis highlights the prevalence and importance of market feedback.

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FIGURES

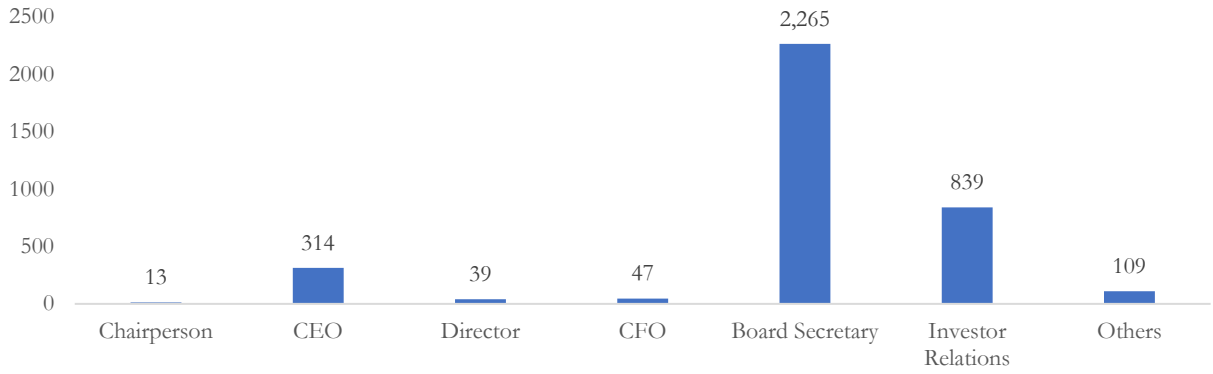
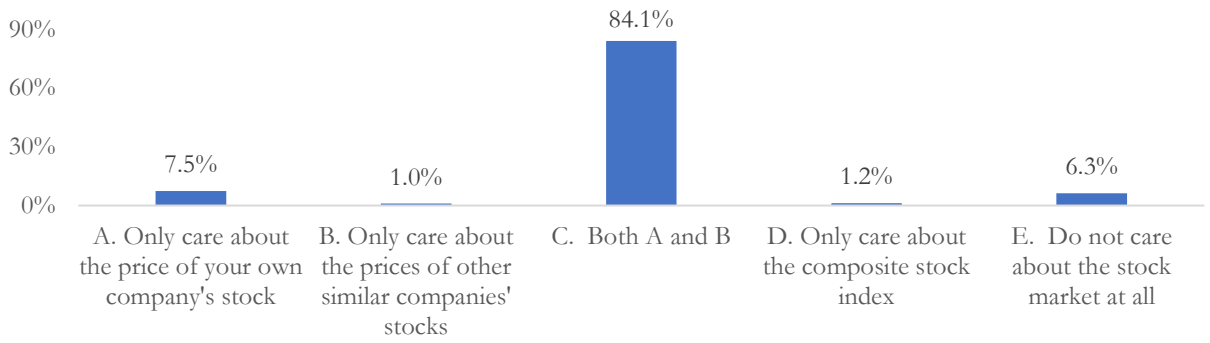
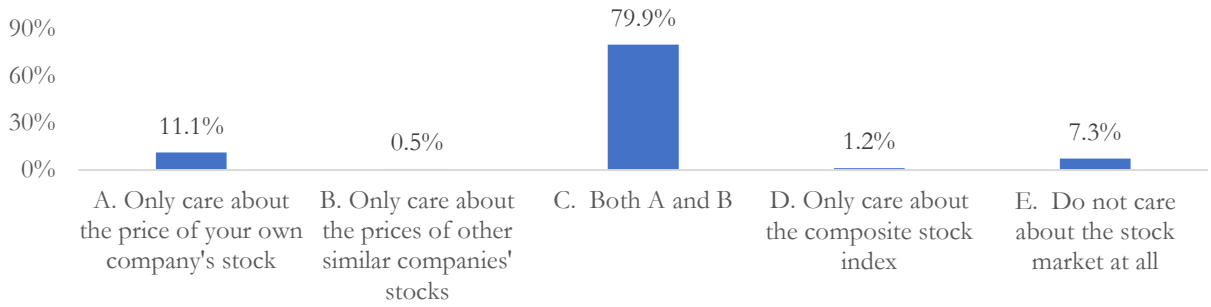


Figure 1: Distribution of the respondents' positions in their firms

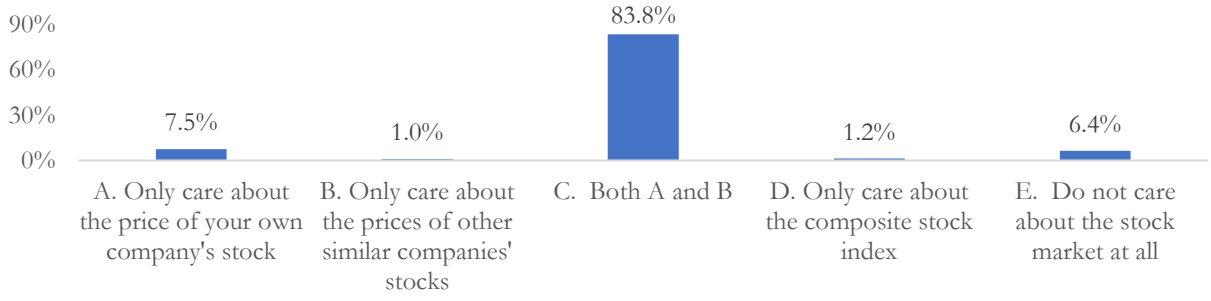
This figure plots the distribution of the positions of the respondents that are assigned by their firms to respond to our market feedback survey. Overall, 3,626 Chinese public firms listed on the Shanghai and Shenzhen Stock Exchanges responded to the survey.



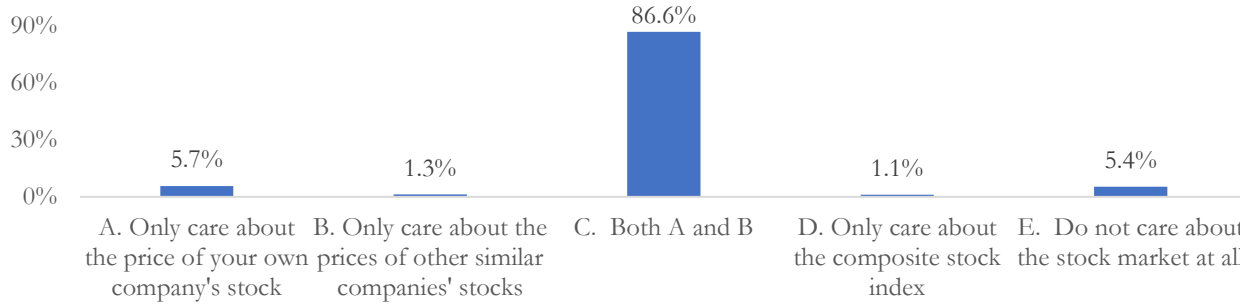
Panel A: Full sample (N=3,626)



Panel B: Chairman, CEO, Director and CFO (N=413)



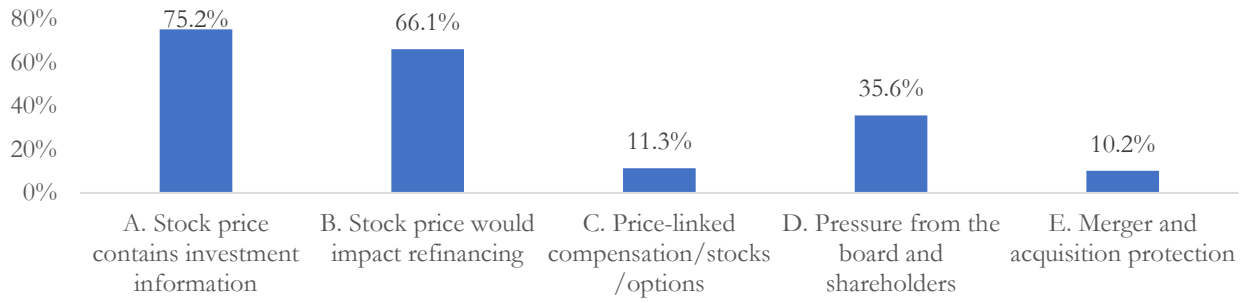
Panel C: Board secretary (N=2,265)



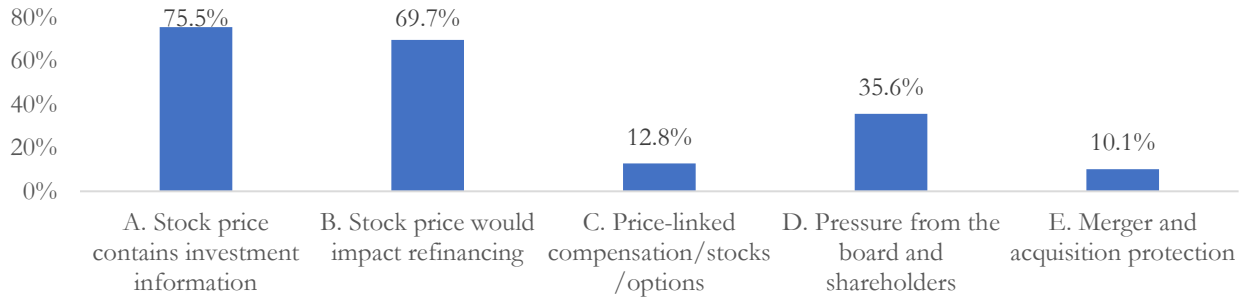
Panel D: Other positions (N=948)

Figure 2: Responses to survey question I

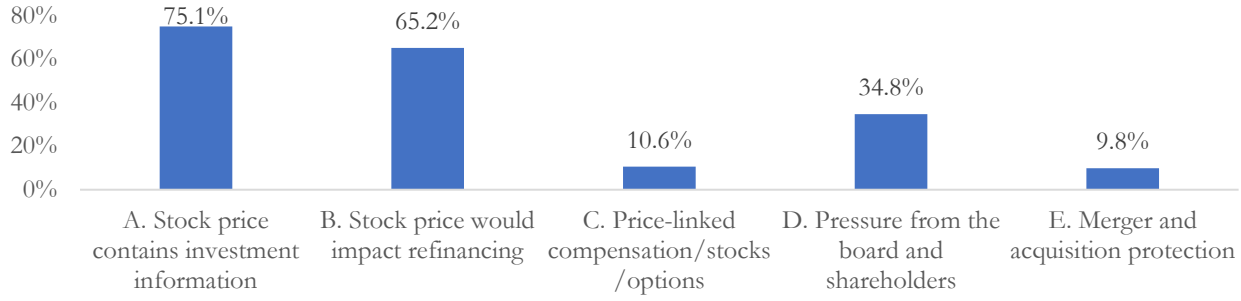
This figure plots the frequencies for each choice by the responding firms in survey question I ("*How does your company pay attention to the stock market?*"). Panel A presents results in the full sample. Panel B, C and D present results in subsamples of high-, medium-, and low-ranking respondents, respectively.



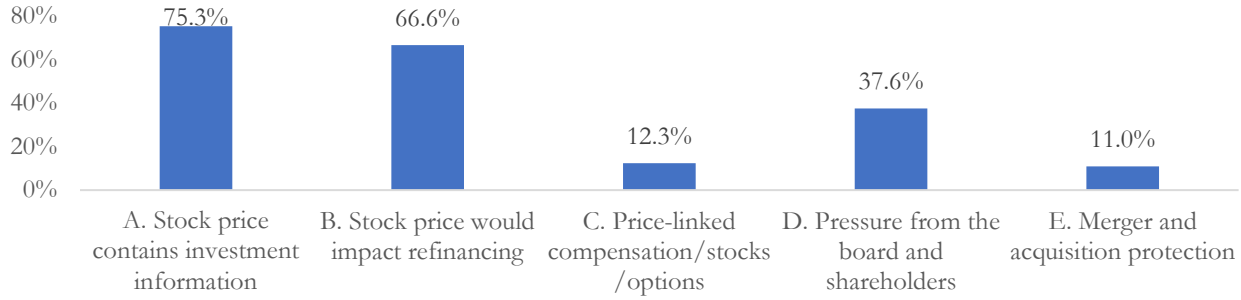
Panel A: Full sample (N=3,320)



Panel B: Chairman, CEO, Director and CFO (N=376)



Panel C: Board secretary (N=2,069)



Panel D: Other positions (N=875)

Figure 3: Responses to survey question II

This figure plots the frequencies for each choice by the responding firms in survey question II (*"If you choose A or C in I: Which of the following is the reason that your company CARES about the stock price of your OWN company?"*). Panel A presents results in the full sample. Panel B, C and D present results in subsamples of high-, medium-, and low-ranking respondents, respectively.

TABLES

Table 1: Summary statistics for the responding firms

This table reports summary statistics for the 3,626 Chinese public firms responding to the feedback survey. Information on stock prices and firm fundamentals is as of 2018.

	Mean	P5	P25	Med	P75	P95	STD
Firm Age (years)	20.58	11.82	16.95	20.47	24.50	30.30	4.95
SOE	0.32	0.00	0.00	0.00	1.00	1.00	0.47
Cross Listing	0.03	0.00	0.00	0.00	0.00	0.00	0.18
Total Assets (billion RMB)	11.83	0.72	1.84	4.13	10.68	76.91	19.09
Market Cap (billion RMB)	9.53	1.85	3.02	5.01	10.43	42.86	10.73
Capital Expenditure (%)	4.86	0.03	1.05	3.16	7.08	17.59	4.94
Tobin's Q	1.81	0.89	1.10	1.50	2.20	4.31	0.93
ROA (%)	3.07	-16.02	1.18	3.46	6.58	12.99	6.38
Leverage	0.43	0.11	0.26	0.41	0.58	0.82	0.21
No. Analysts	6.14	0.00	0.00	1.00	8.00	32.00	9.32
Insider Trading (%)	0.13	0.00	0.00	0.00	0.00	1.30	0.34
Institutional Ownership (%)	37.54	0.92	18.26	38.28	56.15	77.07	22.99
Pledged Shares (%)	15.68	0.00	0.06	11.15	27.84	48.23	15.86

Table 2: Responses to survey questions by industry

This table summarizes the responses to the survey questions by industry. There are 3,626 responses to question I, and 3,320 responses to question II. The fraction of firms in an industry that agree with each choice is reported.

Panel A: I. *How does your company pay attention to the stock market?* N=3,626

Industry	N. firms	A. Own stock	B. Peers' stocks	C. Both A and B	D. Comp. index	E. Don't care
Defense	54	11.1%	3.7%	83.3%	0.0%	1.9%
Leisure	35	20.0%	2.9%	74.3%	0.0%	2.9%
Home appliance	62	4.8%	0.0%	91.9%	0.0%	3.2%
Nonferrous Metals	118	6.8%	2.5%	86.4%	0.0%	4.2%
Computer	207	4.8%	1.0%	89.4%	1.4%	3.4%
Electrical equipment	195	7.2%	0.5%	87.2%	0.0%	5.1%
Chemical	330	7.9%	0.9%	85.5%	0.6%	5.2%
Bank	32	0.0%	3.1%	90.6%	3.1%	3.1%
Agriculture	92	7.6%	1.1%	84.8%	2.2%	4.3%
Construc. materials	72	8.3%	0.0%	84.7%	0.0%	6.9%
Composite	43	7.0%	0.0%	86.0%	0.0%	7.0%
Construction	128	4.7%	3.1%	85.2%	0.8%	6.3%
Pharmaceutical	295	5.1%	0.3%	87.5%	2.0%	5.1%
Media	153	5.2%	1.3%	86.3%	0.7%	6.5%
Automobile	171	7.0%	0.6%	84.8%	0.6%	7.0%
Utilities	157	10.2%	0.6%	81.5%	0.0%	7.6%
Transportation	114	11.4%	0.0%	80.7%	1.8%	6.1%
Light industry	124	2.4%	3.2%	86.3%	1.6%	6.5%
Electronics	235	9.8%	1.3%	80.9%	0.9%	7.2%
Machinery	332	9.0%	0.3%	82.2%	2.4%	6.0%
Telecommunication	106	9.4%	0.0%	82.1%	0.9%	7.5%
Food and beverage	92	5.4%	0.0%	85.9%	1.1%	7.6%
Commerce	98	9.2%	1.0%	79.6%	0.0%	10.2%
Real estate	129	7.8%	0.8%	80.6%	0.8%	10.1%
Steel	32	12.5%	3.1%	71.9%	3.1%	9.4%
Textile	87	8.0%	1.1%	78.2%	3.4%	9.2%
Mining	62	14.5%	1.6%	71.0%	3.2%	9.7%
Nonbanking finance	71	1.4%	0.0%	84.5%	4.2%	9.9%

Panel B: II. *Which of the following is the reason that your company CAREs about the stock price of your OWN company?* N=3,320

Industry	N. firms	A. Learning	B. Financing	C. Compensation	D. Monitoring	E. M&A Protect
Pharmaceutical	273	82.1%	65.2%	9.9%	38.8%	13.6%
Telecommunication	97	79.4%	66.0%	13.4%	21.6%	12.4%
Media	140	79.3%	66.4%	9.3%	40.0%	5.7%
Defense	51	78.4%	66.7%	9.8%	25.5%	3.9%
Automobile	157	77.1%	67.5%	10.2%	29.9%	10.2%
Electronics	213	77.0%	70.0%	16.4%	38.0%	10.3%
Computer	195	76.9%	69.2%	20.5%	34.4%	11.8%
Light industry	110	76.4%	69.1%	10.0%	35.5%	13.6%
Construc. materials	67	76.1%	65.7%	6.0%	37.3%	10.4%
Leisure	33	75.8%	60.6%	9.1%	42.4%	21.2%
Nonbanking finance	61	75.4%	70.5%	9.8%	34.4%	4.9%
Chemical	308	75.3%	60.7%	11.7%	34.1%	10.4%
Agriculture	85	75.3%	71.8%	3.5%	36.5%	8.2%
Home appliance	60	75.0%	56.7%	13.3%	38.3%	10.0%
Construction	115	74.8%	73.9%	13.9%	36.5%	10.4%
Real estate	114	74.6%	66.7%	7.0%	36.0%	3.5%
Machinery	303	74.3%	67.0%	11.6%	37.0%	11.2%
Electrical equipment	184	73.9%	69.6%	12.0%	34.8%	9.8%
Food and beverage	84	73.8%	52.4%	14.3%	31.0%	13.1%
Mining	53	73.6%	64.2%	11.3%	37.7%	5.7%
Commerce	87	73.6%	63.2%	9.2%	43.7%	12.6%
Utilities	144	72.9%	65.3%	7.6%	33.3%	11.1%
Bank	29	72.4%	58.6%	13.8%	37.9%	0.0%
Transportation	105	71.4%	64.8%	6.7%	29.5%	6.7%
Composite	40	70.0%	50.0%	12.5%	42.5%	10.0%
Textile	75	66.7%	66.7%	16.0%	49.3%	9.3%
Nonferrous Metals	110	66.4%	72.7%	7.3%	33.6%	10.9%
Steel	27	48.1%	55.6%	3.7%	37.0%	3.7%

Table 3: Information and market feedback

This table reports the Probit regression results about the effects of information on firms' choice of the learning channel. The sample consists of 3,042 firms choosing A or C in survey question I. The dependent variable is a dummy variable that equals one if a firm chooses A in survey question II, and zero otherwise. The independent variables of interest are analyst, managerial, and trader information measures. The position, industry, province, stock exchange fixed effects are included. See Appendix A for definitions of variables. Marginal effects are reported. Standard errors reported in parentheses are adjusted for heteroscedasticity and clustering at the industry level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	Analyst Info		Managerial Info		Trader Info	
Y = Learn	(1)	(2)	(3)	(4)	(5)	(6)
Info =	*NAnalysts*	*NForecasts*	*InsiderTrade*	*EarnMgnt*	*Top3Share*	*Turnover*
Info	0.0017**	0.0008***	-2.6811**	-0.0585	0.1066***	0.6069***
	(0.0007)	(0.0003)	(1.0772)	(0.0752)	(0.0381)	(0.1092)
LnAssets	0.0093	0.0086	0.0174***	0.0179***	0.0161***	0.0221***
	(0.0061)	(0.0056)	(0.0049)	(0.0050)	(0.0049)	(0.0052)
Leverage	-0.1361***	-0.1346***	-0.1505***	-0.1581***	-0.1408***	-0.1557***
	(0.0404)	(0.0399)	(0.0379)	(0.0432)	(0.0377)	(0.0378)
SOE	0.0100	0.0103	0.0048	0.0029	0.0059	0.0108
	(0.0190)	(0.0187)	(0.0196)	(0.0192)	(0.0205)	(0.0194)
FEs	Yes	Yes	Yes	Yes	Yes	Yes
N	3,042	3,042	3,042	2,896	3,042	3,041
Pseudo R^2	0.0184	0.0187	0.0180	0.0190	0.0185	0.0185

Table 4: Capital budgeting and market feedback

This table reports the Probit regression results about the effects of capital budgeting on firms' choice of the financing channel. The sample consists of 3,042 firms choosing A or C in survey question I. The dependent variable is a dummy variable that equals one if a firm chooses B in survey question II, and zero otherwise. The independent variables of interest are financial constraints and capital needs measures. The position, industry, province, stock exchange fixed effects are included. See Appendix A for definitions of variables. Marginal effects are reported. Standard errors reported in parentheses are adjusted for heteroscedasticity and clustering at the industry level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	Financial Constraints		Capital Budgeting	
Y = Fin	(1)	(2)	(3)	(4)
Budget =	*KZ*	*CF*	*NSEO18*	*ChgBudget*
Budget	0.0426***	-0.3168***	0.0749***	0.0177***
	(0.0054)	(0.0956)	(0.0251)	(0.0057)
LnAssets	0.0098**	-0.0116**	-0.0182***	-0.0146***
	(0.0050)	(0.0049)	(0.0052)	(0.0053)
Leverage		0.4587***	0.4802***	0.4841***
		(0.0387)	(0.0365)	(0.0352)
SOE	-0.0824***	-0.0822***	-0.0803***	-0.0833***
	(0.0163)	(0.0155)	(0.0150)	(0.0150)
FEs	Yes	Yes	Yes	Yes
N	2,928	2,976	3,042	3,042
Pseudo R^2	0.0389	0.0442	0.0433	0.0428

Table 5: Firm and managerial characteristics and market feedback

This table reports the Probit regression results about the effects of firm and managerial characteristics on firms' responses to market feedback questions. The sample consists of 3,042 firms choosing A or C in survey question I. Dependent variables include dummy variables constructed based on responses to the learning and the financing channel in survey question II. The position, industry, province, stock exchange fixed effects are included. See Appendix A for definitions of variables. Marginal effects are reported. Standard errors reported in parentheses are adjusted for heteroscedasticity and clustering at the industry level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Panel A: *Y = Learn*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Chara =	*Q*	*ROA*	*FirmAge*	*PledgeShare*	*CrossList*	*Duality*	*Professional*
Chara	0.0143*	0.3062***	-0.0042***	-0.1241***	0.0414**	0.0363***	0.1036***
	(0.0077)	(0.0956)	(0.0015)	(0.0417)	(0.0210)	(0.0105)	(0.0347)
LnAssets	0.0222***	0.0143***	0.0181***	0.0172***	0.0161***	0.0186***	0.0168***
	(0.0066)	(0.0051)	(0.0049)	(0.0049)	(0.0053)	(0.0051)	(0.0048)
Leverage	-0.1427***	-0.1092***	-0.1509***	-0.1339***	-0.1509***	-0.1487***	-0.1551***
	(0.0370)	(0.0418)	(0.0403)	(0.0402)	(0.0385)	(0.0390)	(0.0408)
SOE	0.0084	0.0075	0.0112	-0.0143	0.0057	0.0149	0.0040
	(0.0198)	(0.0199)	(0.0203)	(0.0264)	(0.0203)	(0.0217)	(0.0191)
FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	3,042	3,042	3,042	3,024	3,042	3,042	3,042
Pseudo R^2	0.0180	0.0185	0.0191	0.0191	0.0178	0.0188	0.0191

Panel B: *Y = Fin*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Chara =	*Q*	*ROA*	*FirmAge*	*PledgeShare*	*CrossList*	*Duality*	*Professional*
Chara	-0.0271***	-0.5104**	0.0018	0.2324***	-0.0617	-0.0284*	-0.0064
	(0.0043)	(0.2175)	(0.0012)	(0.0509)	(0.0555)	(0.0153)	(0.0503)
LnAssets	-0.0242***	-0.0105**	-0.0158***	-0.0160***	-0.0137**	-0.0164***	-0.0154***
	(0.0050)	(0.0044)	(0.0052)	(0.0054)	(0.0059)	(0.0054)	(0.0053)
Leverage	0.4626***	0.4115***	0.4796***	0.4483***	0.4800***	0.4782***	0.4794***
	(0.0392)	(0.0302)	(0.0360)	(0.0372)	(0.0359)	(0.0364)	(0.0354)
SOE	-0.0839***	-0.0828***	-0.0831***	-0.0438***	-0.0793***	-0.0874***	-0.0807***
	(0.0157)	(0.0158)	(0.0155)	(0.0137)	(0.0157)	(0.0168)	(0.0156)
FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	3,042	3,042	3,042	3,024	3,042	3,042	3,042
Pseudo R^2	0.0433	0.0439	0.0423	0.0460	0.0423	0.0426	0.0421

Table 6: Summary of trading suspensions

This table reports summary statistics for trading suspensions by the 3,626 sample firms from July 2019 to June 2021.

Reason	Full sample		≥ 1 day (4 hours)	
	N. Suspension	Duration (hours)	N. Suspension	Duration (hours)
All	1170	23.6	1158	23.8
- Important matters	858	26.7	854	26.8
- Major risk	190	4.0	190	4.0
- M&A/restructure	88	34.4	88	34.4
- Financing	11	20.4	11	20.4
- Transaction related	5	12.0	5	12.0
- Company report/ Shareholder meeting/ Media report	5	96.0	5	96.0
- Unknown/others	13	8.1	5	18.4

Table 7: Market feedback and trading suspensions

This table reports the Probit regression results about the effects of the learning and financing channels on firms' trading suspension decisions. The sample consists of 44,031 firm-month observations. The dependent variable is a dummy variable indicating whether a firm suspends the trading of its stock in a month. The independent variables of interest include dummy variables indicating whether the firm reports the learning/financing channels in our survey. The year-month, position, industry, province, and stock exchange fixed effects are included. See Appendix A for definitions of variables. Marginal effects are reported. Standard errors reported in parentheses are adjusted for heteroscedasticity and clustering at the industry level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Y = Susp	(1)	(2)	(3)	(4)
Feedback =	*Learn*		*Fin*	
Feedback	-0.0019**	-0.0016**	-0.0000	-0.0003
	(0.0007)	(0.0008)	(0.0006)	(0.0006)
PriceDrop		0.0069***		0.0031**
		(0.0022)		(0.0015)
*Feedback*PriceDrop*		-0.0014		0.0023**
		(0.0012)		(0.0012)
LnAssets	-0.0018***	-0.0017***	-0.0018***	-0.0017***
	(0.0003)	(0.0003)	(0.0003)	(0.0003)
Leverage	0.0169***	0.0165***	0.0172***	0.0168***
	(0.0018)	(0.0019)	(0.0018)	(0.0018)
SOE	-0.0019*	-0.0018	-0.0019*	-0.0018
	(0.0012)	(0.0012)	(0.0011)	(0.0011)
FEs	Yes	Yes	Yes	Yes
N	44,031	44,031	44,031	44,031
Pseudo R^2	0.0529	0.0559	0.0520	0.0550

Table 8: The learning channel and firm capital expenditure

This table reports the OLS regression results about the effects of the learning channel on the results in Chen, Goldstein and Jiang (2007). The *Full* sample consists of all firms choosing A or C in survey question I (i.e., monitoring their own stock prices) and includes 9,012 firm-year observations from 2014 to 2018. The *Learn (NoLearn)* subsample includes firms monitoring their prices and reporting (not reporting) the learning channel in question II. The dependent variable is capital expenditure, and the independent variables of interest include a vector of price informativeness measures. The firm and year fixed effects are included. See Appendix A for definitions of variables. Standard errors reported in parentheses are adjusted for heteroscedasticity and clustering at the stock level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Y =*Capex*	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Info =		*1- R2*			*PIN*			*D1*			*FPE*	
Sample =	*Full*	*Learn*	*NoLearn*	*Full*	*Learn*	*NoLearn*	*Full*	*Learn*	*NoLearn*	*Full*	*Learn*	*NoLearn*
*Q*Info*	0.0044***	0.0049***	0.0028	0.0029	0.0027	0.0039	-0.0016**	-0.0023**	0.0004	0.0656***	0.0673***	0.0601
	(0.0016)	(0.0018)	(0.0035)	(0.0031)	(0.0035)	(0.0069)	(0.0008)	(0.0009)	(0.0017)	(0.0210)	(0.0229)	(0.0490)
Q	0.0019**	0.0023**	0.0008	0.0038***	0.0043***	0.0022	0.0053***	0.0061***	0.0028	0.0036***	0.0040***	0.0025*
	(0.0010)	(0.0011)	(0.0020)	(0.0008)	(0.0009)	(0.0019)	(0.0008)	(0.0009)	(0.0018)	(0.0006)	(0.0007)	(0.0014)
Info	-0.0078	-0.0125*	0.0047	-0.0080	-0.0063	-0.0145	0.0038	0.0060*	-0.0022			
	(0.0057)	(0.0064)	(0.0120)	(0.0089)	(0.0101)	(0.0187)	(0.0030)	(0.0035)	(0.0058)			
CF	0.0182**	0.0207**	0.0117	0.0237***	0.0309***	0.0049	0.0213**	0.0261***	0.0079	0.0248***	0.0304***	0.0106
	(0.0088)	(0.0096)	(0.0196)	(0.0086)	(0.0096)	(0.0189)	(0.0086)	(0.0095)	(0.0191)	(0.0087)	(0.0096)	(0.0187)
Ret3	-0.0046***	-0.0043***	-0.0054**	-0.0046***	-0.0043***	-0.0054**	-0.0041***	-0.0039***	-0.0046**	-0.0047***	-0.0044***	-0.0055**
	(0.0010)	(0.0011)	(0.0023)	(0.0009)	(0.0010)	(0.0023)	(0.0010)	(0.0010)	(0.0024)	(0.0009)	(0.0010)	(0.0022)
InvAst	0.0247***	0.0198***	0.0374***	0.0292***	0.0262***	0.0373***	0.0296***	0.0255***	0.0406***	0.0295***	0.0267***	0.0369***
	(0.0042)	(0.0045)	(0.0093)	(0.0040)	(0.0043)	(0.0090)	(0.0045)	(0.0048)	(0.0107)	(0.0039)	(0.0043)	(0.0088)
Cons.	0.0309***	0.0347***	0.0209***	0.0272***	0.0271***	0.0279***	0.0234***	0.0234***	0.0234***	0.0259***	0.0263***	0.0250***
	(0.0038)	(0.0045)	(0.0077)	(0.0024)	(0.0027)	(0.0051)	(0.0024)	(0.0027)	(0.0052)	(0.0021)	(0.0024)	(0.0041)
FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	8,074	6,011	2,063	8,929	6,665	2,264	8,269	6,164	2,105	9,012	6,716	2,296
Adj. R^2	0.0598	0.0576	0.0690	0.0647	0.0645	0.0669	0.0611	0.0599	0.0682	0.0657	0.0645	0.0692

Table 9: The financing channel and seasoned equity offerings

This table reports the OLS regression results about the effects of the financing channel on SEOs. The *Full* sample consists of all firms choosing A or C in survey question I (i.e., monitoring their own stock prices) and includes 9,012 firm-year observations from 2014 to 2018. The *Fin (NoFin)* subsample includes firms monitoring their prices and reporting (not reporting) the financing channel in question II. The dependent variables include SEO number and amount, and the key independent variables of interest is Tobin's *Q*. The firm and year fixed effects are included. See Appendix A for definitions of variables. Standard errors reported in parentheses are adjusted for heteroscedasticity and clustering at the stock level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Y =		*NSEO*			*AmtSEO*	
Sample =	*Full*	*Fin*	*NoFin*	*Full*	*Fin*	*NoFin*
Q	0.0269***	0.0334***	0.0124	23.7114***	28.4388***	12.8270
	(0.0056)	(0.0070)	(0.0091)	(7.0059)	(8.7522)	(11.6178)
CF	0.0974	0.1059	0.0851	70.0708	161.4380	-104.2814
	(0.0889)	(0.1101)	(0.1498)	(117.8936)	(143.5170)	(207.1934)
Ret3	-0.0117	-0.0053	-0.0246*	-8.3897	-0.7233	-22.8151
	(0.0089)	(0.0114)	(0.0141)	(11.5565)	(14.5482)	(18.8740)
Assets	-0.0129***	-0.0140***	-0.0112***	-23.5300***	-26.3622***	-19.5232***
	(0.0019)	(0.0022)	(0.0033)	(3.0875)	(3.5683)	(5.3779)
Constant	0.3012***	0.3036***	0.3038***	436.1398***	441.8281***	437.6216***
	(0.0222)	(0.0271)	(0.0389)	(31.2572)	(37.8794)	(55.9083)
FEs	Yes	Yes	Yes	Yes	Yes	Yes
N	9,012	5,979	3,033	9,012	5,979	3,033
Adj. R^2	0.107	0.114	0.0961	0.102	0.105	0.100

Table 10: Price and future cash flows

This table reports the estimation results of the FPE measure $b_t \times \sigma_t(\log(M/A))$ by Bai, Philippon, and Savov (2016) with year t = 2019 and horizon h = 1 in the Chinese stock market. The *Full* sample consists of all firms choosing A or C in survey question I (i.e., monitoring their own stock prices). The *Learn (NoLearn)* subsample includes firms monitoring their prices and reporting (not reporting) the learning channel in question II. See Appendix A for definitions of variables. Standard errors reported in parentheses are adjusted for heteroscedasticity and clustering at the stock level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)
Sample =	*Full*	*Learn*	*NoLearn*
log(M/A)	0.0179***	0.0194***	0.0123***
	(0.0024)	(0.0027)	(0.0045)
E/A	0.3051***	0.2979***	0.3170***
	(0.0310)	(0.0348)	(0.0654)
Constant	0.0111***	0.0124***	0.0070*
	(0.0019)	(0.0021)	(0.0039)
Industry FEs	Yes	Yes	Yes
N	3,021	2,281	740
R^2	0.187	0.194	0.206
$b_{2019} \times \sigma(\log\left(\frac{M_{2019}}{A_{2019}}\right))$	0.0157	0.0170	0.0112

APPENDIX

Table A1: Variable definitions

Variables are constructed with information during the year of or by the end of 2018 unless otherwise specified.

Variable	Definition
Learn	A dummy variable that equals one if the firm chooses A in survey question II, and zero otherwise.
Fin	A dummy variable that equals one if the firm chooses B in survey question II, and zero otherwise.
LnAssets	The natural logarithm of a firm's total assets in milllion RMB.
Leverage	The ratio of a firm's total debt over its total assets.
SOE	A dummy variable that equals to one if a firm is owned by the state, and zero otherwise.
NAnalysts	The number of analysts following a firm.
NForecasts	The number of earning forecasts produced.
EarnMgnt	Residual accruals obtained by regressing total accruals on fixed assets and revenue growth by industry and year, following Dechow, Sloan, and Sweeney (1995) and Jones (1991).
InsiderTrade	The ratio of shares traded by insiders over total shares outstanding.
Top3Share	The ratio of shares held by the 3 largest shareholder over total shares outstanding.
Turnover	The turnover rate of floating shares, calculated as floating trading volume divided by the number of floating shares.
KZ	The KZ score for financial constraints constructed according to Kaplan and Zingales (1997).
CF	The ratio of net cash flows from operations divided by beginning-of-year book assets.
NSEO18	The number of seasoned equity offerings in 2018.
ChgBudget	A firms' expectation on capital expenditure in 2019, compiled with information from the survey. -2 denotes "large decrease"; -1 denotes "small decrease"; 0 denotes "no change"; 1 denotes "small increase"; and 2 denotes "large increase".
Q	Tobin's Q, calculated as (market value of total equity + book value of assets - book value of equity)/(book value of assets)
ROA	The ratio of the firm's income before taxes and interests over its total assets.
FirmAge	The total number of years since a firm's establishment.
PledgeShare	The ratio of shares pledged over total shares outstanding.
CrossList	A dummy variable that equals one if the firm is cross listed on another market outside China mainland, and zero otherwise.
Tenure	The average tenure of a firm's top executives and directors.
Duality	A dummy variable that equals one if the firm's CEO is appointed as chairperson, and otherwise zero.

Professional	The fraction of top executives with professional service backgrounds including business, accounting, finance, management, and law.
Susp	A dummy variable that equals one if a firm suspends trading for the "important matters" reason, and zero otherwise.
PriceDrop	A dummy variable that equals one if a firm's monthly stock return ranks in the bottom decile among all firm-months, and zero otherwise
Capex	Capital expenditure scaled by beginning of year total assets.
1-R2	R2 is obtained by regressing daily stock returns on market and industry returns.
PIN	Probability of informed trading.
D1	The price delay measure constructed as in Hou and Moskowitz (2005).
FPE	The forecasting price efficiency measure constructed as in Bai, Philippon, and Savov (2016) with h=1.
Ret3	Stock return in the recent three months.
Ret12	Stock return in the recent twelve months.
InvAst	The inverse of book assets.
NSEO	The number of seasoned equity offerings in each year.
AmtSEO	The amount of funds raised in seasoned equity offerings in each year.
M/A	Equity market capitalization divided by assets in each year.
E/A	Net earnings divided by assets in each year.
FloatShare	The number of floating shares divided by total shares outstanding in each year.
NMeetings	The number of board meetings in each year.

Table A2: Evidence on the monitoring channel

This table reports the Probit regression results about the effects of stock performance, shareholder and board characteristics on firms' choice of the pressure channel. The sample consists of 3,220 firms choosing A or C in survey question I. The dependent variable is a dummy variable that equals one if a firm chooses C in survey question II, and zero otherwise. The position, industry, province, stock exchange fixed effects are included. See Appendix A for definitions of variables. Marginal effects are reported. Standard errors reported in parentheses are adjusted for heteroscedasticity and clustering at the industry level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	Stock Performance		Shareholder Characteristics		Board Characteristics	
Y = Press	(1)	(2)	(3)	(4)	(5)	(6)
Chara =	*Q*	*Ret12*	*FloatShare*	*PledgeShare*	*Tenure*	*NMeetings*
Chara	-0.0296***	-0.0011***	0.0853***	0.0833**	0.0130**	0.0032*
	(0.0057)	(0.0003)	(0.0317)	(0.0387)	(0.0054)	(0.0017)
LnAssets	-0.0275	-0.0275	-0.0281	-0.0303	-0.0292	-0.0343
	(0.0208)	(0.0197)	(0.0203)	(0.0218)	(0.0202)	(0.0210)
Leverage	-0.0022	0.0069	0.0050	0.0069	0.0033	0.0039
	(0.0058)	(0.0056)	(0.0061)	(0.0055)	(0.0061)	(0.0060)
Volatility	-0.0275	-0.0275	-0.0281	-0.0303	-0.0292	-0.0343
	(0.0208)	(0.0197)	(0.0203)	(0.0218)	(0.0202)	(0.0210)
SOE	-0.1066***	-0.0943***	-0.0984***	-0.1021***	-0.0813**	-0.0966***
	(0.0350)	(0.0363)	(0.0346)	(0.0367)	(0.0340)	(0.0343)
FEs	Yes	Yes	Yes	Yes	Yes	Yes
N	3,042	3,042	3,042	3,024	3,042	3,042
Pseudo R^2	0.0167	0.0171	0.0166	0.0155	0.0164	0.0156