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Article

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Do the outstanding comments of regulatory reviewers for approved IPOs serve as a valuation signal for investors?

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ABSTRACT

Since 2015, the China Securities Regulatory Commission (CSRC) has disclosed initial public offering (IPO) companies' review outcomes and hearing questions. For 15% of the companies that pass the IPO screening process, the CSRC also discloses some of their hearing questions that require further disclosure and clarification after the IPO screening process (termed *outstanding comments* herein). A company passing the vote means that it has received general approval from the majority of review experts. However, outstanding comments also reflect that some review experts have remaining concerns about the IPO applicant. Results show that approved IPO companies with outstanding comments perform significantly worse than those without outstanding comments both before and after listing, suggesting that outstanding comments serve as a signal of a stock's valuation. Moreover, investors (particularly institutional ones) appear to perceive the signal of outstanding comments, as they react more negatively around the listing date of such companies.

KEYWORDS

IPO screening process; hearing questions; outstanding comments; valuation signal; investor reaction

1. Introduction

A reliable supply of information and effective investor protection are prerequisites for capital markets (La Porta et al., 2006). Information asymmetry is a salient issue in the initial public offering (IPO) market. Over the past two decades, China's regulatory agencies have asked many experts to review IPO applicants, and have rejected a large number of low-quality applicants. Nonetheless, the intrinsic value and post-IPO performance of companies passing the IPO screening process still differ. Therefore, how to make fuller use of information in the IPO screening process to differentiate the investment value of approved IPO companies is of interest to regulators and investors.

Before 2015, the China Securities Regulatory Commission (CSRC) mainly disclosed its review outcomes and the reasons for rejecting companies that failed the IPO screening process; however, there was no difference in disclosures for companies that passed the

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IPO screening process. Since February 2015, by contrast, the CSRC has not only publicly disclosed the hearing questions raised at the Issuance Examination Committee (hereafter Committee) meeting for IPO applicants, but also started disclosing those hearing questions that require further disclosure and clarification by approved IPO companies after the Committee meeting. These are labelled *outstanding comments* in this study.

According to the IPO review workflow, the presence of outstanding comments means that these issues have not been fully responded to or convinced some of the review experts at the Committee meeting by the issuers. Hence, the Committee finally decided that even if these companies obtained IPO approval, they still needed to reply to the outstanding comments of some of the review experts. Correspondingly, receiving outstanding comments may indicate that uncertainties remain in IPO applicants about certain important aspects, which serves as a negative signal of valuation. However, even if a company receives outstanding comments, it will not change the review decision regarding approval for the company's listing given that its IPO application has already been reviewed and approved by the Committee. In other words, outstanding comments are not a conditional acceptance; rather, it's an *unconditional* acceptance. In such circumstances, whether outstanding comments continue to signal a stock's valuation to investors becomes an empirical question.

To test the above competing theories, we investigate the pre- and post-IPO performance of companies that entered the IPO screening process between February 2015 and December 2018. We find that outstanding comments serve as a signal distinguishing approved IPO companies' investment value, and investors reacted more negatively to approved IPO companies that received outstanding comments around the IPO date.

Our study contributes to the literature in three ways. First, to understand the IPO review decisions and opinions of regulators, previous studies have mainly focused on the final decision of whether an IPO applicant passes the screening process (e.g. X. Chen et al., 2022; Y. Chen et al., 2014; Fan et al., 2007; Huang & Li, 2016; Huang & Xie, 2016; Yang, 2013). This study examines, for the first time, the differences in regulators' attitudes towards *approved* IPO companies and the rationale behind them.

Second, our study extends the recent literature that examines the usefulness of IPO review decisions (X. Chen et al., 2022). We find that even if an IPO applicant passed the IPO screening process, outstanding comments disclosed by the Committee still have the capacity to predict the weaker post-IPO performance of the company, thereby distinguishing investment value. This further supports the usefulness of the IPO review information issued by Chinese regulators and helps deepen the understanding of the post-IPO performance differences of approved IPO companies.

Third, this study expands the literature on how investors obtain and use IPO companies' information. The existing literature has documented the informative value of IPO prospectuses and regulatory comment letters to investors (Loughran & McDonald, 2013; Lowry et al., 2020). Our study examines investors' reactions to another piece of IPO review process information, namely, the outstanding comments of approved IPO companies.

Our study has implications for investors in the IPO market. Since the intrinsic value of listed companies varies considerably, it is of great significance and reference value for investors to timely identify differences in regulators' attitudes during the IPO screening

process. Our evidence shows that institutional investors perceive the negative signal of outstanding comments on average. If more retail investors are aware of this negative signal, the pricing efficiency of China's stock market would improve further.

Our study also has the following implications for regulators and the IPO screening process organised by stock exchanges under the registration regime. First, regulators should pay more attention to companies with outstanding comments; this includes reviewing the company's response to such comments and even considering issuing a *conditional-acceptance* decision for IPO applicants with outstanding comments. Second, regulators should consider a more differentiated type of opinion when expressing their views on approved IPO companies, and consider disclosing outstanding comments and the company's responses in a more salient manner.¹ Third, regulators could use the IPO review decision model and data analysis techniques to more accurately identify companies that warrant differentiated opinions, thereby improving the efficiency of the IPO screening process.

2. Institutional background and hypothesis development

2.1. IPO review system in China

Since the beginning of the 21st century, the CSRC has implemented an IPO approval system. The Committee meeting is considered to be the most critical link in the entire IPO screening process, as a company can only pass this process by obtaining the approval of the majority of the Committee members at this meeting. From 2006 to 2018, 2,325 IPO applicants (83.6%) were approved by the Committee and 456 IPO applicants (16.4%) were rejected. The CSRC reviews the whole IPO screening process substantially, rather than merely reviewing as a formality the application materials submitted by IPO applicants.²

2.2. IPO screening process and outstanding comments

According to the IPO review workflow issued by the CSRC in 2014, two issuer representatives and two underwriter representatives attend the Committee meeting to make presentations and receive inquiries. The Committee members vote after the hearing. If the Committee considers that the issuer needs to further disclose and clarify some information, it will inform the underwriter. Then the underwriter organises the issuer and relevant intermediaries to reply as needed. The filing work is carried out after the issuer responds to outstanding comments of the Committee as needed. If there are no outstanding comments from the Committee, the filing work will be carried out once after the Committee meeting.

¹As described in Section 2, the phenomenon of outstanding comments is not apparent to identify.

²Although the CSRC has recently implemented the IPO registration system reform, this does not mean that regulators do not conduct substantive reviews. Instead, the substantive review functions previously undertaken by the CSRC have been delegated to stock exchanges and market intermediaries.

The above workflow suggests that: (1) outstanding comments are issues that need to be further disclosed and explained by IPO applicants and raised after the Committee meeting, (2) both the presentation and the response of outstanding comments occur after the Committee meeting, which indicates that it does not affect the voting results, and (3) the existence of outstanding comments only affects the filing time.

2.3. IPO review information disclosure of approved IPO companies

In February 2015, the CSRC began disclosing all the hearing questions raised at the Committee meeting for IPO applicants and outstanding comments for part of approved IPO companies. Since then, the information disclosure of China's IPO review has entered a new stage. Figure 1 shows the timeline of the main disclosures in the IPO screening process in China. First, the CSRC receives the application materials from IPO applicants and discloses their draft prospectuses. Then, issuers are required to make amendments and supplements based on the follow-up feedback and update their prospectuses. According to the IPO review progress arrangement, the CSRC determines the date for the Committee meeting and list of review experts in the week before the Committee meeting. The review outcomes and hearing questions are announced on the day of the Committee meeting in the form of *The Review Outcome Announcement of the Issuance Examination Committee Meeting*. For most companies that pass the IPO screening process (Panel A), the issuer should submit the final version of the prospectuses. Then, the CSRC will approve the stock issuance and determine the offering date.

Within one or two weeks of the Committee meeting (usually on the next Friday), the CSRC also issues outstanding comments for a small number of companies that have passed the IPO screening process within one week in the form of *The Review Opinions of the Issuance Examination Committee Meeting* (Panel B). The subsequent disclosure is similar to that of most approved IPO companies, except that these companies also need to answer the questions in outstanding comments at the time of filing.³

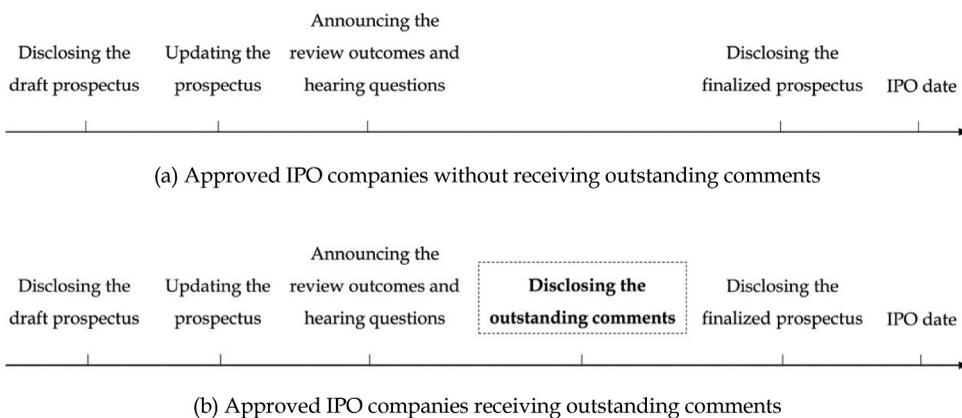


Figure 1. Timeline of the main disclosures in the IPO screening process in China.

³All the IPO screening process information mentioned in this study can be obtained from the *Government Information Disclosure* section of the CSRC website.

To clarify the nature of outstanding comments, we identify all companies that received outstanding comments during the sample period and compare the hearing questions with outstanding comments for each company. First, we confirm that all companies that received outstanding comments were indeed listed subsequently. Second, we find that all the issues raised in outstanding comments appeared in previous hearing questions, which means that these issues had already been raised by the review experts at the Committee meeting.

Taking the Committee meeting held on 4 September 2018 as an example, the meeting reviewed three IPO applications, of which two companies (Xinjiang Communications Construction and Wuxi Shangji Automation) passed the IPO screening process.⁴ Table 1 compares the hearing questions at the Committee meeting with outstanding comments disclosed subsequently. Panel A of Table 1 shows that Xinjiang Communications Construction did not appear in the review opinion announcement on September 14, which means that it did not receive any outstanding comments. Panel B of Table 1 shows that Wuxi Shangji Automation appeared in the review opinion announcement. Although it received five hearing questions at the Committee meeting, the review experts only continued to raise three of them in outstanding comments.⁵

Table 1. An example of disclosed hearing questions and outstanding comments.

(1)	(2)
Review outcomes and hearing questions	Outstanding comments
<i>The Review Outcome Announcement of the 138th meeting in 2018 by the 17th Committee</i> (Release date: 2018-09-04)	<i>The Review Opinions of the Committee Meeting from September 3 to 7, 2018</i> (Release date: 2018-09-14)
Panel A: Xinjiang Communications Construction	
Review outcome: Approved	Not mentioned at all
Q1: Reasons for the concentration of business regions and customers	
Q2: Reasons for the fluctuations in performance and declines in gross profit margins	
Q3: Risk of unfinished PPP projects	
Q4: Debt risk and reasons for the increase in inventory and accounts receivable balances	
Panel B: Wuxi Shangji Automation	
Review outcome: Approved	Some hearing questions being asked again
Q1: Reasons for the major changes in product and customer structure	Not asked
Q2: Impact of the prosperity of the photovoltaic industry	Being asked again
Q3: Disputes over the technology acquisition of major products	Not asked
Q4: Reasons for the continuous increase in gross profit margins	Being asked again
Q5: Basis and rationality of accounting treatment on the after-sales service fee	Being asked again

⁴The Committee decided to postpone the vote on another company (Qinsen Landscape) and did not disclose its hearing questions.

⁵The issues in outstanding comments have slightly different expressions from the corresponding hearing questions, but they are essentially the same.

Based on the above analysis, we can infer that the issues disclosed in *The Review Opinions of the Issuance Examination Committee Meeting* are outstanding comments discussed in the previous section. These issues have not fully convinced (at least some of) the review experts at the Committee meeting and require further reply thereafter. Our identification and inference process described above also indicates that outstanding comments are not apparent to identify. One reason may be that regulators do not use sufficiently different expression of *review opinions* in the second announcement without highlighting the *outstanding* attributes of these issues compared with previous hearing questions.

2.4. Research hypotheses

Although outstanding comments do not change the review outcomes of approved IPO companies, this study examines whether regulators' subtly differentiated expressions of their opinions on approved IPO companies contain valuation signals.⁶ On the one hand, whether an approved IPO company receives outstanding comments may not relate to the company's past or future performance. If a company receives a majority of yes vote from the Committee, it means its intrinsic value is recognised by the majority of review experts. Outstanding comments may only come from the opinions of few review experts, and thus they do not represent the overall evaluation of the Committee. In addition, outstanding comments may primarily be suggestions for issuers to supplement prospectuses with information to improve their adequacy and readability and do not necessarily reflect review members' substantive concerns about the company's pre- or post-IPO performance.

On the other hand, IPO applicants usually try to fully answer the hearing questions raised by the review experts at the Committee meeting; otherwise, they are more likely to be rejected. Therefore, if a company still receives outstanding comments after passing the IPO screening process, it means that it has provided an insufficient explanation or inadequate response to these issues to fully convince the review experts. Some review experts may have difficulties in understanding the application materials or be concerned about the risks or uncertainties of the company's future development. Moreover, given the recent spate of serious IPO fraud, the review quality of the Committee has been questioned by the public (Y. Chen & Song, 2018; Huang & Tang, 2016; Shi & Zeng, 2012). Therefore, some review experts may approve IPO applicants that do not meet the listing standards and use outstanding comments to excuse their responsibility. Based on the above discussion, we propose the following hypotheses in the alternative form:

H1: *IPO applicants with poor pre-IPO performance are more likely to receive outstanding comments after passing the IPO screening process.*

H2: *Approved IPO companies that received outstanding comments perform significantly worse after listing than those that did not.*

⁶We do not assume that the Committee has an incentive to additionally alert information users. A more general assumption is that the Committee only requires IPO applicants to provide further responses to issues that have not satisfied the review experts. However, information users may take the initiative to analyse the rationale behind the differences in regulators' attitudes from public information.

Further, we examine whether investors react to approved IPO companies that received outstanding comments. First, as discussed in [Section 2.3](#), outstanding comments are not readily identifiable. After further searching, we find that hearing questions and outstanding comments are only officially disclosed by the CSRC; there is no public evidence of any intermediary (especially the underwriter) passing this message onto investors. If it is generally difficult for investors to observe whether a company has received outstanding comments, it is likely that there will be no reaction. Second, Chinese investors tend to be highly enthusiastic about investing in the primary stock market. They are likely to focus only on whether a company passed the IPO screening process, rather than the subtle differences between approved IPO companies. Third, even if investors recognise that a small number of approved IPO companies receive outstanding comments, they may still agree with the overall judgement of most of the review experts. China's stock market is characterised by a high proportion of retail investors and short holding periods by institutional investors, which make investors more likely to rely on the Committee's final review outcomes or exhibit sentimental behaviour (P. Chen & Zhou, 2016; Jiang & Kim, 2015; Y. Liu et al., 2003; Xu & Hou, 2012); this further reduces the chances of investors distinguishing between approved IPO companies that received outstanding comments and those that did not.

On the other hand, investors concerned about an IPO applicant are likely to follow every piece of information exhibited in [Figure 1](#). If regulators disclose outstanding comments for an approved IPO company several days after the Committee meeting, investors may notice this type of disclosure, as it differs (at least in formality) from that by most companies passing the IPO screening process. Some investors may further think about the implications of such outstanding comments and have concerns about the company's future performance after listing. Consequently, investors may be less inclined to pursue and hold the stocks of such companies around the IPO date. Based on the above discussion, we propose the following hypothesis in the alternative form:

H3: *Investors are more likely to react negatively to approved IPO companies that received outstanding comments around the IPO date than to those that did not.*

3. Outstanding comments and pre-IPO performance: test of H1

In this section, we first examine the association between the phenomenon of approved IPO companies receiving outstanding comments and their pre-IPO performance. We compare three types of IPO applicants during the sample period: (1) approved IPO companies that received outstanding comments, (2) approved IPO companies that did not receive outstanding comments, and (3) rejected IPO applicants. We use rejected IPO applicants as a control group, which helps assess the underlying rationale of the IPO screening process and compare their intrinsic quality characteristics with those of approved IPO companies that received outstanding comments.

Table 2. Sample distribution.

	Number	2015	2016	2017	2018
Approved IPO companies	930	222	238	372	98
- Without receiving outstanding comments	792	189	215	339	49
- Receiving outstanding comments	138	33	23	33	49
Rejected IPO applicants	174	15	17	85	57
Total	1104	237	255	457	155
	Mean	2015	2016	2017	2018
The proportion of IPOs receiving outstanding comments	12.5%	13.9%	9.0%	7.2%	31.6%
The proportion of rejected IPO applicants	15.8%	6.3%	6.7%	18.6%	36.8%

3.1. Sample and data

We hand-collect the hearing questions and outstanding comments of each IPO applicant from the CSRC website (www.csrc.gov.cn). The data for rejected IPO applicants are collected from the latest versions of their prospectuses. Other data are obtained from the WIND and CSMAR databases. Our sample period starts from 1 February 2015 when regulators began to disclose all hearing questions and outstanding comments, and ends on 31 December 2018 to allow a reasonable time window to examine post-IPO performance.

Table 2 shows the sample distribution. From February 2015 to December 2018, the Committee reviewed 1,104 IPO applicants (excluding companies in the financial industry), of which 930 companies passed the IPO screening process and 174 companies failed (excluding postponement and cancelation). Among approved IPO companies, 138 received outstanding comments (12.5% of the full sample). The proportions of approved IPO companies that received outstanding comments to all IPO applicants in the same year were 13.9%, 9.0%, 7.2%, and 31.6% in the four sample years.⁷

3.2. Empirical model

A recent study by X. Chen et al. (2022) constructed a binary logit model of IPO review decisions based on the reasons for rejection and hearing questions of rejected IPO applicants.⁸ Following this study, we expand the dependent variable from a binary variable (failed or passed) to a three-outcome categorical variable (failed, passed with outstanding comments, or passed without outstanding comments). Therefore, we construct a multinomial logit model to examine the pre-IPO performance of different types of IPO applicants:

⁷The CSRC implemented a *strict and slow* policy in the IPO screening process in 2018, as it was the first full working year of the 17th Committee formed by the merger of the Main Board and GEM Committees, and regulators were striving to reshape the IPO ecosystem. In addition, China's stock market circuit breaker and the collapse of major shareholders' pledge of stock rights affected the stability of the capital market and decreased the number of IPOs reviewed in 2018 substantially. These factors may explain the high proportion of companies that received outstanding comments in 2018. We control for the fixed effects of the IPO review year in the analysis to mitigate the potential confounds across sample years.

⁸X. Chen et al. (2022) divided IPO review concerns into three categories (reliability of financial reporting, continuity of business operations, and compliance with corporate governance) and several subcategories and then operationalised the variables for the Committee's main concerns.

$$\begin{aligned}
REGOPN = & \alpha_0 + \alpha_1 ABSDA + \alpha_2 RPT + \alpha_3 RPN + \alpha_4 REVPPMATCH \\
& + \alpha_5 ROA + \alpha_6 ROAGROW + \alpha_7 ROASD + \alpha_8 ADMMKTFFEE \\
& + \alpha_9 CUSTOM5 + \alpha_{10} SUPPLY5 + \alpha_{11} INTASST + \alpha_{12} TOPHLD \quad (1) \\
& + \alpha_{13} SANC + \alpha_{14} SIZE + \alpha_{15} LEV + \alpha_{16} BIGUDW + \alpha_{17} BIGAUD \\
& + \alpha_{18} RCRATE + FE_{YEAR} + FE_{IND} + FE_{BOARD} + FE_{PROV} + u
\end{aligned}$$

The dependent variable *REGOPN*, representing IPO review opinions, is coded zero if the IPO applicant did not pass the IPO screening process, one if the IPO applicant passed the IPO screening process and received outstanding comments after the Committee meeting, and two if the IPO applicant passed the IPO screening process and did not receive outstanding comments after the Committee meeting.

We follow X. Chen et al. (2022) to include explanatory variables in model (1). The variables related to the reliability of financial reporting include: discretionary accruals (*ABSDA*),⁹ net amount of related party transactions (*RPT*), number of related parties (*RPN*), and matching between the growth of revenue and fixed assets (*REVPPMATCH*). The variables related to the continuity of business operations include: return on assets (*ROA*), growth of return on assets (*ROAGROW*), volatility of return on assets (*ROASD*), administration and marketing fee (*ADMMKTFFEE*), customer concentration (*CUSTOM5*), supplier concentration (*SUPPLY5*), and intensity of intangible assets (*INTASST*). The variables related to the compliance with corporate governance include: largest shareholder's ownership (*TOPHLD*), and sanctions for misconducts (*SANC*). In addition, we control for company size (*SIZE*), financial leverage (*LEV*), financial intermediaries (*BIGUDW* and *BIGAUD*). We also include proportion of approved IPO companies receiving outstanding comments to all approved IPO companies during the past 12 months (*RCRATE*) to reflect recent IPO review strictness. Finally, model (1) controls for the fixed effects of the IPO review year, industry, listing board, and province of the IPO applicant. See the variable definitions in the appendix.

3.3. Descriptive statistics

Table 3 presents the grouped descriptive statistics of the main variables in model (1). Compared with approved IPO companies that did not receive outstanding comments, those that received outstanding comments have a significantly larger firm size (*SIZE*), higher profitability growth (*ROAGROW*), weaker matching between financial and non-financial data (*REVPPMATCH*), and more violations (*SANC*). Compared with rejected IPO applicants, approved IPO companies that received outstanding comments have a significantly larger firm size, a lower shareholding by the largest shareholder (*TOPHLD*), lower customer concentration (*CUSTOM5*), and lower supplier concentration (*SUPPLY5*).

⁹In addition to using the modified Jones model of Dechow et al. (1995) to measure discretionary accruals (J. Huang & Li, 2016; Teoh et al., 1998b), previous studies that have constructed IPO review decision models have used the Jones (1991) model (Teoh et al., 1998a) and performance-matched Jones model of Kothari et al. (2005) (J. Huang & Li, 2016; Q. Liu et al., 2013; Yang, 2013). The results are robust when using these two methods. Since IPO prospectuses report financial data for three full years before listing, we can obtain the opening balance data for two years and calculate discretionary accruals.

Table 3. Descriptive statistics of the main variables in model (1).

	(1) <i>REGOPN</i> = 1 (<i>N</i> = 138)	(2) <i>REGOPN</i> = 2 (<i>N</i> = 792)	(3) <i>REGOPN</i> = 0 (<i>N</i> = 174)	(1) vs. (2)	(1) vs. (3)	(2) vs. (3)
	mean (median)	mean (median)	mean (median)	t-stat. (z-stat.)	t-stat. (z-stat.)	t-stat. (z-stat.)
<i>ABSDA</i>	0.065 (0.048)	0.059 (0.048)	0.069 (0.056)	1.52 (0.94)	-0.72 (-1.11)	-2.77*** (-2.63***)
<i>RPT</i>	-0.006 (0.000)	0.000 (0.000)	0.000 (0.000)	-2.45** (-0.82)	-1.63 (-0.72)	-0.18 (-0.06)
<i>RPN</i>	3.300 (3.295)	3.303 (3.332)	3.371 (3.466)	-0.05 (-0.06)	-0.78 (-0.86)	-1.02 (-1.17)
<i>REVPPEMATCH</i>	4.773 (0.464)	2.321 (-0.027)	3.718 (0.496)	2.59*** (2.34**)	0.67 (-0.40)	-1.73* (-1.94*)
<i>ROA</i>	0.116 (0.104)	0.123 (0.112)	0.119 (0.103)	-1.13 (-1.12)	-0.41 (0.12)	0.68 (1.23)
<i>ROAGROW</i>	0.373 (0.008)	0.106 (-0.056)	0.089 (-0.003)	3.52*** (2.47**)	2.88*** (1.62)	0.27 (-0.43)
<i>ROASD</i>	0.026 (0.018)	0.023 (0.017)	0.029 (0.022)	1.58 (1.25)	-1.03 (-1.31)	-3.24*** (-3.29***)
<i>ADMMKTFFEE</i>	0.182 (0.159)	0.188 (0.158)	0.199 (0.157)	-0.56 (0.46)	-1.19 (0.28)	-1.11 (0.03)
<i>CUSTOMS</i>	40.853 (35.813)	42.467 (37.587)	47.329 (45.168)	-0.68 (-0.76)	-2.17** (-2.20**)	-2.23** (-2.27**)
<i>SUPPLYS</i>	42.084 (38.420)	39.508 (36.238)	47.139 (44.940)	1.40 (1.83*)	-2.05** (-1.77*)	-4.41*** (-4.08***)
<i>INTASST</i>	0.053 (0.044)	0.053 (0.044)	0.046 (0.034)	0.06 (-0.08)	1.34 (2.13**)	1.85* (3.01***)
<i>TOPHLD</i>	38.245 (35.790)	37.528 (36.310)	49.856 (50.365)	0.54 (-0.53)	-6.12*** (-5.66***)	-9.85*** (-8.24***)
<i>SANC</i>	0.551 (0.000)	0.383 (0.000)	0.420 (0.000)	2.77*** (2.60***)	1.67* (1.38)	-0.69 (-0.98)
<i>SIZE</i>	20.710 (20.510)	20.415 (20.219)	20.010 (20.030)	3.24*** (3.80***)	6.87*** (6.21***)	5.10*** (4.65***)
<i>LEV</i>	0.429 (0.426)	0.423 (0.424)	0.417 (0.410)	0.40 (0.33)	0.61 (0.81)	0.43 (0.69)
<i>BIGUDW</i>	0.493 (0.000)	0.486 (0.000)	0.431 (0.000)	0.14 (0.14)	1.09 (1.09)	1.32 (1.32)
<i>BIGAUD</i>	0.667 (1.000)	0.665 (1.000)	0.684 (1.000)	0.03 (0.03)	-0.32 (-0.32)	-0.47 (-0.47)
<i>RCRATE</i>	0.157 (0.103)	0.105 (0.099)	0.130 (0.103)	7.27*** (2.20**)	2.09** (0.69)	-4.38*** (-1.25)

***, ** and * represent significance at the 1%, 5% and 10% levels, respectively (two-tailed). See the appendix for definition of variables.

Overall, Table 3 suggests that approved IPO companies that received outstanding comments are of higher risk than those that did not receive outstanding comments, but of lower risk than rejected IPO applicants.

3.4. Regression results

Columns (1) and (2) of Table 4 present the multinomial logit model regression results of model (1). Column (1) shows that compared with rejected IPO applicants (*REGOPN* = 0), approved IPO companies with outstanding comments (*REGOPN* = 1) have significantly

Table 4. Outstanding comments and pre-IPO performance.

	(1) REGOPN = 1	(2) REGOPN = 2	(3) (1) vs. (2)	(4) RC
Dep Var:	Coef. (z-stat.)	Coef. (z-stat.)	Coef. Diff Chi ²	Coef. (z-stat.)
ABSDA	-1.038 (-0.33)	-5.685 (-2.32)**	3.88**	5.169 (2.15)**
RPT	-6.203 (-1.22)	-1.466 (-0.35)	1.53	-4.131 (-1.11)
RPN	-0.609 (-2.99)***	-0.317 (-2.01)**	3.80*	-0.268 (-1.80)*
REVPPMATCH	0.005 (0.55)	-0.017 (-1.87)*	6.72***	0.024 (2.80)***
ROA	8.769 (2.26)**	11.674 (3.92)***	1.06	-3.044 (-1.06)
ROAGROW	0.431 (2.38)**	0.359 (2.06)**	1.18	0.077 (1.21)
ROASD	-4.535 (-0.65)	-9.434 (-1.76)*	0.90	5.333 (1.04)
ADMMKTREE	0.119 (0.08)	-0.784 (-0.66)	0.55	0.961 (0.77)
CUSTOM5	-0.002 (-0.39)	-0.006 (-1.18)	0.47	0.002 (0.34)
SUPPLY5	-0.003 (-0.87)	-0.004 (-2.45)**	0.05	0.001 (0.65)
INTASST	1.561 (0.59)	2.225 (1.11)	0.11	-1.196 (-0.56)
TOPHLD	-0.088 (-8.15)***	-0.082 (-9.85)***	0.53	-0.006 (-0.75)
SANC	0.000 (0.00)	-0.179 (-0.92)	1.07	0.208 (1.21)
SIZE	1.783 (6.74)***	1.432 (6.24)***	5.17**	0.297 (1.94)*
LEV	-2.597 (-2.17)**	-0.989 (-1.08)	3.19*	-1.457 (-1.61)
BIGUDW	-0.062 (-0.20)	0.131 (0.56)	0.74	-0.231 (-1.02)
BIGAUD	-0.261 (-0.80)	-0.148 (-0.60)	0.21	-0.020 (-0.08)
RCRATE	3.114 (1.95)*	-4.179 (-2.92)***	37.74***	7.397 (6.20)***
FE _{YEAR}	Yes	Yes		Yes
FE _{IND}	Yes	Yes		Yes
FE _{BOARD}	Yes	Yes		Yes
FE _{PROV}	Yes	Yes		Yes
N	1104	1104		930
Pseudo R ²	0.293	0.293		0.164

***, ** and * represent significance at the 1%, 5% and 10% levels, respectively (two-tailed). See, appendix for definition of variables.

higher profitability (*ROA* & *ROAGROW*), a larger firm size (*SIZE*), lower financial leverage (*LEV*), fewer related parties (*RPN*), and a lower percentage of the largest shareholder's ownership (*TOPHLD*) before listing.

Column (2) shows that compared with rejected IPO applicants (*REGOPN* = 0), approved IPO companies without outstanding comments (*REGOPN* = 2) also have significantly higher profitability, a larger firm size, fewer related parties, and a lower percentage of the largest shareholder's ownership before listing. Moreover, approved IPO companies that did not receive outstanding comments have significantly lower discretionary accruals

(*ABSDA*), better matching between the growth of revenue and fixed assets (*REVPPEMATCH*), lower profitability volatility (*ROASD*), and lower supplier concentration (*SUPPLY5*) before listing.

Comparing the results in the first two columns shows that approved IPO companies that received and did not receive outstanding comments have similar intrinsic quality characteristics and are clearly different from rejected IPO applicants. This means that Chinese regulators' IPO review decisions have been made in a professional and reasonable manner in general.

Column (3) further compares the differences in the coefficients between Columns (1) and (2). Compared with approved IPO companies without outstanding comments (*REGOPN* = 2), those that received outstanding comments (*REGOPN* = 1) have a significantly larger firm size, but higher discretionary accruals and weaker matching between the growth of revenue and fixed assets, indicating that pre-IPO accounting information quality is significantly weaker for IPO companies receiving outstanding comments.

Finally, Column (4) excludes rejected IPO applicants and performs a binary logit regression with the dependent variable *RC* (indicator variable coded one for IPO applicants with outstanding comments, and zero for IPO applicants without outstanding comments). Similar to the results in Column (3), Column (4) shows that pre-IPO discretionary accruals are significantly higher and that the matching between financial and nonfinancial data is significantly weaker for companies that received outstanding comments. Moreover, the IPO review strictness (*RCRATE*) results show that the higher the proportion of approved IPO companies that received outstanding comments within the 12 months before the IPO review date, the more likely an IPO applicant is to also receive outstanding comments.¹⁰

Taken together, Table 4 shows that approved IPO companies with outstanding comments perform better in the pre-IPO period than rejected IPO applicants; but they also have some disadvantages compared with approved IPO companies without outstanding comments. This evidence suggests that review experts did identify IPO applicants with different intrinsic qualities. They directly rejected companies with significantly lower quality, while adopting a differentiated disclosure approach to express their opinions on companies that meet the listing standards but have shortcomings in terms of certain inherent characteristics.

4. Outstanding comments and post-IPO performance: test of H2

4.1. Empirical model

We estimate the following model to test H2:

$$\text{Post-IPO Performance} = \beta_0 + \beta_1 RC + \text{Controls} + FE_{\text{YEAR}} + FE_{\text{IND}} + FE_{\text{BOARD}} + FE_{\text{PROV}} + \varepsilon \quad (2)$$

The dependent variable *Post-IPO Performance* represents the company's post-IPO performance from four aspects: financial performance, accounting information quality, innovation activities, and insider stock selling. Previous studies show that IPO companies are

¹⁰Based on the regression results in Column (4), we also estimate the probability that an IPO applicant receives outstanding comments, which facilitates counterfactual tests in Section 6.4.

prone to performance declines after listing, as they usually engage in earnings management to pass the IPO screening process or increase the offering price (Kao et al., 2009; Lu et al., 2015; Teoh et al., 1998a, 1998b). Therefore, we use the differences between return on assets in the year before and the year after listing (*ROACHG*) to measure post-IPO financial performance.¹¹

Even if an IPO company passed the IPO screening process through earnings manipulation before listing, it may continue to engage in financial fraud to avoid earnings reversal and performance declines after listing (Teoh et al., 1998a, 1998b). Thus, we use the incidence of financial fraud and accounting restatements within the first year of listing (*MISSTATE*) to measure post-IPO accounting information quality.

Since innovation is critical to the competitiveness of a company, prior literature has examined factors that affect corporate innovation activities (Caggese, 2012; Feng & Wen, 2008; Jiang et al., 2017; Li & Song, 2010; B. Liu et al., 2017). The importance of innovation has also become prominent in the IPO screening process, with the capability of innovation recently becoming the focus of the Committee.¹² Patents are a typical measure of a company's innovation capability (Long & Zhang, 2021). Hence, we use the natural logarithm of (one plus) the number of patent applications within the first year of listing (*PATENT*) to measure post-IPO innovation performance.¹³

As corporate insiders have more private information about the company's intrinsic value, they have an incentive to retain fewer shares when the company is overvalued or has poor performance prospects (Ke et al., 2003; Rozeff & Zaman, 1998). Previous studies find that the insiders of listed companies gain significant excess returns when selling shares (Wu & Wu, 2010; Zeng, 2008). Therefore, we use the proportion of shares sold by all executives within the first year of their one-year lockup expiration to total shareholdings before the selling (*INSIDERSSELL*) to measure post-IPO insider stock selling.¹⁴

The explanatory variable *RC* is an indicator variable coded one for IPO applicants passing the IPO screening process but receiving outstanding comments, and zero for IPO applicants passing the IPO screening process without receiving outstanding comments.

H2 aims to examine whether the outstanding comments of some approved IPO companies serve as a signal of differences in future performance, and we do not argue that receiving outstanding comments *results in* differential post-IPO performance of approved

¹¹The results are similar if we use return on equity to measure post-IPO financial performance.

¹²For example, in the *Guidelines for the Review of the Issuance Examination Committee of the China Securities Regulatory Commission*, two of the six guidelines on the continuity of business operations are directly related to innovation: (1) the acquisition and use of existing intellectual property rights such as trademarks, patents, and proprietary technology and their impact on the issuer's core competitiveness and (2) the issuer's ongoing product manufacturing and R&D capabilities.

¹³Since some patents may not be granted after application, we also use the natural logarithm of (one plus) the number of patents granted in the first year of listing to measure actual innovation output, and the results for *RC* remain robust (t-stat. = -3.80). Since invention patents are generally considered to be of the highest quality, we also use the natural logarithm of (one plus) the number of invention patent applications in the first year of listing to measure substantive innovation capability, and the results again remain robust (t-stat. = -2.40). Moreover, we use the change in the number of patents as a measure. We calculate the differences between the natural logarithm of (one plus) the number of patent applications (or patents granted) in the IPO year and the first year of listing, and the results remain robust (t-stat. = -2.22, -2.95).

¹⁴We also use the natural logarithm of (one plus) the monetary amount of all executives' stock selling within the first year of their one-year lockup expiration to measure insiders' profit through the trading, and the results for *RC* remain robust (t-stat. = 2.88).

IPO companies. To ensure that the results are not driven by other signals that could be observed during the same period, we include the following control variables in model (2). First, we control for the number of hearing questions raised at the Committee meeting (*TOTALQ*), which is another important piece of information about an IPO applicant disclosed around the same time as outstanding comments. Following Cliff and Denis (2004) and Feng et al. (2019), we control for other observable IPO-related information, including the size of offerings (*OFFERSIZE*), recent number of IPOs (*FREQ*), recent market return (*MKTRET*) and volatility (*MKTVOL*), backing of venture capital (*VC*), and state ownership (*SOE*). Model (2) also controls for the fixed effects of the IPO review year, industry, listing board, and province of the IPO company. See the variable definitions in the appendix.

4.2. Descriptive statistics

Table 5 presents the descriptive statistics of the main variables in model (2). Compared with approved IPO companies that did not receive outstanding comments, those that received outstanding comments exhibit no significant difference in post-IPO financial performance (*ROACHG*), but show a higher incidence of accounting misstatements (*MISSTATE*), fewer patent applications (*PATENT*), and greater insider stock selling after the lockup expiration (*INSIDERSSELL*). In addition, the number of hearing questions raised to IPO companies with outstanding comments is significantly higher than those without

Table 5. Descriptive statistics of the main variables in model (2).

	<i>RC</i> = 1 (<i>N</i> = 138)	<i>RC</i> = 0 (<i>N</i> = 792)	<i>RC</i> = 1 vs. 0
	mean (median)	mean (median)	t-stat. (z-stat.)
<i>ROACHG</i>	-0.041 (-0.030)	-0.037 (-0.031)	-1.04 (0.19)
<i>MISSTATE</i>	0.478 (0.000)	0.324 (0.000)	3.52*** (3.50***)
<i>PATENT</i>	1.079 (0.000)	1.791 (1.792)	-5.26*** (-5.54***)
<i>INSIDERSSELL</i>	0.039 (0.000)	0.004 (0.000)	2.73*** (2.85***)
<i>TOTALQ</i>	4.261 (5.000)	3.139 (3.000)	9.67*** (9.18***)
<i>OFFERSIZE</i>	8.223 (8.122)	8.106 (7.949)	1.88* (2.67***)
<i>FREQ</i>	3.934 (4.297)	4.262 (4.625)	-3.97*** (-6.60***)
<i>MKTRET</i>	0.001 (0.001)	0.001 (0.001)	-0.43 (-0.97)
<i>MKTVOL</i>	0.012 (0.012)	0.010 (0.007)	4.16*** (5.28***)
<i>VC</i>	0.783 (1.000)	0.711 (1.000)	1.73* (1.73*)
<i>SOE</i>	0.094 (0.000)	0.092 (0.000)	0.08 (0.08)

*** and * represent significance at the 1% and 10% levels, respectively (two-tailed). See the appendix for definition of variables.

outstanding comments (*TOTALQ*); this justifies our controlling for the number of hearing questions in model (2). The comparisons of the other control variables show that IPO companies receiving outstanding comments have a larger offering size (*OFFERSIZE*), fewer IPOs within the previous quarter (*FREQ*), stronger recent stock market volatility (*MKTVOL*), and slightly higher venture capital participation (*VC*).

4.3. Regression results

Table 6 presents the regression results of model (2). The analysis of post-IPO financial performance (*ROACHG*) in Column (1) shows that the coefficient on *RC* is significantly negative (t-stat. = -2.66), which indicates that approved IPO companies with outstanding comments are more likely to experience a significant performance decline in the first year of listing.

The analysis of post-IPO accounting information quality (*MISSTATE*) in Column (2) shows that the coefficient on *RC* is significantly positive (z-stat. = 2.74), which indicates that IPO companies receiving outstanding comments are more likely to incur accounting misstatements within the first year of listing.

The analysis of post-IPO innovation performance (*PATENT*) in Column (3) shows that the coefficient on *RC* is significantly negative (t-stat. = -3.98), which suggests that IPO companies that received outstanding comments have fewer patent applications within the first year of listing.

Table 6. Outstanding comments and post-IPO performance.

Dep Var:	(1)	(2)	(3)	(4)
	<i>ROACHG</i>	<i>MISSTATE</i>	<i>PATENT</i>	<i>INSIDERSSELL</i>
	Coef. (t-stat.)	Coef. (z-stat.)	Coef. (t-stat.)	Coef. (t-stat.)
<i>RC</i>	-0.011 (-2.66)***	0.591 (2.74)***	-0.547 (-3.98)***	0.038 (2.60)***
<i>TOTALQ</i>	0.002 (1.46)	0.194 (2.97)***	-0.199 (-5.02)***	0.005 (1.30)
<i>OFFERSIZE</i>	0.009 (3.35)***	-0.020 (-0.15)	0.230 (2.77)***	0.017 (1.92)*
<i>FREQ</i>	0.008 (3.06)***	0.408 (2.76)***	0.125 (1.42)	-0.003 (-0.35)
<i>MKTRET</i>	-2.751 (-2.35)**	-88.520 (-1.47)	57.379 (1.49)	-0.432 (-0.10)
<i>MKTVOL</i>	0.769 (0.90)	73.149 (3.12)***	13.440 (0.90)	-3.843 (-1.52)
<i>VC</i>	0.004 (1.44)	0.042 (0.25)	-0.058 (-0.55)	-0.030 (-2.73)***
<i>SOE</i>	0.004 (0.79)	0.244 (0.86)	0.140 (0.79)	-0.032 (-1.69)*
<i>FE_{YEAR}</i>	Yes	Yes	Yes	Yes
<i>FE_{IND}</i>	Yes	Yes	Yes	Yes
<i>FE_{BOARD}</i>	Yes	Yes	Yes	Yes
<i>FE_{PROV}</i>	Yes	Yes	Yes	Yes
N	930	930	930	930
R ² /Pseudo R ²	0.205	0.084	0.256	0.146

***, ** and * represent significance at the 1%, 5% and 10% levels, respectively (two-tailed). See the appendix for definition of variables.

Finally, the analysis of post-IPO insider stock selling (*INSIDERSELL*) in Column (4) shows that the coefficient on *RC* is significantly positive (t-stat. = 2.60), which indicates that approved IPO companies with outstanding comments have a significantly higher proportion of executives' stock selling within the first year of the one-year lockup expiration.

To sum up, Table 6 shows consistent evidence that approved IPO companies with outstanding comments are significantly inferior to IPO companies without outstanding comments in terms of post-IPO financial performance, accounting information quality, innovation capability, and insiders' confidence in the company. Therefore, outstanding comments disclosed by regulators after the Committee meeting are indicative of the lower investment value of such companies, which signals a stock's valuation.

5. Outstanding comments and investor reactions: test of H3

5.1. Empirical model

We estimate the following model to examine the investor reaction around the IPO date to approved IPO companies with outstanding comments:

$$\text{Market Reaction} = \gamma_0 + \gamma_1 RC + \text{Controls} + FE_{\text{YEAR}} + FE_{\text{IND}} + FE_{\text{BOARD}} + FE_{\text{PROV}} + \zeta \quad (3)$$

The dependent variable *Market Reaction* represents the reaction of investors around the IPO date. Prior literature usually measures external investors' valuation of IPO companies using the underpricing rate and turnover rate on the first day of the IPO (Ritter & Welch, 2002). In China, the maximum increase in the first-day price of new shares is limited to 44% of the offering price to reduce the high underpricing rate in the domestic securities market. However, most new shares reach the limit-up price on the first day of listing and last for several days. Following prior literature (Pan & Wu, 2020; Tang et al., 2017; Wei et al., 2019; Zhang et al., 2018), we measure investor reactions using the IPO actual return (*IPORET*, = (closing price on the first non-limit day after listing – offering price)/offering price) and the average turnover rate of the 10 days after listing (*TURNOVER*).

To further explore which types of investors drive the stock market reaction around the IPO date, we use the offline (*OFFLINE*) and online (*ONLINE*) cumulative oversubscription multiple to measure the subscription enthusiasm of institutional investors and retail investors, respectively. We expect institutional investors to be more professional, with more information advantages than retail investors, and more cautious when subscribing for new shares, thus associated with a lower offline cumulative oversubscription multiple (Yang et al., 2016).

The explanatory variable *RC* and control variables in model (3) are the same as those in model (2). See the variable definitions in the appendix.

5.2. Descriptive statistics

Table 7 presents the descriptive statistics of the main variables in model (3). Results show that investors react more negatively to approved IPO companies with outstanding comments than those without outstanding comments, as evidenced by the significantly lower IPO actual return (*IPORET*) and significantly higher average turnover ratio (*TURNOVER*).

Table 7. Descriptive statistics of the main variables in model (3).

	<i>RC</i> = 1		<i>RC</i> = 0		<i>RC</i> = 1 vs. 0
	N	mean (median)	N	mean (median)	t-stat. (z-stat.)
<i>IPORET</i>	138	2.577 (2.238)	792	3.365 (2.687)	-3.72*** (-3.38***)
<i>TURNOVER</i>	138	0.082 (0.047)	792	0.055 (0.003)	3.90*** (3.53***)
<i>OFFLINE</i>	122	0.700 (0.608)	628	0.872 (0.718)	-2.52** (-2.05**)
<i>ONLINE</i>	138	0.272 (0.263)	792	0.332 (0.317)	-1.22 (-1.08)

*** and ** represent significance at the 1% and 5% levels, respectively (two-tailed). The reason for the decrease in the number of observations of the variable *OFFLINE* is that some IPO companies do not have offline subscription data. See the appendix for definition of variables.

This provides preliminary support of H3; i.e. investors are overall able to identify the negative valuation signal of outstanding comments. In addition, the offline subscription enthusiasm of institutional investors is significantly lower (*OFFLINE*) for IPO companies with outstanding comments, while there is no significant difference in the online subscription enthusiasm of retail investors (*ONLINE*).

5.3. Regression results

Table 8 presents the regression results of model (3). The analysis of IPO actual return (*IPORET*) in Column (1) shows that the coefficient on *RC* is significantly negative (t-stat. = -4.01). The analysis of average turnover rate (*TURNOVER*) in Column (2) shows that the coefficient on *RC* is significantly positive (t-stat. = 3.12). These findings suggest that compared with IPO companies without outstanding comments, IPO companies with outstanding comments have lower stock returns and higher turnover rates around the IPO date, which indicates that investors are less likely to pursue those stocks and have more divergent investment views on such companies in the short term after listing.

Further, the analysis of offline cumulative oversubscription multiple (*OFFLINE*) in Column (3) shows that the coefficient on *RC* is significantly negative (t-stat. = -2.09), whereas the analysis of online cumulative oversubscription multiple (*ONLINE*) in Column (4) shows that the coefficient on *RC* is not significantly different from zero (t-stat. = -0.05). These results suggest that institutional investors are significantly less interested in subscribing for IPO companies with outstanding comments, while retail investors do not differentiate between such companies and IPO companies without outstanding comments.

In summary, Table 8 indicates that investors (particularly institutional ones) react more negatively to approved IPO companies with outstanding comments, which suggests that they generally distinguish between approved IPO companies with and without outstanding comments.

Table 8. Outstanding comments and investor reactions.

Dep Var:	(1)	(2)	(3)	(4)
	<i>IPORET</i>	<i>TURNOVER</i>	<i>OFFLINE</i>	<i>ONLINE</i>
	Coef. (t-stat.)	Coef. (t-stat.)	Coef. (t-stat.)	Coef. (t-stat.)
<i>RC</i>	-0.816 (-4.01)***	0.023 (3.12)***	-0.126 (-2.09)**	-0.001 (-0.05)
<i>TOTALQ</i>	0.002 (0.04)	0.005 (2.60)***	-0.018 (-0.98)	0.002 (0.37)
<i>OFFERSIZE</i>	-0.429 (-3.51)***	0.008 (1.83)*	-0.136 (-3.49)***	-0.036 (-7.02)***
<i>FREQ</i>	-0.320 (-2.47)**	0.011 (2.34)**	-0.022 (-0.58)	0.019 (2.10)**
<i>MKTRET</i>	310.501 (5.43)***	-6.955 (-3.41)***	-106.345 (-6.13)***	-44.086 (-11.07)***
<i>MKTVOL</i>	-0.578 (-0.03)	1.345 (1.72)*	-75.287 (-10.93)***	-17.121 (-11.04)***
<i>VC</i>	0.026 (0.17)	-0.012 (-2.27)**	-0.008 (-0.16)	-0.014 (-1.25)
<i>SOE</i>	0.552 (2.11)**	-0.024 (-2.55)**	-0.019 (-0.25)	-0.044 (-2.44)**
<i>FE_{YEAR}</i>	Yes	Yes	Yes	Yes
<i>FE_{IND}</i>	Yes	Yes	Yes	Yes
<i>FE_{BOARD}</i>	Yes	Yes	Yes	Yes
<i>FE_{PROV}</i>	Yes	Yes	Yes	Yes
<i>N</i>	930	930	750	930
<i>R²</i>	0.295	0.190	0.442	0.606

***, ** and * represent significance at the 1%, 5% and 10% levels, respectively (two-tailed). See the appendix for definition of variables.

6. Additional analyses

6.1. Placebo test

To ensure that our previous results are not observed by chance, we conduct a placebo test by randomly assigning approved IPO companies with outstanding comments to the sample. Specifically, we randomly reassign the sample based on the ratio of approved IPO companies with outstanding comments over those without outstanding comments (138:792) to obtain a pseudo explanatory variable $RC_{placebo}$. We then reestimate models (2) and (3). We repeat this process 1,000 times and calculate the average coefficients on $RC_{placebo}$. Table 9 shows that the mean coefficients on $RC_{placebo}$ are not significantly different from zero and are significantly different from the coefficient on RC in the previous regression results for each model. Therefore, the placebo test strengthens the validity of our main findings.

6.2. Number of issues in outstanding comments

We also consider the number of issues in outstanding comments (RCQ). In the subsample of 138 approved IPO companies with outstanding comments ($RC = 1$), the mean (median) number of issues mentioned in outstanding comments is 1.81 (2), with the minimum (maximum) value being 1 (6). We calculate the ratio of the number of issues in

Table 9. Placebo test.

Dep Var:	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	<i>ROACHG</i>	<i>MISSTATE</i>	<i>PATENT</i>	<i>INSIDERSSELL</i>	<i>IPORET</i>	<i>TURNOVER</i>	<i>OFFLINE</i>
Mean coef. on $RC_{placebo}$	0.0001	-0.0007	-0.0051	0.0001	-0.0045	0.0001	0.0014
<i>RC</i>	-0.011	0.591	-0.547	0.038	-0.816	0.023	-0.126
Mean test: Mean coef. of $RC_{placebo} = RC$							
t-stat.	95.90***	-90.71***	133.25***	-90.77***	142.66***	-111.76***	69.08***

*** represents significance at the 1% level (two-tailed). The mean coefficient on $RC_{placebo}$ is obtained based on the 1,000 times of regressions of models (2) and (3). The coefficients on *RC* are taken from Tables 6 and 8. See the appendix for definition of variables.

outstanding comments to the number of hearing questions received at the Committee meeting ($RCQ_RATIO = RCQ/TOTALQ$). The mean (median) ratio is 45.5% (40.0%), with the minimum (maximum) ratio being 12.5% (100%).¹⁵

First, we replace the dependent variable in Column (4) of Table 4 (i.e. *RC*) with *RCQ* or *RCQ_RATIO*. Untabulated results show that the more the issues in outstanding comments (or the higher the *RCQ_RATIO*), the higher are discretionary accruals and the weaker is the matching between financial and nonfinancial data before listing. Second, we replace the explanatory variable *RC* in models (2) and (3) with *RCQ* or *RCQ_RATIO*. Untabulated results show that the regression results for both *RCQ* and *RCQ_RATIO* are similar to those for *RC*. These findings suggest that not only the phenomenon of outstanding comments per se but also the number of issues in outstanding comments have valuation signals for investors.

6.3. Restricting the sample to the same committee meeting

To strengthen the comparability between IPO companies with and without outstanding comments in terms of the review process and strictness, we further identify a reduced sample including 102 IPO companies with outstanding comments and 234 IPO companies without outstanding comments *in the same Committee meeting*. We rerun models (2) and (3) using this smaller sample, and the untabulated results remain similar.

6.4. Alternative explanation of investor reactions: the independent judgement of investors?

An alternative explanation of our results for H3 (i.e. investors react negatively to IPO companies with outstanding comments around the IPO date) is investors make similar while independent evaluations on their own, rather than their attention to differential review opinions expressed by regulators.

To examine this alternative explanation, we need to identify a subsample of approved IPO companies that meet two conditions: (1) they are likely to have received outstanding comments according to the regulator's review rationale, and (2) they did not actually receive outstanding comments. The first feature implies that the intrinsic quality of these companies is similar to IPO companies receiving outstanding comments, and rational investors should have similar reactions towards this subsample. The second feature eliminates the signal that regulators might deliver

¹⁵*RCQ* is highly positively correlated with *RCQ_RATIO* (correlation coefficient is 0.72).

through outstanding comments. If investors react negatively to such companies around the IPO date, it suggests that they do independently expect the future poor performance of such companies even without signals from regulators, which invalidates our argument. On the other hand, if investors do not react negatively towards this subsample around the IPO date, our findings would be further strengthened that outstanding comments serve as a signal to investors.

We first estimate the probability of an approved IPO company receiving outstanding comments based on the regression results in Column (4) of Table 4 (RC_{PROB}). The mean (median) value of RC_{PROB} is 14.8% (10.1%), with the minimum (maximum) value of RC_{PROB} being 0.2% (91.0%).¹⁶ Among the 792 approved IPO companies without outstanding comments (satisfying the second feature), 46 have an RC_{PROB} above 32.5% (the 90% quantile of RC_{PROB}) (satisfying the first feature). Therefore, we set $NRC_{Counterfactual}$ (indicator variable coded one for the 46 companies identified by the above procedure, and zero otherwise) as the experimental variable to examine the alternative explanation.

Second, we include $NRC_{Counterfactual}$ in model (2) to examine whether companies with $NRC_{Counterfactual} = 1$ have similar post-IPO performance to approved IPO companies with outstanding comments. The results in Columns (1) – (4) of Table 10 shows that the signs and levels of statistical significance for all coefficients on $NRC_{Counterfactual}$ are similar to corresponding coefficients on RC . This evidence suggests that IPO companies that are likely to receive outstanding comments according to the regulator's review rationale but did not actually receive outstanding comments exhibit similar post-IPO performance to companies with outstanding comments.

Table 10. Test of alternative explanation: the independent judgement of investors.

	(1) <i>ROACHG</i>	(2) <i>MISSTATE</i>	(3) <i>PATENT</i>	(4) <i>INSIDERSSELL</i>	(5) <i>IPORET</i>	(6) <i>TURNOVER</i>	(7) <i>OFFLINE</i>
Dep Var:	Coef. (t-stat.)	Coef. (z-stat.)	Coef. (t-stat.)	Coef. (t-stat.)	Coef. (t-stat.)	Coef. (t-stat.)	Coef. (t-stat.)
<i>RC</i>	-0.023 (-3.17)***	0.908 (3.59)***	-0.622 (-4.41)***	0.048 (3.17)***	-0.975 (-4.18)***	0.028 (3.35)***	-0.151 (-2.05)**
$NRC_{Counterfactual}$	-0.014 (-1.98)**	0.500 (2.47)**	-0.520 (-2.28)**	0.063 (2.57)**	-0.250 (-1.39)	0.008 (1.28)	-0.035 (-0.59)
<i>Controls</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FE_{YEAR}	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FE_{IND}	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FE_{BOARD}	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FE_{PROV}	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	930	930	930	930	930	930	750
$R^2/Pseudo R^2$	0.209	0.089	0.261	0.153	0.297	0.192	0.442
Coefficient equality test: $NRC_{Counterfactual} = RC$							
F-stat.	4.14**	3.20*	0.18	0.34	11.51***	6.61**	3.34*

***, ** and * represent significance at the 1%, 5% and 10% levels. See the appendix for definition of variables.

¹⁶The mean RC_{PROB} of approved IPO companies actually receiving outstanding comments (0.298) is significantly higher than approved IPO companies without receiving outstanding comments (0.122, t-stat. = 13.74, $p < 0.01$), supporting the validity of our estimation model.

Finally, we include $NRC_{Counterfactual}$ in model (3) to test the alternative explanation. The results in Columns (5) – (7) of Table 10 shows that all coefficients on $NRC_{Counterfactual}$ are not significantly different from zero, while significantly different from corresponding coefficients on RC . Therefore, investors do not react negatively to the 46 counterfactual companies after their listing.

Taken together, results in Table 10 suggest that if regulators do not disclose outstanding comments for approved IPO companies that potentially warrant receiving outstanding comments, investors do not react negatively in a similar way to companies actually receiving outstanding comments. Therefore, the alternative theory towards investors' independent judgement may not explain our main findings.

6.5. Alternative explanation of investor reactions: a labelling effect of the committee on investor perception?

We interpret the previously observed investor reactions as investors focusing on outstanding comments and perceiving the negative valuation signals. However, another alternative explanation of investor reactions is that investors made differential responses to approved IPO companies only because they value the identity of the Committee rather than the review rationale. In other words, there could be a labelling effect of the Committee on investor perception.¹⁷ If this interpretation is valid, we would expect to detect negative investor reactions even if the Committee issues outstanding comments to an IPO company with relatively high intrinsic value.

To examine the above alternative explanation, we split all approved IPO companies receiving outstanding comments into two groups: (1) companies that have higher pre-IPO intrinsic investment value and are closer to receiving a *clean* review opinion according to the regulator's review rationale, and (2) companies that have lower pre-IPO intrinsic investment value and are closer to being rejected according to the regulator's review rationale.

We use approved IPO companies without outstanding comments along with rejected IPO applicants as the estimation sample, and construct a binary logit model with $CLEANPASS$ (indicator variable coded one for approved IPO applicants without outstanding comments, and zero for rejected IPO applicants) as the dependent variable. The explanatory variables are the same as in Table 4. Then, we estimate the probability of an approved IPO company with outstanding comments passing the IPO in a *clean* way based on this model. The higher the estimated probability, the higher is the IPO company's intrinsic investment value according to the regulator's review rationale. Approved IPO companies receiving outstanding comments are split into two groups based on the median estimated probability, with $RC_{CLEANPASS}$ (RC_{REJECT}) coded one for above-median (below-median) group of observations, and zero otherwise.

Then, we replace RC in model (2) with RC_{REJECT} and $RC_{CLEANPASS}$ to examine the differences between the two types of companies' post-IPO performance. The results in Columns (1) – (4) of Table 11 shows that the signs and levels of statistical significance for coefficients on RC_{REJECT} are similar to those on RC . On the other hand, coefficients on $RC_{CLEANPASS}$ are not significantly different from zero, and significantly different from

¹⁷We thank an anonymous reviewer for urging us to test this alternative explanation.

Table 11. Test of alternative explanation: the labelling effect of the Committee.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	<i>ROACHG</i>	<i>MISSTATE</i>	<i>PATENT</i>	<i>INSIDERSSELL</i>	<i>IPORET</i>	<i>TURNOVER</i>	<i>OFFLINE</i>
Dep Var:	Coef. (t-stat.)	Coef. (z-stat.)	Coef. (t-stat.)	Coef. (t-stat.)	Coef. (t-stat.)	Coef. (t-stat.)	Coef. (t-stat.)
RC_{REJECT}	-0.015 (-3.15)***	0.826 (3.41)***	-0.687 (-4.49)***	0.088 (3.31)***	-0.839 (-3.13)***	0.030 (2.23)**	-0.133 (-1.65)*
$RC_{CLEANPASS}$	-0.001 (-0.07)	-0.332 (-0.78)	-0.103 (-0.40)	0.021 (1.31)	-0.791 (-2.88)***	0.021 (2.44)**	-0.116 (-1.44)
<i>Controls</i>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FE_{YEAR}	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FE_{IND}	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FE_{BOARD}	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FE_{PROV}	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	930	930	930	930	930	930	750
R ² /Pseudo R ²	0.208	0.091	0.260	0.151	0.295	0.258	0.441
Coefficient equality test: $RC_{REJECT} = RC_{CLEANPASS}$							
F-stat.	2.96*	6.10**	4.23**	5.04**	0.02	0.38	0.03

***, ** and * represent significance at the 1%, 5% and 10% levels, respectively (two-tailed). See the appendix for definition of variables.

coefficients on RC_{REJECT} . These results help validate the relatively high intrinsic value of the subsample of IPO companies receiving outstanding comments underlying the construct of $RC_{CLEANPASS}$.

Finally, we replace RC in model (3) with RC_{REJECT} and $RC_{CLEANPASS}$. The results in Columns (5) – (7) of Table 11 show that the signs and levels of statistical significance for coefficients on both RC_{REJECT} and $RC_{CLEANPASS}$ are similar to coefficients on RC , and there is no significant difference between the coefficients on RC_{REJECT} and $RC_{CLEANPASS}$. These results suggest that investors tend to rely on the review opinions of the Committee and their negative reactions may not be fully rational to IPO companies receiving outstanding comments but with relatively high intrinsic value, thus supporting the labelling effect of the Committee. Our findings also provide corroborative evidence that investors lack the ability to make independent judgements using regulatory review information, which is consistent with what we find in Section 6.4. Moreover, these results show that it is important for regulators to render reasonable and accurate decisions regarding the issuance of outstanding comments.

6.6. Outstanding comments and long-term stock market performance

We also examine the long-term stock market performance of approved IPO companies that received outstanding comments. We calculate the post-IPO market-adjusted cumulative abnormal returns (CAR) within three years of listing. $CAR_{i,t} = \sum R_{i,t} - \sum R_{m,t}$ where $R_{i,t}$ is the monthly individual stock return considering the reinvestment of cash dividends and $R_{m,t}$ is the monthly market return considering the reinvestment of cash dividends by the equal-weighted average method. Since there are many other disclosures after an IPO company goes public, we acknowledge that it is difficult to extrapolate the impact of disclosed outstanding comments on the long-term investor reactions.

We use CAR_{iMonth} ($i = 6, 12, 18, 24, 30, 36$) as the dependent variable and RC as the explanatory variable. The control variables are consistent with those in model (2). The results in Columns (1) – (6) of Table 12 show that all coefficients on RC are significantly

Table 12. Outstanding comments and long-term stock market performance.

	(1)	(2)	(3)	(4)	(5)	(6)
	CAR_{6Month}	$CAR_{12Month}$	$CAR_{18Month}$	$CAR_{24Month}$	$CAR_{30Month}$	$CAR_{36Month}$
Dep Var:	Coef. (t-stat.)	Coef. (t-stat.)	Coef. (t-stat.)	Coef. (t-stat.)	Coef. (t-stat.)	Coef. (t-stat.)
<i>RC</i>	-0.260 (-2.57)**	-0.250 (-2.42)**	-0.256 (-2.45)**	-0.234 (-2.21)**	-0.246 (-2.23)**	-0.250 (-2.09)**
<i>Controls</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>FE_{YEAR}</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>FE_{IND}</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>FE_{BOARD}</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>FE_{PROV}</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	930	930	929	925	924	890
<i>R²</i>	0.299	0.306	0.303	0.279	0.270	0.297

** represents significance at the 5% level (two-tailed). The numbers of observations in Columns (3)–(6) are slightly reduced because some companies that listed more recently do not have sufficient data on long-term stock price. See the appendix for definition of variables.

negative at the 5% level, indicating that compared with approved IPO companies without outstanding comments, IPO companies with outstanding comments have a significantly lower stock return in the long term after listing. These results are consistent with investors' long-term confidence being weaker in IPO companies with outstanding comments.

7. Conclusion

Since February 2015, the CSRC has not only disclosed all the hearing questions for IPO applicants raised at the Committee meeting, but also disclosed some of those hearing questions that require further disclosure and clarification for part of approved IPO companies *after* the Committee meeting. We are among the first to examine the implications behind such outstanding comments in terms of the pre- and post-IPO performance of approved IPO companies. Evidence shows that outstanding comments disclosed by the CSRC serve as a signal that distinguishes investment value between approved IPO companies. Moreover, investors, particularly institutional ones, appear to perceive the valuation signal.

Our study has implications for investors who should pay more attention to the information of the IPO screening process disclosed by regulators, such as outstanding comments for some approved IPO companies. Our study also has implications for regulators who should improve the IPO disclosures, such as disclosing the outstanding comments in a more salient and identifiable manner, as well as more reasonably choosing approved IPO companies to issue outstanding comments.

One limitation of our study is that we are not able to access to the finalised IPO filings where IPO companies are required to address the outstanding comments. Additional insights may be obtained if issuers' responses to outstanding comments become available.

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Appendix Variable definitions

Variables Definition	
Variable name	Definition
Variables in model (1)	
<i>REGOPN</i>	Indicator variable coded zero if the IPO applicant did not pass the IPO screening process, one if the IPO applicant passed the IPO screening process and received outstanding comments after the Committee meeting, and two if the IPO applicant passed the IPO screening process and did not receive outstanding comments after the Committee meeting.
<i>ABSDA</i>	Average absolute value of discretionary accruals in the two years before listing. Discretionary accruals are calculated with reference to Dechow et al. (1995).
<i>RPT</i>	(Average accounts receivable from related party transactions – average accounts payable from related party transactions)/revenue in the three years before listing.
<i>RPN</i>	Natural logarithm of (one plus) the number of related parties.
<i>REVPPEMATCH</i>	(Average revenue growth rate in the two years before listing – average fixed asset growth rate in the two years before listing)/absolute value of the average fixed asset growth rate in the two years before listing.
<i>ROA</i>	Average return on assets in the three years before listing.
<i>ROAGROW</i>	(Return on assets in the first year before listing – return on assets in the third year before listing)/return on assets in the third year before listing.
<i>ROASD</i>	Standard deviation of return on assets in the three years before listing.
<i>ADMMKTFFEE</i>	Average of the sum of the administration and marketing fee/revenue in the three years before listing.
<i>CUSTOM5</i>	Average percentage of sales to the top five customers in the three years before listing.
<i>SUPPLY5</i>	Average percentage of purchases from the top five suppliers in the three years before listing.
<i>INTASST</i>	Average of intangible assets (excluding land ownership)/total assets in the three years before listing.
<i>TOPHLD</i>	Largest shareholder's ownership × 100.
<i>SANC</i>	Natural logarithm of (one plus) the number of sanctions for misconducts within the three years before listing.
<i>SIZE</i>	Average natural logarithm of total assets in the three years before listing.
<i>LEV</i>	Average debt-to-assets ratio in the three years before listing.
<i>BIGUDW</i>	Indicator variable coded one if the IPO applicant is underwritten by one of the top 10 underwriters ranked by total underwriting revenue in a given year, and zero otherwise.
<i>BIGAUD</i>	Indicator variable coded one if the IPO applicant is audited by one of the big 10 accounting firms ranked by total auditing revenue in a given year, and zero otherwise.
<i>RCRATE</i>	The proportion of approved IPO companies with outstanding comments to all approved IPO companies during the past 12 months.
<i>FE_{YEAR}</i>	IPO review year fixed effects.
<i>FE_{IND}</i>	Industry fixed effects.
<i>FE_{BOARD}</i>	Listing board fixed effects.
<i>FE_{PROV}</i>	Province fixed effects.
Variables in model (2)	
<i>ROACHG</i>	Differences between return on assets in the year before and the year after listing.
<i>MISSTATE</i>	Indicator variable coded one if the IPO company commits financial fraud or restates its financial report within the first year of listing, and zero otherwise.
<i>PATENT</i>	Natural logarithm of (one plus) the number of patent applications within the first year of listing.
<i>INSIDERSSELL</i>	The proportion of shares sold by all executives within the first year of their one-year lockup expiration to total shareholdings before the selling.
<i>RC</i>	Indicator variable coded one for IPO applicants passing the IPO screening process but receiving outstanding comments, and zero for IPO applicants passing the IPO screening process without receiving outstanding comments.
<i>TOTALQ</i>	Number of hearing questions raised at the Committee meeting.
<i>OFFERSIZE</i>	Natural logarithm of new shares issued in the IPO.
<i>FREQ</i>	Natural logarithm of the number of IPOs within the three months before listing.
<i>MKTRET</i>	Average daily return on the China Securities Index 300 within the 90 days before listing.
<i>MKTVOL</i>	Standard deviation of daily returns on the China Securities Index 300 within the 90 days before listing.
<i>VC</i>	Indicator variable coded one if the IPO company is backed by venture capital, and zero otherwise.
<i>SOE</i>	Indicator variable coded one if the controlling shareholder is the government or a state-owned enterprise, and zero otherwise.
Variables in model (3)	
<i>IPORET</i>	(Closing price on the first non-limit day after listing – offering price)/offering price.
<i>TURNOVER</i>	Average turnover rate of the 10 days after listing.
<i>OFFLINE</i>	Offline effective subscription shares/(offline allotment shares × 10,000).
<i>ONLINE</i>	Online effective subscription shares/(online offering shares × 10,000).