Real Effects of the Government Subsidy Accounting Change

Abstract: We analyze the real effects of a 2017 change in accounting standards that permits Chinese firms to recognize government subsidies as part of operating income instead of only recognizing them below the line of operating income. This setting represents a late and standalone adoption of the International Financial Reporting Standards (IFRS) on government subsidies, thus facilitating the causal inference of the impact of the government subsidy accounting rule. Using a difference-in-differences framework around this natural experiment, we find that firms receiving more government subsidies prior to the rule change ("treated" firms) experience significant increases in investment but suffer from lower investment efficiency compared to firms receiving fewer government subsidies ("control" firms). Further analysis reveals that treated firms exhibit significant increases in equity misvaluation post the accounting change, particularly when subsidies are less persistent, retail investor ownership increases, or information environments are more opaque. These firms are also more likely to raise larger amounts of external equity financing following increased misvaluation. Alternative explanations via the learning or contracting channel are unlikely to account for these observed real effects. By demonstrating how a seemingly technical accounting presentation change can distort capital allocation through investor misperception of subsidy persistence, our findings highlight important unintended consequences for standard-setters considering similar IFRS-based subsidy recognition rules globally.

Keywords: Government Subsidy Accounting; Real Effects; Operating Income; Overinvestment; Equity Misvaluation

JEL Classification: M41; M48; H20; G41; G14; G31

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1. Introduction

Government subsidies received by firms are increasingly material, driven by economic shocks like the COVID-19 pandemic and the rise of industrial policies such as the CHIPS Act in both the U.S. and the EU (Kreps and Timmers 2022). These initiatives underscore the strategic importance of subsidies, which account for a significant share of government expenditure and GDP. For instance, across OECD countries, the median value of subsidies and other transfers accounts for 56.3% of total government expenses and 34.9% of GDP in 2020.[1] Despite their growing significance, evidence on the implications of government subsidy recognition for capital markets and corporate behavior remains limited—a gap this study seeks to address through a novel empirical approach.

Specifically, we leverage a unique Chinese setting involving the 2017 change in the accounting standard governing the recognition of government subsidies. While China converged to International Financial Reporting Standards (IFRS) in 2007 (Ball 2016), its government subsidy accounting initially diverged significantly from IAS 20, requiring firms to recognize subsidies below the line of operating income as extraordinary items. The 2017 revision (*Accounting Standard for Business Enterprises No. 16–Government Subsidy*), prompted by practitioners' concerns, allowed firms to recognize subsidies above or below the line, depending on their relation to core operations.[2] This regulatory shift reflects China's late and standalone adoption of the IFRS-based subsidy accounting rule, providing two key empirical advantages for our study.

[1] Data is retrieved from https://data.worldbank.org/indicator/GC.XPN.TOTL.GD.ZS?locations=OE.

[2] Firms can also recognize government subsidies in their balance sheets as deferred income, especially when the subsidies are related to assets. As shown in Panel B of Figure 1, we do not observe discernible changes in the proportion of subsidies being recognized as deferred income following the 2017 accounting rule change.

First, it isolates a standalone accounting rule change from a bundle of concurrent changes. Unlike other jurisdictions where IFRS adoption involved simultaneous changes to a set of accounting rules, China's 2017 revision specifically targeted government subsidy recognition. This isolated change enables us to establish stronger causal links between subsidy accounting and firm outcomes. Second, the new recognition rule for government subsidies carries significant implications for countries that have adopted or are considering convergence with IFRS. While the Financial Accounting Standards Board (FASB) is currently working to integrate IAS 20 into U.S. GAAP (Lugo 2024), the existing U.S. standard (*Topic 832–Government Assistance*) prioritizes disclosure over recognition. Furthermore, studies indicate that U.S. firms significantly under-disclose subsidy information (Desir, Pfeiffer, and Roberts 2000; Hess and Mills 2024; Jiao et al. 2024), likely due to the absence of a formal recognition rule.[3,4] This stark contrast highlights the empirical advantages of studying the Chinese context, where an IFRS-aligned recognition rule is already implemented.[5]

Empirically, we utilize a difference-in-differences (DiD) framework to estimate the causal impact of the government subsidy accounting change on corporate investment. The DiD design helps mitigate the potential concern that increased government subsidies, rather than the underlying accounting rule change, drive the documented investment effect. As the change in the accounting rule applies to all listed firms, we follow the previous literature (e.g., Aretz, Campello,

[3] On November 19, 2024, the FASB issued a proposed Accounting Standards Update, titled "Government Grants (Topic 832)—Accounting for Government Grants by Business Entities." This proposal, which aligns with IAS 20, aims to ensure that both income-related grants and asset-related grants (when the deferred income approach is elected) would be recognized in earnings on a systematic and rational basis over the periods in which the related costs, intended to be compensated by the grant, are recognized as expenses by the business entity. For further details, see https://www.fasb.org/projects/current-projects/projects-history/accounting-for-government-grants-400612.

[4] For a detailed comparison of accounting rules for subsidies, refer to Panel A of Appendix 1.

[5] Panel B of Appendix 1 provides an example of the government subsidy reporting before and after the accounting rule change in China. It also provides the breakdown of government subsidies recognized as other operating income in the income statement after the rule change.

and Marchica 2020; Ma and Thomas 2023) and define treated (control) groups as firms with the top (bottom) tercile of average government subsidies pre-rule change. Regarding the estimation window, we focus on a time window three years before (i.e., 2014-2016) and five years after the accounting rule change (i.e., 2017-2021) to allow for evaluating the accounting impact over a longer time horizon. We find that post the rule change, firms that receive more government subsidies before the accounting rule change experience significantly higher investments compared to their peers receiving lower amounts of government subsidies. The economic magnitude is nontrivial. When evaluated at sample standard deviation, the accounting rule changes are associated with a 7.75% to 13.99% increase in corporate investment, depending on model specifications. The results are robust to alternative ways of defining treated vs. control groups, an alternative model specification, alternative measures of key test variables, and placebo tests.

We next explore the underlying mechanism that contributes to the observed increase in investment. While prior literature on the real effects of accounting changes examines the learning channel (via managerial information acquisition) and debt contracting channel (via covenant and financial constraint) (Shroff 2017; Chen, Correia, and Urcan 2023a), we propose that equity misvaluation represents a unique channel driving the real changes among our sample firms.

The relocation of government subsidies in the income statement—from below to above the line—likely exacerbates investors' perception of subsidy persistence despite the inherently uncertain nature of subsidies. This is particularly relevant in the context of China's large retail investor base.[6] The extended functional fixation perspective indicates that retail or less sophisticated investors struggle to fully interpret the information content of accounting data, often

[6] For example, one investor opined on an investor interaction platform: "*While it does not affect net income, it significantly influences operating income. Those unfamiliar with accounting may mistakenly believe that the company has suddenly made substantial profits.*"

failing to discern the true cash flow implications of reported figures (Hand 1990). As a result, when subsidies are recognized above the line, investors may overextrapolate their persistence, misinterpreting transitory gains as indicators of sustained performance.[7] Equity misvaluation may thus arise, which can drive an increase in corporate investment, as managers are incentivized to cater to the preference of marginal investors who favor higher investment and sales growth to justify equity overpricing (Polk and Sapienza 2009). In contrast, while the recognition of government subsidies above the line artificially increases operating income, managers, as insiders, may not derive significant new information relevant to corporate investment decisions from the accounting rule change. Additionally, if financial constraints are not alleviated—for instance, if lenders do not incorporate government subsidies into their assessments of credit risk—the regulatory change may have a limited impact on firms' access to debt capital and investment. Thus, from a conceptual perspective, the learning and contracting channels appear insufficient to explain the real effect of the accounting change. Nonetheless, in the additional analyses, we explicitly test the plausibility of these two alternative explanations.

Empirically, we find that firms receiving higher amounts of government subsidies before the accounting rule change exhibit significantly greater equity misvaluation compared to their peer firms that receive lower subsidies. Depending on the model specification, the accounting rule change results in an 8.26% to 8.98% increase in equity misvaluation, evaluated at the sample's standard deviation. Furthermore, the increase in treated firms' investment is more pronounced for firms experiencing higher levels of misvaluation. These findings support equity misvaluation as a key channel driving the post-regulatory change increase in corporate investment.

[7] This perspective aligns with Hirshleifer and Teoh (2003), who show that investors with limited attention tend to focus disproportionately on salient information (such as accounting items above the line).

We further conduct cross-sectional tests to examine the effects of the accounting rule change on corporate investment and equity misvaluation across three dimensions: the persistence of government subsidies, changes in shareholder composition, and firms' information environments. First, we hypothesize that less persistent or highly uncertain government subsidies, such as R&D-related subsidies, would lead to greater equity misvaluation, as investors tend to fixate on core earnings without adequately accounting for the inherent uncertainty of subsidies. Second, we investigate whether firms experiencing substantial increases in retail investor shareholdings exhibit more pronounced effects, as retail investors typically have shorter investment horizons and limited attention and processing capability of financial disclosure. These shorter horizons increase trading around public signals, amplifying equity mispricing (Cremers, Pareek, and Sautner 2021) and managerial catering (Polk and Sapienza 2009), ultimately intensifying corporate investment activity. Finally, we explore the role of firms' information environments, positing that firms with weaker information transparency face greater difficulty in evaluating the persistence of government subsidies. This opacity exacerbates equity misvaluation following the accounting rule change (Huang 2022; Pappas et al. 2024). Our evidence shows that the impact of the rule change on corporate investment and equity overvaluation is amplified for less persistent subsidies, increased retail investor ownership, and poorer accruals quality. These heterogeneity results align with and reinforce our equity misvaluation-driven narrative.

Since increases in corporate investment likely reflect managerial catering to investors rather than an increase in genuine investment opportunities, we hypothesize that increased investment by treated firms would correspond to lower investment efficiency (Polk and Sapienza 2009). Our results align with this prediction: the deterioration in investment efficiency is more pronounced for treated firms experiencing greater misvaluation after the accounting rule change.

Additionally, we observe that treated firms experiencing increased equity misvaluation are more likely to raise external equity financing and secure significantly larger amounts of funds. This result is consistent with the broader narrative that firms facing overvaluation are inclined to raise more external equity financing, thereby fuelling overinvestment (Jensen 2005; Dong, Hirshleifer, and Teoh 2012).

Finally, we examine the plausibility of the learning and debt contracting channels as alternative explanations for the observed increase in investment. Under the new accounting rule, managers are required to determine whether government subsidies are closely related to their core business operations to classify them as operating income. If managers base future corporate investment decisions on reported operating income, the resulting increases in operating income after the rule change could potentially lead to higher investment. Additionally, the relocation of government subsidies above the line may relax firms' financial constraints, indirectly promoting increased corporate investment. To rule out the alternative explanations, we employ a co-movement measure related to the learning channel that reflects managerial reliance on operating income, and the extent of financial constraints related to the debt contracting channel. However, our analyses suggest that neither the learning channel nor the debt contracting channel plausibly accounts for the observed increase in corporate investment following the regulatory change.

Our study makes several contributions to related literature. First, our study contributes to the government subsidy accounting rule-making. We primarily show that allowing government subsidies to be recognized as core earnings (i.e., operating income) induces firms' investment inefficiency and likely market inefficiency. Both Lee, Walker, and Zeng (2014) and Drake et al. (2022) show that government subsidies are value-relevant. Our findings complement prior literature by suggesting that investors and corporate executives might overestimate the persistence

of government assistance as a steady income source. Given the significance of government subsidies across countries, the evidence on the consequences of the government subsidy accounting rule is timely and relevant for investors, practitioners, as well as policymakers in both developed and emerging markets.

Second, we further analyze specific channels to clarify the effects of government subsidy accounting changes on firms' investments. In contrast to the possible learning and contracting channels (Shroff 2017; Chen et al.2023a), our findings indicate that equity misvaluation emerges as a robust and credible channel. While previous studies have examined equity misvaluation broadly through accruals and its impact on investment (Polk and Sapienza 2009; Dong et al. 2012, 2021), our study uniquely addresses the effects of equity misvaluation within the specific context of the government subsidy accounting rule change. Thus, the findings in the study enrich our understanding of the driving forces underlying the real impact of changes in accounting standards.

Third, our study also complements the evidence from the income statement placement literature (McVay 2006; Bartov and Mohanram 2014; Luo, Shao, and Zhang 2018).[8] The evidence presented in the study contributes to our understanding of (retail) investors' use of government subsidy information that varies depending on the income statement placement, given their limited attention and information processing capabilities (Barber and Odean 2008; Blankespoor et al. 2019; Blankespoor, DeHaan, and Marinovic 2020; Gao et al. 2022).[9]

[8] While both our study and Luo et al. (2018) discuss the impact of placing certain line items above or below operating income in the Chinese regulatory setting, the two studies differ in the following two significant ways. First, Luo et al. (2018) delve into the earnings management implication of firms' investment income, while our study examines the real impacts of the government subsidy accounting rule change. Second, Luo et al. (2018) analyze a setting involving the IFRS convergence in China, where multiple accounting rule changes occurred during their study period. In contrast, our research focuses specifically on the effects of government subsidy accounting rule changes, allowing us to isolate their impact on firms and investors.

[9] One might question the generalizability of the study's findings, given the prominence of retail investors in the Chinese market. However, evidence from U.S.-based studies suggests that retail investor participation is also significant. For instance, Iselin, Johnson, and Raleigh (2024) report approximately 20% retail ownership in their sample from 2005 to 2014.

The remainder of the paper is organized as follows. We introduce the institutional background and develop the hypotheses in Section 2 and present the research design in Section 3. Sections 4-5 discuss the empirical results and additional analyses. Section 6 concludes.

2. Institutional Background and Hypothesis Development

2.1 Government Subsidies in China

With the global resurgence of industrial policies (The Economist 2022), government subsidies have become increasingly significant. In China, firms apply for subsidies from both central and local governments, with state-owned enterprises (SOEs) and firms with political connections more likely to receive favorable outcomes (Lee et al. 2014; Feng, Johansson, and Zhang 2015). Upon receiving the subsidies, firms typically make announcements and subsequently recognize the subsidies in their financial statements.[10] These subsidies can generally be categorized into the following areas (Branstetter, Li, and Ren 2023): R&D and innovation, industrial and equipment upgrading, employment stabilization and promotion, environment protection, general business, and others. Among these, R&D and innovation subsidies tend to be less persistent than non-R&D subsidies, as the benefits of R&D often require long-term investments and may not align with short-term political priorities (Boeing 2016). Furthermore, the allocation of R&D subsidies is subjective and influenced by shifts in technological trends or economic constraints (Fang et al. 2023).

Over time, an increasing number of publicly listed Chinese firms received government assistance over the period of 2010-2021 (see Panel A of Figure 1), consistent with the more than sevenfold increase in subsidies to Chinese listed companies from 2007 to 2018, as reported by

[10] Here is an example of an announcement released by the firm receiving government subsidies (in Chinese): http://www.cninfo.com.cn/new/disclosure/detail?orgId=gssh0600006&announcementId=1222090925&announcementTime=2024-12-21.

Branstetter et al. (2023). By 2021, the average government subsidy grant reached approximately 90 million RMB (or U.S. $13.95 million). This sustained increase in government subsidies to Chinese firms mirrors global trends and underscores China as an ideal setting to examine the accounting rules governing subsidies.

2.2 Accounting for Government Subsidies

Despite the global significance of government subsidies, a standardized approach to government subsidy reporting remains elusive. This lack of uniform guidance results in varied practices concerning the recognition and disclosure of government assistance. The divergence in reporting practices across nations makes assessing the implications of different accounting rules on equity valuation and their real effects challenging. Firms tend to voluntarily adopt rules that they perceive as beneficial, complicating the evaluation of these practices. A mandatory change in accounting standards would ideally provide a clear basis for the evaluation of accounting rules for government subsidies, but such instances are rare.

In jurisdictions following the IFRS, particularly IAS 20, there have been no substantial changes since its inception by the International Accounting Standards Board (IASB). In the U.S., the relevant rule, *Topic 832–Government Assistance*, predominantly addresses the disclosure of government subsidies and is a relatively recent development.

In contrast, China's amendment of its accounting standards in 2017, specifically regarding government subsidies, presents an ideal laboratory to evaluate the impact of accounting rules on equity valuation and real effects. While China converged to IFRS in 2007 (Ball 2016), its approach to government subsidy accounting remained markedly different. Previously, Chinese firms could only recognize government subsidies as extraordinary items placed below the line of operating income in the income statement. This method starkly contrasts with the options under IAS 20,

where flexibility in recognition is more pronounced. In particular, government subsidies recognized in income statements could be either above or below the line under IFRS.

The 2017 revision by China's Ministry of Finance, under *Accounting Standard for Business Enterprises No. 16–Government Subsidy*, was partly in response to feedback from practitioners who argued that certain subsidies, being integral to a firm's operations, should not be relegated to extraordinary items. This rule change mainly regulates the recognition of government subsidies in the income statement.[11] Specifically, before the rule change, the government subsidies recognized in the income statement were all recognized as extraordinary items. After the regulation reform, the government subsidies related to daily activities should be included in other income or used to offset related costs. Government subsidies unrelated to the daily activities should still be recognized as extraordinary items. In other words, firms gained the discretion to recognize government subsidies either above or below the operating income line post the rule change, treating them as other operating income if recognized above the line. This shift essentially aligns China's practices closer to the IFRS framework, albeit belatedly. Panel A of Appendix 1 provides a comparison of the accounting standards for government subsidies across multiple jurisdictions. Panel B of Figure 1 shows a spike in government subsidies being recognized as other operating income after 2016.

[Insert Figure 1 here]

This 2017 accounting change in China, acting as an exogenous shock, provides a unique setting to empirically test the real effects of such changes. Unlike broader transitions to IFRS in other countries, which involved comprehensive overhauls, China's isolated amendment allows for

[11] This rule change also regulates the recognition of government subsidies in the balance sheet. Before the rule change, government subsidies were all recognized as deferred income. After the rule change, firms can either recognize government subsidies as deferred income or offset the book value of related assets.

a more precise analysis. It offers an ideal scenario to isolate the impact of this specific accounting change, minimizing the confounding effects of simultaneous switches in multiple accounting rules.

2.3 The Impact of Government Subsidy Accounting Change on Firms' Investment

To develop the hypothesis of whether and how the accounting change of government subsidies affects firm investment, we rely on two distinctive characteristics of government subsidies. First, firms normally cannot arbitrarily determine the timing and amount of government grants. Second, agreements with governments related to government grants may not always be "legally enforceable" in the same way as commercial contracts.[12] These two salient features make income associated with government subsidies inherently uncertain and less persistent.

When the regulatory change allows firms to reclassify parts of government subsidies from below the line to above the line, investors may overestimate the persistence of the affected government subsidies and assign a higher valuation to such firms. The act of classifying subsidies as operating income may implicitly signal management's belief that these subsidies are recurring, despite their inherently uncertain nature. This misperception is likely exacerbated by investors' fixation on core earnings (McVay 2006; Fan et al. 2010). This tendency may be particularly pronounced in China's retail investor-dominated stock market (Lee and Zhong 2022), where retail investors, due to the lack of financial expertise, limited information-processing capabilities, and shorter investment horizons (Jones and Shoemaker 1994; Maines and McDaniel 2000), may

[12] To verify the notion of the lack of legally enforceable agreements with governments, we confirm that the persistence of firms' government subsidies in China varies with provincial governance quality. An untabulated analysis reveals that subsidies are less persistent in regions with lower marketization levels, a proxy for governance quality (Chen et al. 2020). Similar concerns about subsidy uncertainty are noted in the U.S., where Intel Corp. reported receiving $1.1 billion in CHIPS Act grants but maintained a steady 2025 capital expenditure forecast of $8-11 billion due to uncertainties in the timing of U.S. government commitments (https://www.reuters.com/business/intel-forecasts-second-quarter-revenue-below-estimates-fanning-tariff-worries-2025-04-24/). Likewise, Wolfspeed, Inc. faced risks of losing government subsidies, as its CHIPS Act grant—the largest not finalized before the Biden administration's exit—was vulnerable to changes in U.S. policy (https://www.reuters.com/technology/chipmaker-wolfspeeds-shares-plunge-over-45-27-year-low-2025-03-28/).

amplify misperceptions of subsidy persistence. Anecdotal evidence further suggests that retail investors pay close attention to government subsidies and react strongly to changes in operating income.[13] Given the above reasoning, we expect an increase in equity misvaluation following the accounting rule change. Managers, incentivized to cater to investors' demand for overvalued equity, are likely to increase both corporate investment and external financing to sustain the overvaluation (Jensen 2005; Polk and Sapienza 2009; Dong et al. 2012, 2021). This dynamic creates a feedback loop where misvaluation drives real decisions (investment and financing) that temporarily support the overvaluation but ultimately lead to inefficient capital allocation. Thus, we posit that the change in government subsidy accounting could increase corporate investment through the equity misvaluation channel.[14]

In addition to the equity misvaluation channel, we recognize two other potential channels—learning and contracting—highlighted in prior literature, which suggest that changes in GAAP can influence corporate investment (Shroff 2017; Chen et al. 2023a).

First, the learning channel suggests that accounting changes related to government subsidies prompt managers to acquire and process new information, thereby affecting their subsequent investment decisions (Shroff 2017; Chen et al. 2023a). Management accounting systems for internal decision-making are closely linked to financial accounting systems used for external reporting (Kaplan 1984; Zimmerman 2008; Dichev et al. 2013). Managers may use updated operating income figures to estimate future cash flows and the net present value (NPV) of potential investments. As operating income is a critical parameter in capital budgeting (Dutta

[13] We observe an increase in investor attention to government subsidies after the accounting rule change. We find the number of questions related to government subsidies on two investor interaction platforms (Shenzhen Stock Exchange's "Hudongyi" and Shanghai Stock Exchange's "eHudong") increased by 20.37% in 2017 compared to 2016, using government subsidies ("补助/补贴"), deferred income ("递延收益"), and other income ("其他收益") as keywords.

[14] While it is possible that managers opportunistically shift certain government grant items to core earnings following the accounting rule change in 2017, we are agnostic about that possibility in this study.

2003), the increased operating income resulting from the accounting rule change could lead managers to increase corporate investment. However, managers, as insiders, often have access to more detailed and timely internal information, and thus they may not derive significant new information relevant to the corporate investment decision from the accounting rule change.

Second, the debt contracting channel emphasizes the role of core earnings (i.e., operating income) in financial covenants, which lenders use to assess credit risk (Christensen and Nikolaev 2012; Shroff 2017). By allowing firms to recognize government subsidies as part of operating income, the new accounting rule may lead to more favorable debt covenant terms and reduce the likelihood of covenant breaches. This could, in turn, make debt capital more accessible to firms, enabling them to fund growth opportunities and increase corporate investment (Chava and Roberts 2008). However, if lenders exclude government subsidies from their credit risk assessments, the regulatory change may fail to improve firms' access to debt capital, alleviate financial constraints, or stimulate investment.

To conclude, while the three channels—misvaluation, learning, and contracting—represent distinct mechanisms, the misvaluation channel appears to be the most plausible ex-ante explanation for the observed effects. Nevertheless, all three channels predict an increase in investment following the change in accounting rules for government subsidies. Based on the above reasoning, we propose the following directional hypothesis:

Hypothesis: Compared to control firms, treated firms have higher investments following the government subsidy accounting change.

Our empirical strategy will first test this primary hypothesis and then examine which channel most plausibly explains any observed investment effects.

3. Research Design

3.1 Sample Selection

We retrieve firm-level financial and accounting data from the China Securities Market and Accounting Research (CSMAR) database. We start with all the listed firms in the Chinese A-share market between 2014 and 2021. The sample for the corporate investment tests starts in 2014 because we intend to exclude the potential confounding impact of another accounting rule change in 2014 that requires government subsidies to be recognized as a separate line of deferred income in the balance sheet. As the government subsidy accounting change took place in 2017, the pre-event period is from 2014 to 2016 (three years), and the post-event period is from 2017 to 2021 (five years).[15] Note that we allow more sample years in the post-event period to better map out the trend over a longer horizon for a fuller examination of the dynamic effect due to the accounting rule change. We then eliminate the following firms from the sample: (1) firms in the financial industry, (2) firm-year observations with missing data, (3) firms receiving no government subsidy during the sample period, (4) firms that do not meet the requirement of having at least one firm-year observation in each of the pre- and post-event periods, and (5) firms outside of the treated or control groups. Our final full sample for the investment test comprises 14,192 firm-year observations from 1,835 unique firms (917 treated firms and 918 control firms). We report the sample selection procedure in Appendix 2. To mitigate the concern that covariate imbalance between treated and control groups would violate the parallel-trend assumption, we also construct the propensity score-matched (PSM) sample for the capital (labor) investment test with 12,477 (12,134) firm-year observations.[16] For each year, all continuous variables are winsorized at the 1st and 99th percentiles to alleviate the effect of outliers on our analyses.

[15] Results remain similar (untabulated) if we limit the post-event period to 2019 (i.e., the year before the COVID-19 pandemic).

[16] We estimate a logit model of the treated firm indicator on firm size (*Size*), sales growth (*SG*), operating cashflow (*CFO)*, firm age (*Age*), and industry fixed effects, using data from the pre-change year (i.e., 2016) for the capital (or

3.2 Empirical Model

We estimate the following difference-in-differences (DiD) model to test the impact of the government subsidy accounting change on corporate investment:

$$Invest_{i,t+1} = \alpha_0 + \alpha_1 PostChange_{i,t} + Controls_{i,t} + Firm\ FE + Industry \times Year\ FE + \varepsilon_{i,t} \quad (1)$$

In model (1), *Invest* is firm *i*'s investment in year *t*+1, measured by capital expenditure (*CapInvest*) or labor investment (*LaborInvest*).[17] We consider both labor and capital investments because they are complements (Lester 2021). First, following Polk and Sapienza (2009), *CapInvest* is defined as the capital expenditure in year *t*+1 scaled by the net property, plant, and equipment at the end of year *t*, whereas the capital expenditure is defined as the change in net property, plant, and equipment from year *t* to year *t*+1. Second, we define *LaborInvest* as the change in the number of employees from year *t* to year *t*+1, scaled by the number of employees in year *t*.

Our identification strategy exploits variation in firms' exposure to the accounting rule change based on their pre-change subsidy levels. The treatment effect should be more pronounced for firms receiving larger government subsidies prior to the rule change, as these firms have more subsidy income that could be reclassified as operating income.

Specifically, we first split our sample based on the terciles of average government subsidies recognized in the income statement (scaled by total assets) during the years prior to the accounting rule change (i.e., 2014 to 2016). We then designate the top tercile as the treated group and the bottom tercile as the control group. This identification strategy follows the convention in the

labor) investment analyses. We then match each firm from the average government subsidies-to-total assets ratio during 2014-2016 in the top tercile (i.e., treated firms) to a unique firm with a similar investment level from the bottom two terciles based on the propensity score with the caliper width of 0.01 (without replacement). To ensure comparability in investment levels, we stratify the sample into terciles by capital (or labor) investment levels and then conduct matching within each group.

[17] We consider alternative definitions of corporate investment in Section 5.4.

previous literature (Vig 2013; Campello and Larrain 2016; Aretz et al. 2020; Ma and Thomas 2023). We, therefore, exploit the pre-rule-change variation in the amount of government subsidies and conduct DiD tests around the accounting rule change.[18] *PostChange* is an indicator variable that equals one if the firm is from the treated group in the post-accounting change period (i.e., 2017-2021), and zero otherwise.

To control for confounding observables, we include a battery of control variables potentially impacting firms' investment decisions (e.g., Kausar, Shroff, and White 2016; Chen et al. 2023a). The vector of control variables includes firm size (*Size*) and sales growth (*SG*) to control for firms' growth opportunities, cash flow from operating income (*CFO*) to control for firm profitability, and firm age (*Age*) to control for different stages of firms' life cycles. Appendix 3 defines the variables in detail. To control for firm-level time-invariant unobserved confounding factors, we include firm fixed effects. In addition, we include industry×year fixed effects to control for the time-varying industry-specific shocks (such as industrial policies).[19] We cluster standard errors at the firm level to mitigate the potential issue of within-firm dependence in the error term. A positive (negative) and significant coefficient of α_1 indicates an increase (decrease) in the treated firm's investment following the accounting rule change compared to control firms, while an

[18] To address concerns that treated firms—those receiving higher levels of government subsidies in the pre-period—might receive substantially lower subsidies following the accounting rule change, we examine the trend of subsidy receipts over the sample period. We show that the amounts of government subsidies received by treated firms remain elevated after the accounting rule change, whereas control firms continue to receive significantly fewer amounts of government subsidies throughout the sample period (untabulated). Another concern is that treated firms receiving higher levels of subsidies might recognize a smaller proportion of those subsidies as other incomes, rendering such firms materially affected by the accounting change. Partitioning the sample into quartiles based on subsidies scaled by total assets, we compare both the likelihood and proportion of subsidies recognized as other incomes. Untabulated results show that firms receiving higher levels of subsidies are more likely to recognize them as operating income and in a greater proportion relative to total subsidies received. These findings further support the validity of our empirical identification strategy.

[19] Industries are classified based on the China Securities Regulatory Commission (CSRC) industry classification scheme, using the 3-digit code for the manufacturing industry (C13-C42) and 1-digit code for other industries.

insignificant coefficient indicates no discernible change in treated firms' investment relative to control firms.

4. Empirical Results

4.1 Descriptive Statistics

Panel A of Table 1 presents descriptive statistics for the main variables used in the investment test. The mean and median of capital expenditure (*CapInvest*) are 0.166 and 0.002, respectively, while for labor investment (*LaborInvest*), the mean is 0.065, and the median is 0.003.[20] About 32.1% of the treated group falls within the post-change period, and the average amount of government subsidies recognized in income statements, scaled by total assets, is 0.6% (equivalent to 33.6 million RMB). On average, firm size, measured by the natural logarithm of total assets, is 22.448 (corresponding to 5.6 billion RMB), and the average sales growth of sample firms is 18.0%. Operating cash flow represents, on average, 4.9% of total assets, and the average firm age is 2.486 in the natural logarithm (or 12 years since the listing of a firm). Panel B of Table 1 presents the differences in means of covariates between the pre- and post-PSM samples in the pre-event year (i.e., 2016). For example, while treated firms are significantly smaller than control firms before the match (p-value<0.01), such a difference disappears after the match (p-value=0.520 or 0.912). The insignificant difference across various dimensions of covariates after the match suggests that our matching procedure effectively minimizes the potential covariate imbalance.

[Insert Table 1 here]

4.2 Baseline Results

4.2.1 Government Subsidy Accounting Change and Corporate Investment

[20] The slight reduction in observations for *LaborInvest* is due to some missing employee data for some firms.

Table 2 reports the regression results concerning the hypothesis test, using the full and matched samples for investment, respectively. Using the two alternative measures of one-year-ahead corporate investment as the dependent variable, we observe that the coefficients on *PostChange* are 0.108 (p-value<0.01) and 0.047 (p-value<0.05) for the full sample (columns (1) and (2)), respectively. In terms of the economic magnitude, we find that the effect ranges from 11.75% (column (1)) to 13.99% (column (2)) when evaluated at the sample standard deviation. The magnitude of the change in capital investment aligns with Chen et al.(2023a), who report a 13.9% decrease in capital expenditure following the adoption of the lease-capitalization rule. Similarly, the coefficient magnitude for our labor investment test is consistent with Chen et al.(2023a), who show a 13.6% reduction in employment after the adoption of the lease capitalization rule. The magnitude of labor investment in our study is also comparable to findings in other studies (e.g., Bena et al. 2017; Chen et al. 2023b). Although these studies focus on different contexts, the similarity in economic magnitude provides additional confidence that our findings on corporate investment are economically significant.

We repeat the tests using the PSM sample. Again, we observe a significant increase in corporate investment for treated firms after the change in the accounting rule. Specifically, the coefficients on *PostChange* are 0.065 (p-value<0.05) and 0.031 (p-value<0.05) in columns (3) and (4), with a slightly smaller economic magnitude: 8.42% for capital expenditure and 7.75% for labor investment. Furthermore, the coefficients on the control variables are also consistent with those documented in prior research. For example, the coefficients on firm size (*Size*) are negative, while the coefficients on sales growth (*SG*) are positive, consistent with previous literature (Kausar et al. 2016). Overall, the evidence from Table 2 lends support to the hypothesis that treated firms experience increased investment following the government subsidy accounting change.

[Insert Table 2 here]

4.2.2 Trend Analysis of Corporate Investment

One important identifying assumption for the DiD model is that treated and control firms follow parallel trends prior to the accounting rule change. To assess such an assumption, we perform a trend analysis regarding the effect of the accounting rule change on corporate investment. Using the year 2016 as the baseline, Table 3 presents the differential treatment effects across the years for the full sample (columns (1) and (2)) and the matched sample (columns (3) and (4)), respectively. For both the full and matched samples, the results show that the firm-level investment is not statistically significantly different between the treated and control groups before the rule change, suggesting that the parallel-trend assumption is not violated. Moreover, the results for full sample show that the treatment effect occurs from the years 2019 (t+2) to 2021 (t+4) and exhibits a slight reversal in the year 2021 (t+4). These results suggest that treated firms experience increases in firm investment after the change in government subsidy accounting standards relative to control firms. We note that the investment effect first increases from year t+2 and somehow decreases towards the end of the sample period. Panels A and B of Figure 2 provide the trend plots for the two proxies of corporate investment, which are consistent with the above observations.

[Insert Figure 2 and Table 3 here]

4.3 Channel Analyses

We now examine whether the government subsidy accounting change affects corporate investment through the misvaluation channel, which theoretically is the most plausible explanation.

4.3.1 Changes in Equity Misvaluation Around the Rule Change

We first investigate whether firms actually experience equity overvaluation after the change in government subsidy accounting. Using equity misvaluation (*Misv*) as the dependent variable, we estimate the following model:

$$Misv_{i,t} = \beta_0 + \beta_1 PostChange_{i,t} + Controls_{i,t} + Firm\ FE + Industry \times Year\ FE + \varepsilon_{i,t} \quad (2)$$

In model (2), *Misv* is the measure of equity misvaluation following Rhodes-Kropf and Viswanathan (2004) and Rhodes-Kropf, Robinson, and Viswanathan (2005), with the estimation detailed in Appendix 4. The measure essentially captures the extent to which the observed market value of the firm deviates from its intrinsic value as predicted by the firm fundamentals (e.g., net income and leverage). *PostChange* is defined in the same way as in model (1). A positive (negative) and significant coefficient of β_1 would indicate equity overvaluation (undervaluation), while an insignificant coefficient would suggest no misvaluation. To control for confounding observables, we include a battery of control variables that potentially impact the equity valuation of firms. The vector of control variables includes firm size (*Size*), firm leverage (*Lev*), return on equity (*ROE*), cash holding (*Cash*), the market-to-book ratio (*M/B*), share turnover (*Turnover*), CEO duality (*Dual*), the percentage of independent directors (*Indep*), largest shareholders' holdings (*Tophold*), institutional ownership (*Insthold*), and state ownership (*SOE*). Appendix 2 reports the sample selection procedure for the misvaluation sample, and Appendix 3 defines all the variables above.

Panel A of Table 4 presents the descriptive statistics for the measure of misvaluation (*Misv*) as well as the control variables in model (2). The mean and median of misvaluation (*Misv*) are 0.017 and -0.023, respectively, both close to zero as this measure captures the extent of misvaluation relative to industry peers, consistent with previous studies (Rhodes-Kropf et al. 2005; Adebambo and Yan 2018).

Panel B of Table 4 shows the results estimated from the DiD model (2) using the full and PSM samples for misvaluation. The coefficients on *PostChange* are 0.050 (p-value<0.01) for the full sample and 0.046 (p-value<0.01) for the matched sample, respectively. Regarding the economic magnitude, we find that the equity misvaluation effects are 8.98% for the full sample and 8.26% for the matched sample when evaluated at the sample standard deviation. Thus, the results suggest that treated firms, relative to control firms, boost equity overvaluation by around 9% after the change in the accounting rule for government subsidies.

[Insert Table 4 here]

Figure 2, Panel C provides a visual representation of the trend in equity misvaluation around the accounting change. The parallel pre-trends and the divergence after the rule change support the parallel-trend assumption. Importantly, the temporal pattern of this misvaluation closely mirrors the pattern of investment increases documented in Figure 2, Panels A and B, suggesting a potential causal link between the two phenomena. [21]

4.3.2 Equity Misvaluation as one Channel for the Increase in Firm Investment

Having established the increase in equity overvaluation by treated firms, we calculate the change in equity misvaluation ($\Delta Misv$) for each firm and partition treated firms into two subsamples (positive vs. negative) based on the sign of this measure. If our treatment effect is driven by the misvaluation channel, we anticipate treated firms experiencing increased equity misvaluation ($\Delta Misv>0$) are more likely to raise firm-level investment, compared with firms experiencing reduced equity misvaluation ($\Delta Misv<0$). Panel C of Table 4 presents the results. When the dependent variable is capital expenditure (*CapInvest*) in column (1), the coefficient on

[21] Untabulated results show that treated firms do not experience significant changes in analyst forecast errors or institutional equity ownership. These results suggest that retail investors, rather than sophisticated investors, likely drive the equity overvaluation after the change in the accounting rule.

PostChange_Pos_ΔMisv (0.218, p-value<0.01) is larger than that on *PostChange_Pos_ΔMisv* (0.096, p-value<0.01) and the coefficient difference is statistically significant (p-value=0.018). We obtain similar results and a more significant coefficient difference (p-value=0.001) when using labor investment (*LaborInvest*) to measure investment in column (2). Thus, the evidence supports our hypothesis that increases in firm investment are driven, at least in part, by the misvaluation channel.

4.4 Heterogeneity in the Increase in Corporate Investment and Misvaluation

In this section, we further perform cross-sectional tests on the effect of the accounting rule change on corporate investment and equity misvaluation across three dimensions along which the regulatory change is more likely to induce misvaluation and the ensuing increased investment, including the persistence of government subsidies, changes in investor horizon, and firms' information environment around the change in accounting rules.

In the first test, we contend that less persistent or highly uncertain government subsidies would result in more misvaluation as investors fixate on core earnings without properly recognizing the uncertain nature of government subsidies. Through the equity misvaluation channel, less persistent government subsidies would lead to high investment among treated firms. The awarding of R&D subsidies is inherently uncertain due to the high failure rate of R&D activities and the rapid pace of technological changes. Moreover, the future cash flows generated from the subsidized R&D activities are highly unpredictable because of the inherent uncertainties associated with R&D processes. Therefore, we expect that firms that receive a higher proportion of R&D subsidies face greater cash flow uncertainty and are more susceptible to misvaluation by the investors who fixate on core earnings.[22] To operationalize the test, we partition firms into two

[22] We test the persistence of R&D subsidies and non-R&D subsidies following Sloan (1996), using a similar method described in Section 5.2. Consistent with our expectation, untabulated results show that non-R&D subsidies exhibit

subsamples (high vs. low) based on the sample median of the average proportion of R&D subsidies in total subsidies (*R&D_Sub*) in the pre-change period. Intuitively, firms receiving a higher proportion of R&D subsidies exhibit more uncertainty about the persistence of earnings related to government subsidies.

Panel A of Table 5 reports cross-sectional tests according to the nature of government subsidies. The differential impacts on firms' capital and labor investments are shown in columns (1)-(4), in which the coefficients on *PostChange* are positive and significant for firms receiving a higher proportion of R&D subsidies, while the coefficients become either insignificant (in column (2)) or marginally significant (in column (4)) for firms receiving a lower proportion of R&D subsidies. When equity misvaluation is the dependent variable, column (5) of Panel A shows that the coefficient on *PostChange* is 0.087 (p-value<0.01) for firms receiving a higher proportion of R&D subsidies, while the coefficient becomes insignificant for firms receiving a lower proportion of R&D subsidies (see column (6)). Finally, the effects on capital investment and equity misvaluation differ significantly between the two subsamples of firms receiving high versus low R&D subsidies, with the coefficient difference statistically significant at the 5% level or better. For labor investment, the coefficient difference aligns with the same direction but is statistically insignificant. Overall, we conclude that the impacts of government subsidies are primarily concentrated among treated firms that receive a higher proportion of less persistent subsidy types.

Second, we examine whether the impacts of the accounting rule change on corporate investment and equity misvaluation are more pronounced when firms experience more substantial increases in retail investors' shareholdings, which are associated with shorter investor horizons. Shorter investor horizons lead to more trading around public signals, amplifying equity mispricing

greater persistence than R&D subsidies (Lee et al. 2014; Boeing 2016).

(Cremers et al. 2021) and more managerial catering (Polk and Sapienza 2009), both of which lead to heightened corporate investment activities. We then partition firms into two subsamples (high vs. low) based on the median value of the change in the underlying stock's retail investors' shareholdings (Δ*Retailhold*) before and after the accounting change. The results are reported in Panel B of Table 5. The coefficients of *PostChange* are positive and significant among firms that experience a larger increase in the retail shareholder base, relative to firms that experience a smaller change. Similar to the results from Panel A, Panel B shows that the impacts on capital investment and equity misvaluation are significantly different across the two subsamples of high vs. low changes in retail investors' shareholdings, as the coefficient difference is statistically significant at the 10% level or better between the two subsamples. The results in panel B, therefore, confirm that the impact of the accounting rule change is more pronounced when firms experience greater increases in the retail shareholder base.

Our third cross-sectional test explores the role of the information environment (Huang 2022; Pappas et al. 2024). Because opaque firms make it more challenging to evaluate the persistence or predictability of government subsidies, we expect that firms with weaker information environments would experience more significant equity misvaluation following the government subsidy accounting change. Table 5, Panel C reports the results based on the partition of firms into the two high vs. low subsamples according to the sample median value of average accruals quality (*AQ*) derived from Dechow and Dichev (2002) in the pre-accounting change period. Across all six columns, the coefficients on *PostChange* are positive and significant among firms that report lower accruals quality, while the coefficients on *PostChange* are insignificant among firms that report higher accruals quality. When we make three pairs of comparisons, we observe that the coefficient difference between the high vs. low subsamples for each pair of

comparisons is statistically significant at the 10% level or better. These results are consistent with the notion that corporate investment increases and equity misvaluation following the change in accounting rules are more pronounced when firms' underlying information environments are more opaque.

Collectively, the heterogeneity tests in this section provide evidence that the less persistent nature of government subsidies, the increase in retail investors' shareholdings, and more opaque information environments all exacerbate the impacts on corporate investment and equity overvaluation following the change in the accounting rule for government subsidies.

[Insert Table 5 here]

4.5 Government Subsidy Accounting Change and Corporate Investment Efficiency

As discussed above, the increased investment is more likely a response to investor mispricing rather than improved investment opportunities. Hence, we predict a decline in investment efficiency for treated firms. Using the investment inefficiency (*InefficInvest*) as the dependent variable, which is defined as the absolute values of residuals from the investment determinant model in Richardson (2006), we estimate the following model (3), with *PostChange* and *Controls* being defined the same as in model (1):

$$InefficInvest_{i,t+1} = \gamma_0 + \gamma_1 PostChange_{i,t} + Controls_{i,t} + Firm\ FE + Industry \times Year\ FE + \varepsilon_{i,t} \quad (3)$$

Panel A of Table 6 shows the results estimated from the DiD model (3) using the full and PSM samples for investment. The coefficients are 0.088 (p-value<0.01) for the full sample and 0.056 (p-value<0.05) for the matched sample. These results, combined with baseline results, suggest that while treated firms experience higher investments, their investment efficiency decreases significantly relative to control firms post the accounting change.

To validate that the decrease in investment efficiency is also driven, at least partly, by the misvaluation channel, we expect that the decrease in investment efficiency is more pronounced for treated firms experiencing increased equity misvaluation ($\Delta Misv>0$) after the accounting rule change, relative to firms experiencing reduced equity misvaluation ($\Delta Misv<0$). Panel B of Table 6 presents the results. The coefficient on *PostChange_Pos_ΔMisv* (0.165, p-value<0.01) is larger than that on *PostChange_Neg_ΔMisv* (0.080, p-value<0.05), and the coefficient difference is statistically significant (p-value=0.086). These results indicate that the government subsidy accounting change negatively impacts the investment efficiency of treated firms via the misvaluation channel, which in turn corroborates the narrative that investment increases by treated firms are primarily driven by equity misvaluation.

[Insert Table 6 here]

4.6 Government Subsidy Accounting Change and External Equity Financing

Prior literature documents that increased external equity financing is often associated with equity overvaluation (Dong et al. 2012). In this context, we examine whether equity misvaluation is linked to an increase in external equity financing following the government subsidy accounting rule change.

Table 7 presents the results of the impact of the accounting rule change on external equity financing, using a DiD model similar to model (3), with external equity financing as the dependent variable. When the seasoned equity offering (SEO) indicator is used as the dependent variable in column (1), the coefficient on *PostChange* is negative and marginally significant (p-value<0.10). In column (2), where the amount of equity financing is the dependent variable, the coefficient on *PostChange* is positive and insignificant. Therefore, there is no significant evidence indicating that

treated firms are more likely to conduct external equity financing following the accounting rule change.

Further analyses in columns (3) and (4) provide additional insights. In column (3), the coefficient on *PostChange_Pos_ΔMisv* (representing positive changes in misvaluation) is positive and significant at the 10% level, while the coefficient on *PostChange_Neg_ΔMisv* (representing negative changes in misvaluation) is negative and significant at the 5% level, and the coefficient difference is statistically significant (p-value=0.001). These results indicate that treated firms experiencing increases (decreases) in equity misvaluation are more (less) likely to engage in external equity financing after the accounting rule change. In column (4), the coefficient on *PostChange_Pos_ΔMisv* is positive and significant at the 5% level, while the coefficient on *PostChange_Neg_ΔMisv* is insignificant, and the coefficient difference is statistically significant (p-value=0.013), suggesting that treated firms experiencing increases in equity misvaluation tend to raise larger amounts of external equity financing.

Overall, the findings indicate that the increase in external equity financing is concentrated among treated firms experiencing heightened equity misvaluation following the accounting rule change.

[Insert Table 7 here]

5. Additional Analyses and Robustness Checks

5.1 Alternative Explanations

5.1.1 Explaining the Main Findings via the Learning Channel

If the government subsidy accounting change impacts corporate investment via the learning channel, we anticipate the main effect would be more pronounced for firms with higher co-movements between investment and operating income. Such a measure follows the traditional

value relevance literature that underscores the R^2 obtained from regressing stock returns on accounting numbers (e.g., Francis and Schipper 1999). We contend that the higher co-movement would indicate that managers base their investment budget more on the updated operating income information.

To empirically measure the co-movement between investment and operating income, we regress corporate investment on operating income before the accounting change and calculate the R^2. We partition treated firms into two subsamples (high vs. low) based on the median value of the co-movement. Panel A of Table 8 presents the results. When the dependent variable is capital expenditure (column (1)), the coefficient on *PostChange_Low_Comovement* (0.129, p-value<0.01) is larger than that on *PostChange_High_Comovement* (0.059, p-value=0.175). The coefficient difference between these two coefficients is neither in the consistent direction (as higher co-movement firms experience a smaller increase in investment) nor statistically significant (p-value=0.113). We obtain similar results when using the labor investment measure in column (2). This evidence contradicts predictions from the learning channel, suggesting that managers are not increasing investment because they are learning new information from the accounting change.

5.1.2 Explaining the Main Findings via the Contracting Channel

The contracting channel posits that the accounting change, by increasing reported operating income, relaxes financial constraints through improved covenant terms or credit assessments. If this mechanism were primary, we would expect the investment effect to be more pronounced for firms facing greater financial constraints prior to the rule change, as these firms would benefit more from the relaxation of constraints.

We measure pre-change financial constraints using the Hadlock and Pierce (2010) index and partition treated firms into high versus low constraint subsamples based on the sample median

value of the financial constraint index. Given that the government subsidy accounting change is anticipated to relax financial constraints, we expect that the effect of the accounting change on corporate investment would be more pronounced for firms with more severe financial constraints prior to the accounting rule change.

Panel B of Table 8 presents the results. When the dependent variable is capital expenditure (*CapInvest*) in column (1), the coefficient on *PostChange_Low_Constraints* (0.111, p-value<0.01) is larger than that on *PostChange_High_Constraints* (0.095, p-value<0.05). The coefficient difference is not in the expected direction (as firms with the more severe financial constraints experience a smaller increase in investment), and the difference is statistically insignificant either (p-value=0.706). When the dependent variable is labor investment (*LaborInvest*), column (2) indicates that the coefficient difference between *PostChange_Low_Constraints* and *PostChange_Low_Constraints* is in the expected direction but is insignificant. Thus, we conclude that the contracting channel is less likely to be the driving force by which the government subsidy accounting change increases corporate investment.[23]

[Insert Table 8 here]

5.2 Tests of Two Underlying Assumptions

In this subsection, we test two underlying assumptions of the study. The first key assumption is that the less persistent nature of government subsidies exacerbates the real effects of the accounting rule change. Following Sloan (1996), we measure the persistence of government subsidies with the estimated coefficient from the regression of future-period government subsidies

[23] Alternatively, we follow Christensen and Nikolaev (2012) to construct the contractibility of accounting information, which is defined as the ability of operating incomes to capture and explain credit risk. Specifically, we estimate the pseudo R^2 from an industry-level ordered logit regression model, and then, we partition treated firms into two subsamples (high vs. low) based on the sample median value of contractibility of operating income. In addition, we use the interest coverage, measured as earnings before interest, tax, depreciation, and amortization (EBITDA) divided by total interest expense, as the alternative accounting variable. Our finding remains to hold with these alternative measures of the debt contracting channel (untabulated).

on current-period government subsidies. The persistence of operating income (excluding government subsidies) is measured in the same way. Untabulated results reveal that the persistence of government subsidies is lower than that of other parts of operating income after excluding government subsidies, thus confirming our first key assumption.

As a second key assumption, we posit that an opaque information environment tends to exacerbate the impacts on corporate investment and equity misvaluation following the accounting rule change. Accordingly, we examine whether more disclosure related to government subsidies can help mitigate the adverse impacts, since the literature shows that improved disclosure reduces mispricing in the context of accounting standards (e.g., Hope et al. 2008; Campbell, Khan, and Pierce 2021). The extent of firm-level disclosure is measured by the length of the government subsidy disclosure in the footnotes to financial statements scaled by the total amount of income-related government subsidies for each firm, whereas we compute the change in disclosure related to government subsidies before and after the accounting rule change. Untabulated test results indicate that the impacts on corporate investments and equity overvaluation are weaker among those treated firms that experience significant increases in the disclosure related to government subsidies, suggesting that more disclosure about government subsidies can potentially mitigate the stated effect.

5.3 Alternative Thresholds of Defining Treated versus Control Groups

As robustness checks, we first adopt alternative thresholds to define the treated and control groups, beyond the tercile approach in the main analysis. As shown in Table 8, Panel A, we apply two alternative cutoffs: quartiles (columns (1)-(3), top vs. bottom) and median (columns (4)-(6), above vs. below). The results on Panel A of Table 9 show that the coefficients of *PostChange*

remain significant at the 5% level or better, indicating the robustness of our findings to alternative ways of designating treated and control groups.[24]

5.4 Alternative Model Specification

Following Nunn and Qian (2011), to capture more variation in the data, we also employ a continuous measure of treatment intensity as an alternative model specification. Specifically, we replace the indicator variable *PostChange* with the interaction term, $Subsidies_{avg2014\text{-}2016} \times Post$, where $Subsidies_{avg2014\text{-}2016}$ represents firms' average income-related government subsidies prior to the accounting standard change (scaled by total assets at the end of the year).[25] *Post* is an indicator variable that equals one if the observation is from 2017 and onwards, and zero otherwise. Panel B of Table 9 shows that the coefficients on $Subsidies_{avg2014\text{-}2016} \times Post$ are statistically significant at the 1% level when the dependent variables are *CapInvest*, *LaborInvest*, and *Misv*, respectively. The evidence is supportive of our main finding that the change in the government subsidies accounting rule significantly affects corporate investment and equity misvaluation.

5.5 Alternative Measures of Key Variables

We use alternative measures of key variables for robustness checks. For capital investment, we consider two measures: the percentage changes in total assets (*CapInvest_Alt1*), and the investment expenditure on new projects (*CapInvest_Alt2*), which is defined as the cash payments for fixed assets, intangible assets, and other long-term assets from the cash flow statement minus cash receipts from asset disposal, amortization, and depreciation (Richardson 2006). Both measures are scaled by the total assets at the end of year *t*. In addition, following Badertscher (2011), we use *P/V* as an alternative measure of misvaluation, defined as the firm market price

[24] We also adopt an alternative sampling design by using an entropy-balanced sample. The results remain to hold.
[25] Note that our sample size increases as we use the continuous variable $Subsidies_{avg2014\text{-}2016}$, while we only consider firms in the top and bottom terciles of government subsidies in the main analyses.

scaled by its intrinsic value derived from the residual income model in Ohlson (1995). The results are reported in Panel C of Table 9, in which the coefficients on *PostChange* are all statistically significant at the 5% level or better. Thus, our main finding is robust to alternative measures of key variables.[26]

5.6 Placebo Tests

To address the possibility that our baseline results could be spurious, we conduct a placebo test by assuming, incorrectly, that the government subsidy accounting change was implemented in 2015. Specifically, we focus on a sample of firms during the pre-change period (i.e., 2014-2016) and define *Pseudo_PostChange* as an indicator variable that equals one if the observation is from 2015 and 2016, and zero otherwise. The results are reported in Panel D of Table 9, in which we fail to find any evidence of a pseudo-regulation effect on corporate investment and equity misvaluation.[27]

Yet the other concern is that our research design might have missed the government subsidies recognized as deferred income in firms' financial statements. Table 9, Panel E reports the placebo test results by using the deferred income portion of government subsidies (scaled by total assets) to define treatment and control groups. *PostChange_Def* is an indicator variable that equals one if the firm resides in the top tercile of the average deferred income portion of government subsidies (scaled by total assets) during the period of 2014-2016, and zero otherwise. Consistent with our expectation, this placebo test yields no significant results.

[Insert Table 9 here]

[26] In untabulated tests, we also examine the change in innovation and innovation efficiency around the accounting rule change. Using the innovation measure in Fang et al. (2023) and the innovation efficiency measure in Hirshleifer, Hsu, and Li (2013), we find no significant change in innovation and a decrease in innovation efficiency for treated firms. It thus appears that the real effect also extends to firms' innovative activities, in addition to capital and labor investments.

[27] In another placebo test, we randomly assign treatment and control groups. As expected, we fail to find any significant result (untabulated).

5.7 Inclusion of Additional Control Variables

Firms that receive larger amounts of government subsidies may invest more due to the increased availability of resources. Additionally, the decision to grant government subsidies can be influenced by political considerations (Fang et al. 2023). Firms with political connections may receive greater subsidies and, consequently, increase their investment following the regulatory change.

To account for the potential omitted variable bias, we include additional control variables in model (1), including the level of government subsidies, political connections, and whether the firm is an SOE. Untabulated results show that our findings remain robust after incorporating these controls.

6. Conclusion

This study examines the real effects of a 2017 change in Chinese accounting standards governing the recognition of government subsidies in financial statements. Leveraging this unique regulatory change as a natural experiment, we document that firms receiving larger subsidies before the rule change significantly increase their investment but suffer from lower investment efficiency following the accounting change.

Our empirical analysis identifies equity misvaluation as the primary channel driving these effects, with treated firms experiencing significant overvaluation after being allowed to recognize subsidies as part of operating income. This misvaluation effect is amplified when subsidies are less persistent (like R&D subsidies), when retail investor ownership increases, and when firms' information environments are more opaque. Consistent with the catering theory, firms experiencing greater equity misvaluation following the rule change were more likely to raise

external equity financing and secure larger amounts. By contrast, we find limited support for alternative explanations via the learning or debt contracting channels.

Our findings underscore the unintended consequences of the accounting change related to government subsidy recognition. Well-intentioned accounting changes aimed at providing more flexible presentation options can lead to real economic consequences through equity misvaluation, particularly in markets with significant retail investor presence. Our findings suggest that enhanced disclosure requirements about the nature and persistence of government subsidies might mitigate misvaluation effects while preserving the flexibility in presentation offered by IFRS-based standards.

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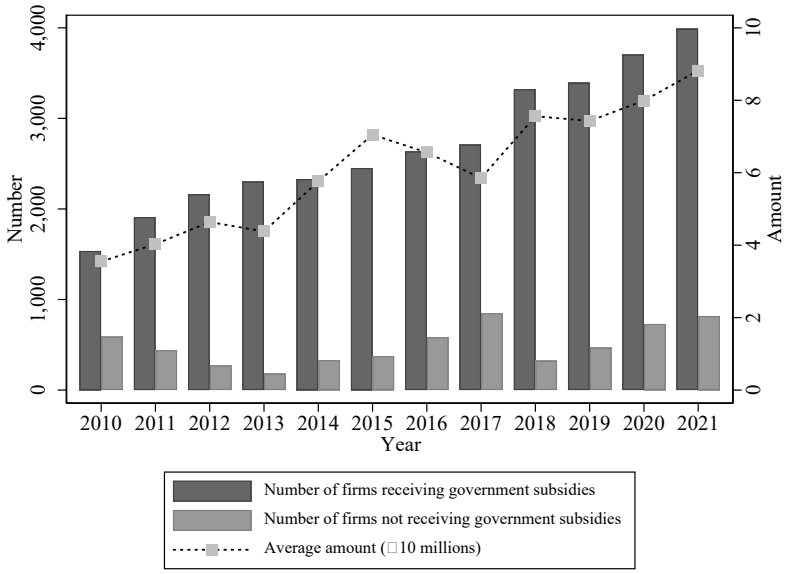
Figure 1: Annual distribution of government subsidies by firms, average amounts, and recognition categories

Figure 1, Panel A presents the frequency of listed companies receiving government subsidies, along with the average amounts granted during the period of 2010-2021. Figure 1, Panel B presents the annual average of government subsidies categorized by their accounting recognition, specifically in (1) "other income," (2) "non-operating income," and (3) "deferred income."

Panel A: The annual distribution of listed firms receiving and not receiving government subsidies



Panel B: Annual distribution of various government subsidies (scaled by the total assets at the end of the year)

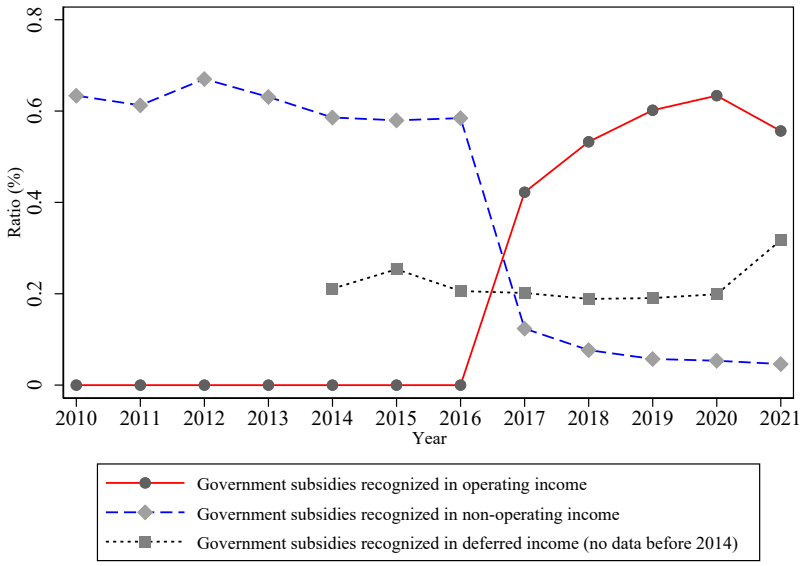
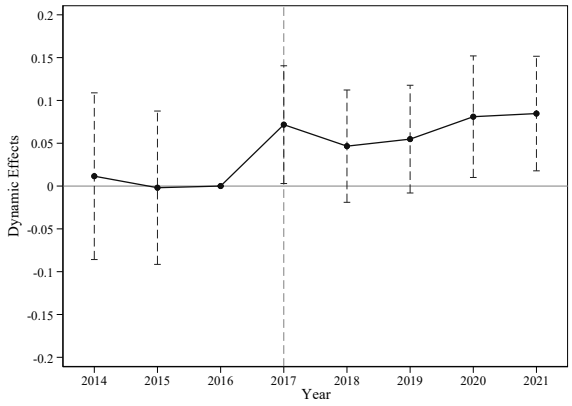


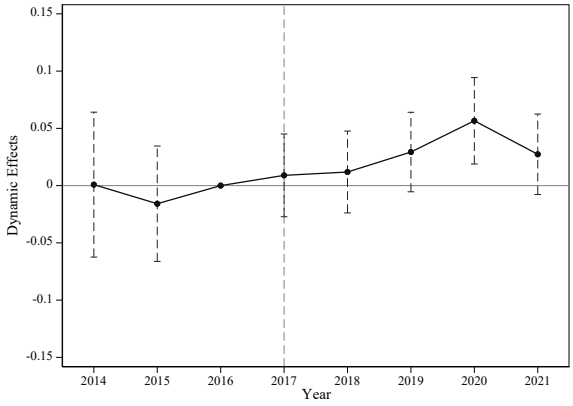
Figure 2: Trend plots of corporate investment and equity misvaluation using the matched sample

Figure 2 provides the trend plot (with the coefficients in a solid line and the lower and upper bounds of the 90% confidence intervals in dashed lines) of the corporate investment (Panels A and B) and equity misvaluation (Panel C) around the change to the accounting standard of government subsidies.

Panel A: Dynamic effects of the accounting rule change on capital expenditure (*CapInvest*)



Panel B: Dynamic effects of the accounting rule change on labor investment (*LaborInvest*)



Panel C: Dynamic effects of the accounting rule change on equity misvaluation (*Misv*)

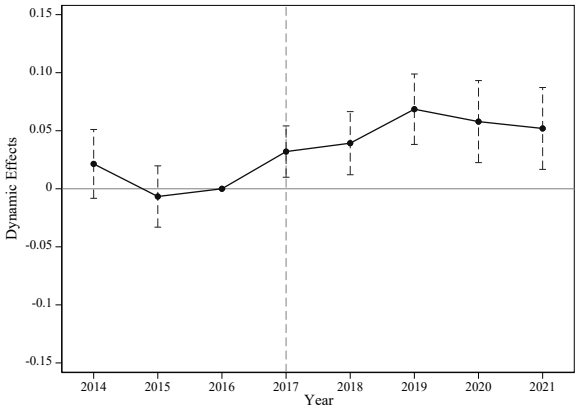


Table 1: Descriptive statistics of the investment sample

This table reports the descriptive statistics for the full sample (Panel A) and the differences in means of covariates between pre- and post-PSM samples in the pre-event year (i.e., 2016) (Panel B). All variables are defined in Appendix 3. ***, **, and * indicate the significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Full sample descriptive statistics

Variable	Mean	Median	Min	Max	Std. Dev.	N
$CapInvest_{t+1}$	0.166	0.002	-1.000	9.872	0.772	14,192
$LaborInvest_{t+1}$	0.065	0.003	-0.693	4.977	0.400	14,115
$PostChange_t$	0.321	0.000	0.000	1.000	0.467	14,192
$Subsidies_t$	0.006	0.003	0.000	0.045	0.008	14,192
$Size_t$	22.448	22.295	19.436	26.664	1.359	14,192
SG_t	0.180	0.088	-0.814	5.570	0.577	14,192
CFO_t	0.049	0.047	-0.315	0.390	0.088	14,192
Age_t	2.486	2.639	0.000	3.401	0.647	14,192

Panel B: Comparison of covariates before and after the PSM in the pre-event year

Covariate balance before PSM

Variable	Treated		Control		Difference in Mean	p-value
	N	Mean	N	Mean		
Size	917	22.015	918	22.635	-0.621	0.000***
SG	917	0.228	918	0.309	-0.082	0.020**
CFO	917	0.057	918	0.049	0.008	0.077*
Age	917	2.127	918	2.465	-0.338	0.000***

Covariate balance after PSM within similar capital investment groups

Variable	Treated		Control		Difference in Mean	p-value
	N	Mean	N	Mean		
Size	807	22.094	807	22.057	0.037	0.520
SG	807	0.222	807	0.216	0.005	0.856
CFO	807	0.056	807	0.058	-0.002	0.648
Age	807	2.177	807	2.146	0.031	0.397

Covariate balance after PSM within similar labor investment groups

Variable	Treated		Control		Difference in Mean	p-value
	N	Mean	N	Mean		
Size	788	22.094	788	22.087	0.006	0.912
SG	788	0.226	788	0.227	-0.001	0.974
CFO	788	0.054	788	0.057	-0.002	0.598
Age	788	2.169	788	2.184	-0.015	0.694

Table 2: Difference-in-differences analyses of corporate investment

This table reports the results of the difference-in-differences analysis of corporate investment around the changes to the accounting rule of government subsidies. Columns (1) and (2) report the results for the full sample, and columns (3) and (4) report the results for the matched sample. The dependent variables are corporate investment, with *CapInvest* as the capital investment and *LaborInvest* as the labor investment. Control variables include *Size*, *SG*, *CFO*, and *Age*. All variables are defined in Appendix 3. Firm and industry×year fixed effects are included in all regressions. The *t*-statistics, with standard errors clustered at the firm level, are reported below the coefficients. ***, **, and * indicate the significance at 1%, 5% and 10% levels, respectively.

	Full sample		Matched sample	
	(1)	(2)	(3)	(4)
Dep. Var.=	$CapInvest_{t+1}$	$LaborInvest_{t+1}$	$CapInvest_{t+1}$	$LaborInvest_{t+1}$
$PostChange_t$	0.108***	0.047**	0.065**	0.031**
	(3.12)	(2.58)	(2.23)	(2.02)
$Size_t$	-0.308***	-0.243***	-0.221***	-0.215***
	(-7.60)	(-11.55)	(-6.49)	(-8.97)
SG_t	0.012	0.021**	0.009	0.052***
	(0.63)	(1.99)	(0.40)	(3.02)
CFO_t	-0.331**	-0.014	-0.155	0.071
	(-2.44)	(-0.20)	(-1.31)	(0.94)
Age_t	-0.078	-0.021	-0.084*	-0.044
	(-1.32)	(-0.69)	(-1.78)	(-1.35)
Firm FE	Yes	Yes	Yes	Yes
Industry×Year FE	Yes	Yes	Yes	Yes
Cluster	Firm	Firm	Firm	Firm
N	14,192	14,115	12,477	12,134
Adj. R^2	0.056	0.103	0.059	0.094

Table 3: Trend analyses of corporate investment around the accounting rule change

This table reports the results of the trend analysis of corporate investment around the change in the accounting rule of government subsidies. Columns (1) and (2) report the results for the full sample; columns (3) and (4) report the results for the matched sample. The dependent variables are corporate investment, with *CapInvest* as the capital investment and *LaborInvest* as the labor investment. *PostChange(t)* is an indicator variable that equals one if the firm is a treated firm in the event year of 2017 and zero otherwise. *PostChange(t-3)((t-2))* is an indicator variable that equals one if the firm is a treated firm, and the observation is three (two) years before the rule change, and zero otherwise. *PostChange(t+4)((t+3)/(t+2)/(t+1))* is an indicator variable that equals one if the firm is a treated firm and the observation is four (three/two) years or one year after the rule change, and zero otherwise. Control variables include *Size*, *SG*, *CFO*, and *Age*. All variables are defined in Appendix 3. Firm and industry×year fixed effects are included in all regressions. The *t*-statistics, with standard errors clustered at the firm level, are reported below the coefficients. ***, **, and * indicate the significance at 1%, 5% and 10% levels, respectively.

	Full sample		Matched sample	
	(1)	(2)	(3)	(4)
Dep. Var.=	$CapInvest_{t+1}$	$LaborInvest_{t+1}$	$CapInvest_{t+1}$	$LaborInvest_{t+1}$
PostChange(t-3)	-0.052	0.061	0.012	0.001
	(-0.73)	(1.39)	(0.20)	(0.02)
PostChange(t-2)	-0.070	-0.035	-0.002	-0.016
	(-1.18)	(-0.97)	(-0.04)	(-0.52)
PostChange(t)	0.065	0.030	0.072*	0.009
	(1.44)	(1.16)	(1.72)	(0.41)
PostChange(t+1)	0.027	0.040	0.047	0.012
	(0.62)	(1.49)	(1.17)	(0.55)
PostChange(t+2)	0.078**	0.079***	0.055	0.029
	(1.98)	(3.01)	(1.43)	(1.39)
PostChange(t+3)	0.104**	0.076***	0.081*	0.057**
	(2.14)	(2.59)	(1.88)	(2.47)
PostChange(t+4)	0.076*	0.048*	0.085**	0.027
	(1.68)	(1.82)	(2.08)	(1.28)
Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Industry×Year FE	Yes	Yes	Yes	Yes
Cluster	Firm	Firm	Firm	Firm
N	14,192	14,115	12,477	12,134
Adj. R^2	0.056	0.104	0.058	0.094

Table 4: Analyses of the equity misvaluation channel as one explanation of the increase in corporate investment around the accounting rule change

This table reports the descriptive statistics for the measures of misvaluation as well as the related control variables in model (2) (Panel A), the results of the difference-in-differences analyses of equity misvaluation (Panel B), and the tests of the misvaluation channel for the increase in investment (Panel C). Columns (1) and (2) of Panel B report the regression results of model (2) using full sample and matched sample, respectively. The dependent variable is *Misv*. Control variables include *Size*, *Lev*, *ROE*, *Cash*, *M/B*, *Turnover*, *Dual*, *Indep*, *Tophold*, *Insthold*, and *SOE*. In Panels C, *PostChange_Pos_ΔMisv* (*PostChange_Neg_ΔMisv*) equals one if the observation belongs to the treated group that experienced an increase (decrease) in equity misvaluation after the regulation change and falls within the post-regulation period, and zero otherwise. The dependent variables are corporate investment, with *CapInvest* as the capital investment in Column (1) and *LaborInvest* as the labor investment in Column (2). Control variables include *Size*, *SG*, *CFO*, and *Age*. All variables are defined in Appendix 3. Firm and industry×year fixed effects are included in all regressions. The *t*-statistics, with standard errors clustered at the firm level, are reported below the coefficients. ***, **, and * indicate the significance at 1%, 5% and 10% levels, respectively.

Panel A: Descriptive statistics

Variable	Mean	Median	Min	Max	Std. Dev.	N
$Misv_t$	0.017	-0.023	-1.267	1.863	0.557	14,283
$PostChange_t$	0.322	0.000	0.000	1.000	0.467	14,283
$Subsidies_t$	0.006	0.003	0.000	0.042	0.008	14,283
$Size_t$	22.388	22.238	19.552	26.631	1.350	14,283
Lev_t	0.448	0.436	0.053	0.954	0.212	14,283
ROE_t	0.022	0.062	-3.27	0.403	0.290	14,283
$Cash_t$	0.169	0.139	0.009	0.648	0.118	14,283
M/B_t	4.131	2.694	0.394	51.81	4.970	14,283
$Turnover_t$	0.519	0.380	0.026	3.195	0.460	14,283
$Dual_t$	0.253	0.000	0.000	1.000	0.435	14,283
$Indep_t$	0.378	0.364	0.200	0.800	0.056	14,283
$Tophold_t$	0.338	0.316	0.084	0.757	0.148	14,283
$Insthold_t$	0.449	0.465	0.002	0.922	0.238	14,283
SOE_t	0.390	0.000	0.000	1.000	0.488	14,283

Panel B: DiD test results of equity misvaluation

	Full sample	Matched sample
	(1)	(2)
Dep. Var.=	$Misv_t$	$Misv_t$
$PostChange_t$	0.050***	0.046***
	(3.36)	(3.22)
$Size_t$	0.141***	0.155***
	(9.05)	(8.99)
Lev_t	-0.411***	-0.423***
	(-8.84)	(-8.36)
ROE_t	0.133***	0.154***
	(8.91)	(8.54)
$Cash_t$	-0.066	-0.095**
	(-1.51)	(-2.17)
M/B_t	0.057***	0.065***
	(23.45)	(21.22)
$Turnover_t$	0.123***	0.115***
	(13.89)	(12.28)
$Dual_t$	-0.020*	-0.017
	(-1.85)	(-1.54)
$Indep_t$	0.081	0.110
	(0.98)	(1.17)
$Tophold_t$	-0.180**	-0.301***
	(-2.16)	(-3.71)
$Insthold_t$	0.680***	0.651***
	(13.90)	(12.82)
SOE_t	-0.077***	-0.064**
	(-3.21)	(-2.45)
Firm FE	Yes	Yes
Industry×Year FE	Yes	Yes
Cluster	Firm	Firm
N	14,283	11,717
Adj. R^2	0.784	0.789

Panel C: Test of the misvaluation channel for the increase in investment

	(1)	(2)
Dep. Var.=	$CapInvest_{t+1}$	$LaborInvest_{t+1}$
$PostChange\_Pos\_\Delta Misv_t$	0.218***	0.122***
	(3.94)	(4.19)
$PostChange\_Neg\_\Delta Misv_t$	0.096***	0.038**
	(2.69)	(2.03)
Controls	Yes	Yes
Firm FE	Yes	Yes
Industry×Year FE	Yes	Yes
Cluster	Firm	Firm
N	14,171	14,098
Adj. R^2	0.056	0.104
Difference in coefficients (p-value)	0.122** (0.018)	0.084*** (0.001)

Table 5: Heterogeneity tests about the impacts on corporate investment and misvaluation

This table reports the results of heterogeneity tests based on the nature of subsidies (Panel A), the changes in retail investors' shareholdings (Panel B), and firms' information environment (Panel C). Control variables include *Size*, *SG*, *CFO*, and *Age* when the dependent variable is corporate investment (*CapInvest* and *LaborInvest*). Control variables include *Size*, *Lev*, *ROE*, *Cash*, *M/B*, *Turnover*, *Dual*, *Indep*, *Tophold*, *Insthold*, and *SOE* when the dependent variable is misvaluation (*Misv*). We exclude the *Turnover* from control variables when we partition firms based on the changes in retail investors' shareholdings (Panel B). All variables are defined in Appendix 3. Firm and industry×year fixed effects are included in all regressions. The *t*-statistics, with standard errors clustered at the firm level, are reported below the coefficients. ***, **, and * indicate the significance at 1%, 5% and 10% levels, respectively.

Panel A: Nature of government subsidies

	R&D_Sub		*R&D_Sub*		*R&D_Sub*	
	High	Low	High	Low	High	Low
	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.=	$CapInvest_{t+1}$	$CapInvest_{t+1}$	$LaborInvest_{t+1}$	$LaborInvest_{t+1}$	$Misv_t$	$Misv_t$
$PostChange_t$	0.177***	0.057	0.056**	0.052*	0.087***	0.023
	(3.34)	(1.27)	(2.30)	(1.84)	(3.57)	(1.83)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry×Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Firm	Firm	Firm	Firm	Firm	Firm
N	6,914	7,005	6,885	6,964	7,034	6,996
Adj. R^2	0.048	0.076	0.116	0.121	0.798	0.780
Difference in the coefficients of $PostChange_t$ (p-value)	0.119** (0.041)		0.005 (0.464)		0.064***(0.006)	

Panel B: Changes in retail investors' shareholdings

	⊿Retailhold		*⊿Retailhold*		*⊿Retailhold*	
	High	Low	High	Low	High	Low
	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.=	$CapInvest_{t+1}$	$CapInvest_{t+1}$	$LaborInvest_{t+1}$	$LaborInvest_{t+1}$	$Misv_t$	$Misv_t$
$PostChange_t$	0.212***	0.016	0.079***	0.016	0.057***	0.024
	(3.89)	(0.36)	(2.86)	(0.66)	(2.70)	(1.05)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry×Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Firm	Firm	Firm	Firm	Firm	Firm
N	7,080	7,112	7,033	7,082	6,907	6,900
Adj. R^2	0.065	0.073	0.126	0.105	0.786	0.778
Difference in the coefficients of $PostChange_t$ (p-value)	0.197***(0.004)		0.063*(0.060)		0.033*(0.096)	

Panel C: Information environment

	AQ		*AQ*		*AQ*	
	High	Low	High	Low	High	Low
	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.=	$CapInvest_{t+1}$	$CapInvest_{t+1}$	$LaborInvest_{t+1}$	$LaborInvest_{t+1}$	$Misv_t$	$Misv_t$
$PostChange_t$	0.053	0.203***	0.001	0.100***	0.023	0.059**
	(1.35)	(3.35)	(0.03)	(3.19)	(1.14)	(2.42)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry×Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Firm	Firm	Firm	Firm	Firm	Firm
N	7,112	7,038	7,085	6,988	6,720	6,635
Adj. R^2	0.054	0.074	0.078	0.132	0.786	0.787
Difference in the coefficients of $PostChange_t$ (p-value)	-0.150** (0.016)		-0.100*** (0.007)		-0.037*(0.082)	

Table 6: Analyses of corporate investment efficiency around the rule change

This table reports the results of corporate investment efficiency around the rule change. Panel A reports the results of the difference-in-differences analyses of corporate investment efficiency around the change in the accounting rule of government subsidies. Columns (1) and (2) report the results for the full sample and the matched sample, respectively. Panel B presents the results of difference-in-differences analyses of corporate investment efficiency after partitioning treated firms into the two subgroups based on increases or decreases in equity misvaluation. *PostChange_Pos_ΔMisv* (*PostChange_Neg_ΔMisv*) equals one if the observation belongs to the treated group that experienced an increase (decrease) in equity misvaluation after the regulation change and falls within the post-regulation period, and zero otherwise. Control variables include *Size*, *SG*, *CFO*, and *Age*. All variables are defined in Appendix 3. Firm and industry×year fixed effects are included in all regressions. The *t*-statistics, with standard errors clustered at the firm level, are reported below the coefficients. ***, **, and * indicate the significance at 1%, 5%, and 10% levels, respectively.

Panel A: DiD test of investment efficiency

	Full sample	Matched sample
	(1)	(2)
Dep. Var.=	$InefficInvest_{t+1}$	$InefficInvest_{t+1}$
$PostChange_t$	0.088***	0.056**
	(2.61)	(1.98)
$Size_t$	-0.286***	-0.214***
	(-7.20)	(-6.50)
SG_t	-0.033*	-0.028
	(-1.81)	(-1.24)
CFO_t	-0.495***	-0.344***
	(-3.74)	(-2.95)
Age_t	-0.077	-0.099*
	(-1.27)	(-1.80)
Firm FE	Yes	Yes
Industry×Year FE	Yes	Yes
Cluster	Firm	Firm
N	14,105	12,396
Adj. R^2	0.040	0.047

Panel B: Test of the misvaluation channel

	(1)
Dep. Var.=	$InefficInvest_{t+1}$
$PostChange\_Pos\_\Delta Misv_t$	0.165***
	(3.09)
$PostChange\_Neg\_\Delta Misv_t$	0.080**
	(2.30)
Controls	Yes
Firm FE	Yes
Industry×Year FE	Yes
Cluster	Firm
N	14,084
Adj. R^2	0.040
Difference in coefficients (p-value)	0.085* (0.086)

Table 7: Analyses of external equity financing around the rule change

This table reports the results of external equity financing around the rule change. Columns (1) and (2) report the results of the difference-in-differences analyses of the likelihood of seasoned equity offering (*SEO*) and the SEO size (*ISSUEAMT*) around the change in the accounting rule of government subsidies, respectively. Columns (3) and (4) present the results of difference-in-differences analyses of the SEO likelihood and the SEO size after partitioning treated firms into the two subgroups based on increases or decreases in equity misvaluation. *SEO* equals one if the firm conducts a seasoned equity offering in year t+1, and zero otherwise. *ISSUEAMT* is the natural logarithm of the total monetary value of the firm's SEO in year t+1. *PostChange_Pos_ΔMisv* (*PostChange_Neg_ΔMisv*) equals one if the observation belongs to the treated group that experienced an increase (decrease) in equity misvaluation after the regulation change and falls within the post-regulation period, and zero otherwise. Control variables include *Size*, *SG*, *CFO*, and *Age*. All variables are defined in Appendix 3. Firm and industry×year fixed effects are included in all regressions. The t-statistics, with standard errors clustered at the firm level, are reported below the coefficients. ***, **, and * indicate the significance at 1%, 5%, and 10% levels, respectively.

Dep. Var.=	(1) SEO_{t+1}	(2) $ISSUEAMT_{t+1}$	(3) SEO_{t+1}	(4) $ISSUEAMT_{t+1}$
$PostChange_t$	-0.026*	0.115		
	(-1.80)	(0.47)		
$PostChange\_Pos\_\Delta Misv_t$			0.055*	0.663**
			(1.88)	(2.05)
$PostChange\_Neg\_\Delta Misv_t$			-0.037**	0.002
			(-2.52)	(0.01)
$Size_t$	-0.153***	-0.360***	-0.155***	-0.364***
	(-12.48)	(-3.35)	(-12.49)	(-3.39)
SG_t	0.030***	-0.120**	0.031***	-0.118**
	(4.64)	(-2.21)	(4.67)	(-2.18)
CFO_t	0.126***	-0.339	0.125***	-0.396
	(2.63)	(-0.56)	(2.60)	(-0.65)
Age_t	0.010	0.241	0.013	0.231
	(0.38)	(1.01)	(0.49)	(1.00)
Firm FE	Yes	Yes	Yes	Yes
Industry×Year FE	Yes	Yes	Yes	Yes
Cluster	Firm	Firm	Firm	Firm
N	12,327	1,662	12,327	1,662
Adj. R^2	0.077	0.396	0.078	0.405
Difference in coefficients (p-value)			0.092*** (0.001)	0.661** (0.013)

Table 8: Alternative explanations of the increase in corporate investment around the accounting rule change

This table reports the results of the channel analyses. Panels A and B present the tests of the learning channel and the contracting channel, respectively. In Panel A, *PostChange_High_Comovement* (*PostChange_Low_Comovement*) equals one if the observation is from the treated group with the pre-change co-movement above (below) the sample median and the observation belongs to the years after the rule change, and zero otherwise. In Panel B, *PostChange_High_Constraints* (*PostChange_Low_Constraints*) equals one if the observation is from the treated group with the pre-change financial constraints above (below) the sample median and the observation belongs to the years after the rule change, and zero otherwise. For all panels, the dependent variables are corporate investment, with *CapInvest* as the capital investment and *LaborInvest* as the labor investment. Control variables include *Size*, *SG*, *CFO*, and *Age*. All variables are defined in Appendix 3. Firm and industry×year fixed effects are included in all regressions. The *t*-statistics, with standard errors clustered at the firm level, are reported below the coefficients. ***, **, and * indicate the significance at 1%, 5% and 10% levels, respectively.

Panel A: Test of the learning channel as an alternative explanation

	(1)	(2)
Dep. Var.=	$CapInvest_{t+1}$	$LaborInvest_{t+1}$
$PostChange\_High\_Comovement_t$	0.059	0.027
	(1.36)	(1.16)
$PostChange\_Low\_Comovement_t$	0.129***	0.051**
	(3.13)	(2.53)
Controls	Yes	Yes
Firm FE	Yes	Yes
Industry×Year FE	Yes	Yes
Cluster	Firm	Firm
N	14,192	14,115
Adj. R^2	0.055	0.103
Difference in coefficients (p-value)	-0.070 (0.113)	-0.024 (0.255)

Panel B: Test of the contracting channel as an alternative explanation

	(1)	(2)
Dep. Var.=	$CapInvest_{t+1}$	$LaborInvest_{t+1}$
PostChange_High_Constraints	0.095**	0.059***
	(2.21)	(2.84)
PostChange_Low_Constraints	0.111***	0.035*
	(2.90)	(1.72)
Controls	Yes	Yes
Firm FE	Yes	Yes
Industry×Year FE	Yes	Yes
Cluster	Firm	Firm
N	14,192	14,115
Adj. R^2	0.056	0.103
Difference in coefficients (p-value)	-0.016 (0.706)	0.024 (0.210)

Table 9: Robustness checks

This table reports the results of robustness checks. Panel A reports the results using alternative thresholds to define treated and control groups. Panel B reports the results using an alternative model specification, where $Subsidies_{avg2014\text{-}2016}$ is defined as the average government subsidies-to-total assets ratio during 2014-2016. *Post* is an indicator variable that equals one if the observation is from 2017 and onwards, and zero otherwise. Panel C reports the results using alternative measures of key variables. *CapInvest_Alt1* is defined as the percentage change in total assets from years *t* to *t*+1. *CapInvest_Alt2* is defined as the cash payments for fixed assets, intangible assets, and other long-term assets from the cash flow statement minus cash receipts from asset disposal, amortization, and depreciation. *P/V* is defined as the market value of a firm scaled by its intrinsic value derived from the residual income model in Ohlson (1995). Panel D reports the placebo test results by focusing on the pre-change period of 2014-2016, with 2015 being the year for the pseudo event. *Pseudo_PostChange* is an indicator variable that equals one if the firm is a treated firm during 2015-2016, and zero otherwise. Panel E reports the placebo test results by using the deferred income portion of government subsidies (scaled by total assets) to define treatment and control groups. *PostChange_Def* is an indicator variable that equals one if the firm resides in the top tercile of the average deferred income portion of government subsidies (scaled by total assets) during 2014-2016, and zero otherwise. For all panels, control variables include *Size*, *SG*, *CFO*, and *Age* for the investment sample and *Size*, *Lev*, *ROE*, *Cash*, *M/B*, *Turnover*, *Dual*, *Indep*, *Tophold*, *Insthold*, and *SOE* for the misvaluation sample, respectively. All variables are defined in Appendix 3. Firm and industry×year fixed effects are included in all regressions. The *t*-statistics, with standard errors clustered at the firm level, are reported below the coefficients. ***, **, and * indicate the significance at 1%, 5% and 10% levels, respectively.

Panel A: Alternative thresholds of defining treated vs. control groups

Cutoff	Top quartile			Above median		
	(1)	(2)	(3)	(4)	(5)	(6)
Dep. Var.=	$CapInvest_{t+1}$	$LaborInvest_{t+1}$	$Misv_t$	$CapInvest_{t+1}$	$LaborInvest_{t+1}$	$Misv_t$
$PostChange_t$	0.098**	0.046**	0.073***	0.083***	0.043***	0.036***
	(2.12)	(2.07)	(4.01)	(3.37)	(3.20)	(3.20)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry×Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Firm	Firm	Firm	Firm	Firm	Firm
N	10,632	10,569	10,695	21,329	21,227	21,511
Adj. R^2	0.057	0.112	0.785	0.063	0.109	0.784

Panel B: Alternative model specification

	(1)	(2)	(3)
Dep. Var.=	$CapInvest_{t+1}$	$LaborInvest_{t+1}$	$Misv_t$
$Subsidies_{avg2014\text{-}2016} \times Post_t$	6.570***	3.030***	4.637***
	(3.04)	(3.02)	(5.16)
Controls	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Industry×Year FE	Yes	Yes	Yes
Cluster	Firm	Firm	Firm
N	21,329	21,227	21,511
Adj. R^2	0.063	0.108	0.784

Panel C: Alternative measures of key variables

	(1)	(2)	(3)
Dep. Var.=	$CapInvest\_Alt1_{t+1}$	$CapInvest\_Alt2_{t+1}$	P/V_t
$PostChange_t$	0.060***	0.008**	2.271***
	(3.07)	(2.08)	(2.82)
Controls	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Industry×Year FE	Yes	Yes	Yes
Cluster	Firm	Firm	Firm
N	14,118	14,192	13,155
Adj. R^2	0.269	0.231	0.304

Panel D: Placebo test using 2015 as the pseudo event year

	(1)	(2)	(3)
Dep. Var.=	$CapInvest_{t+1}$	$LaborInvest_{t+1}$	$Misv_t$
$Pseudo\_PostChange_t$	-0.002	-0.078*	0.006
	(-0.03)	(-1.96)	(0.32)
Controls	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Industry×Year FE	Yes	Yes	Yes
Cluster	Firm	Firm	Firm
N	4,881	4,880	4,729
Adj. R^2	0.124	0.156	0.781

Panel E: Placebo test using the deferred income portion of government subsidies to define treatment and control groups

	(1)	(2)
Dep. Var.=	$CapInvest_{t+1}$	$LaborInvest_{t+1}$
$PostChange\_Def_t$	0.010	0.025
	(0.30)	(1.50)
$Size_t$	-0.335***	-0.258***
	(-6.80)	(-10.91)
SG_t	0.034	0.047***
	(1.56)	(3.68)
CFO_t	-0.279*	-0.033
	(-1.87)	(-0.45)
Age_t	-0.035	-0.016
	(-0.69)	(-0.50)
Firm FE	Yes	Yes
Industry×Year FE	Yes	Yes
Cluster	Firm	Firm
N	13,952	13,885
Adj. R^2	0.065	0.113

Appendix 1: Comparison of accounting standards on government subsidies and an example of government subsidy reporting before and after the accounting rule change in China

Panel A: Comparison of accounting standards that govern the recognition, measurement, and disclosure of government subsidies

Standard	Income statement	Balance sheet	Disclosure
IFRS: IAS 20 Accounting for Government Grants and Disclosure of Government Assistance (2009)	A grant receivable as compensation for costs already incurred or for immediate financial support, with no future related costs, should be recognized as income in the period in which it is receivable or used to offset related expenses.	A grant relating to assets may be presented in one of two ways: as deferred income or by deducting the grant from the asset's carrying amount.	Accounting policy adopted for grants, including the method of balance sheet presentation, nature and extent of grants recognized in the financial statements, and unfulfilled conditions and contingencies attached to recognized grants.
US GAAP: Government Assistance (Topic 832): Disclosures by Business Entities about Government Assistance (2021).	N.A.	N.A.	An entity shall disclose the following about transactions with a government within the scope of this Topic: a. The nature of the transactions b. The accounting policies used to account for the transactions c. The line items on the balance sheet and income statement that are affected by the transactions, and the amounts applicable to each financial statement line item in the current reporting period.
China GAAP: CAS–16 Government Subsidies (2006, pre-change)	The government subsidies related to income: a. Those subsidies used to compensate the related future expenses or losses of the enterprise shall be recognized as deferred income and shall be included in the current profits and losses during the period when the relevant expenses are recognized. b. Those subsidies used to compensate the related expenses or losses incurred by the enterprise shall be directly included in the current profits and losses.	The government subsidies related to assets shall be recognized as deferred income, equally distributed within the useful lives of the relevant assets and included in the current profits and losses.	In its notes, an enterprise shall disclose the information concerning the government subsidies as follows: a. The type and amount of government subsidies; b. The amount of the government subsidies that are included in the current profits and losses; c. The amount of the government subsidies refunded in the current period, as well as the reasons.
China GAAP: CAS–16 Government Subsidies (2017, post-change)	**The change:** The government subsidies related to the daily activities of the enterprise shall be included in other income or used to offset related costs. The government subsidies unrelated to the daily activities of the enterprise shall be included in the non-operating income and expenditure.	**The change:** Under the gross method, the government subsidies related to assets are recognized as deferred income and gradually recognized in income statement within the useful lives of the relevant asset using a rational and systematic approach. Under the net method, firms can offset the book value of the related assets.	Government subsidies should be included in the separately presented "other income" line item, which is above the "operating profit" line item in the income statement.

Panel B: An example of government subsidy accounting before and after the rule change in China

Digital China (stock code: 000034)'s consolidated income statement for 2017 and 2016 (obtained from the 2017 annual report), Unit: RMB

Line Items	2017	2016
Operating Revenue	62,215,950,458.56	40,531,123,500.93
Less: Operating Cost	59,290,822,747.85	38,554,241,329.19
Taxes and Surcharges	90,175,311.14	67,896,934.66
Selling Expense	1,612,968,660.32	1,177,764,768.70
General and Administrative Expenses	367,663,898.79	292,592,064.40
Financial Expense	243,584,256.74	416,764,225.02
Impairment Losses (Gains)	-21,802,203.79	-174,279,544.40
Add: Gains (Losses) from Changes in Fair Value	-29,023,035.90	10,827,141.79
Investment Income (Loss)	-158,793,035.07	253,985,139.25
Incl: Investment Income in Associates and Joint Ventures	39,656,230.74	2,233,972.30
Gains (Losses) from Asset Disposal	-65,535.59	700,075.10
Other Income	**46,287,380.87**	-
Operating Income	490,943,561.82	461,656,079.50
Add: Extraordinary Items Gains	367,920,331.26	57,262,070.44
Less: Extraordinary Items Losses	6,287,206.72	21,192,132.30
Total Income	852,576,686.36	497,726,017.64
Less: Income Tax Expense	129,388,059.02	94,942,279.39
Net Income	723,188,627.34	402,783,738.25

Note: In footnote 50 of its 2017 annual report, Digital China provides a detailed breakdown of the government subsidies that contribute to its other income. Unit: RMB.

Source of Other Income	2017	2016
Guangzhou Development Zone Business Expansion Subsidy	14,640,000.00	-
Software Tax Refund	8,970,653.84	-
Subsidy for the R&D and Industrialization of the Next Generation SDN-based High-performance Routing and Switching Equipment	6,512,860.27	-
Reward from Changning District Finance Bureau, Shanghai	3,980,000.00	-
Job Stabilization Subsidy	3,456,927.06	-
Subsidy for Digital China's Urban Public Safety Multidimensional Data Fusion Intelligent Cloud Platform Project	2,000,000.00	-
Support Fund from Zizhu High-tech Park, Shanghai	1,650,000.00	-
Subsidy from Beijing Commerce Committee	1,000,000.00	-
Reward from Haidian District Finance Bureau, Beijing (High-performance Firewall Industrialization Project)	800,000.00	-
Subsidy for High-tech Achievement Transformation Project, Beijing	700,000.00	-
Subsidy from Haidian District Finance Bureau, Beijing	673,000.00	-
Employee Education and Training Expense Subsidy	345,200.00	-
Internet of Things Development Special Subsidy	200,000.00	-
Other Subsidies	1,358,739.70	-
Total Other Income	**46,287,380.87**	-

Appendix 2: Sample selection procedures

Screening criteria	Observations dropped	Observations left
Firm-year observations of Chinese A-share listed firms from the CSMAR database during 2014-2021		29,715
Less: Financial firms	698	29,017
1) The investment sample		
Less:		
Firms with missing data on investment and control variables	3,406	25,611
Firms receiving no government subsidies in both pre- and post-event periods	22	25,589
Firms without at least one observation in both pre- and post-event periods	4,260	21,329
Firms in the middle tercile of subsidies ranking	7,137	14,192
Investment sample		**14,192**
2) The misvaluation sample		
Less:		
Firms with missing data on equity misvaluation and control variables	2,973	26,044
Firms receiving no government subsidy in both pre- and post-event periods	26	26,018
Firms without at least one observation in both pre- and post-event periods	4,507	21,511
Firms in the middle tercile of subsidies ranking	7,228	14,283
Misvaluation sample		**14,283**

Appendix 3: Variable definitions

Variable	Definition
Main variables	
CapInvest	Capital investment, defined as capital expenditure in year *t*+1 scaled by net property, plant, and equipment at the end of year *t*, whereas capital expenditure is the change in net property, plant, and equipment from year *t* to year *t*+1.
LaborInvest	Labor investment, defined as the change in the number of employees from year *t* to year *t*+1, scaled by the number of employees in year *t*.
Subsidies	Subsidies-to-assets ratio, defined as government subsidies recognized in the income statement (i.e., the sum of government subsidies included in "other income" and "non-operating income") scaled by the total assets at the end of year *t*.
PostChange	An indicator variable that equals one if the firm is from the treated group in the post-accounting change period (i.e.,2017-2021), and zero otherwise. We split the initial sample into three groups based on the average subsidies-to-assets ratio in the pre-accounting change period (i.e., 2014-2016), with those in the top (bottom) tercile of the ratio as the treated (control) group.
InefficInvest	Investment inefficiency, defined as the absolute value of the residual from the following investment determinant model as in Richardson (2006): $$CapInvest_{i,t} = \beta_0 + \beta_1 Growth_{i,t-1} + \beta_2 Lev_{i,t-1} + \beta_3 Cash_{i,t-1} + Age_{i,t-1} + \beta_5 Size_{i,t-1} + \beta_6 Ret_{i,t-1} + IndustryFE + YearFE + \varepsilon_{i,t-1}$$ *Growth* is the growth rate of operating income; *Lev* is the firm leverage, defined as total debt scaled by total assets; *Cash* is the cash holding of the firm; *Age* is the firm listing age; *Size* is firm size, defined as the natural logarithm of total assets; and *Ret* is the annual stock return. We also include industry and year fixed effects. The absolute value of the residual is used as a measure of investment inefficiency (overinvestment or underinvestment). If the residual is positive (negative), then it denotes overinvestment (underinvestment).
SEO	An indicator variable that equals one if the firm conducts a seasoned equity offering (SEO) in year *t*, and zero otherwise.
ISSUEAMT	SEO size, defined as the natural logarithm of the total monetary value of the firm's SEO in year *t*.
Channel variables	
Misv	Equity misvaluation, defined as the deviation of the firm's market value from its intrinsic value following Rhodes-Kropf and Viswanathan (2004) and Rhodes-Kropf et al. (2005). The detailed estimation is described in Appendix 4.
Comovement	Co-movement between investment and operating income, defined as the R^2 of the regression of corporate investment on operating income.
Constraints	Financial constraints, defined as (-0.737 × *Size*) + (0.043 × $Size^2$) - (0.040 × *Age*) following Hadlock and Pierce (2010). *Size* is defined as the natural logarithm of total assets; *Age* is the firm age. Higher values of the SA index imply greater levels of financial constraints.
Cross-sectional variables	
R&D_Sub	Intensity of R&D-related subsidies, defined as the proportion of government subsidies related to R&D in the total government subsidies that a firm receives in year *t*.
Retailhold	Retail investors' shareholdings, defined as one minus the percentage of institutional shareholding at the end of year *t*.
AQ	Accrual quality, defined as the absolute value of residuals of the discretionary accruals model by Dechow and Dichev (2002) in year *t*.
Control variables	

Size	Firm size, defined as the natural logarithm of total assets at the end of year *t*.
SG	Sales growth, defined as the percentage change in operating revenue from year *t*-1 to year *t*.
CFO	Cash flow from operating activities, defined as the cash flow from operating activities scaled by total assets at the beginning of year *t*.
Age	Firm age, defined as the natural logarithm of one plus the number of years since the firm is listed.
Lev	The leverage ratio, defined as the total debt scaled by total assets at the end of year *t*.
ROE	Return on equity, defined as the net income scaled by the book value of equity at the end of year *t*.
Cash	Cash holding, defined as the sum of cash and cash equivalents scaled by total assets at the end of year *t*.
M/B	Market-to-book ratio, defined as the market value of equity scaled by the book value of equity at the end of year *t*.
Turnover	Share turnover rate, defined as the average monthly share turnover (i.e., trading volume divided by number of shares outstanding) in year *t*.
Dual	An indicator variable that equals one if the CEO also takes the role of the chairman of the board, and zero otherwise.
Indep	The percentage of independent directors is defined as the number of independent directors scaled by the total number of directors in year *t*.
Tophold	Largest shareholder's shareholding, defined as the percentage of a firm's shares held by the largest shareholder in year *t*.
Insthold	Institutional shareholding, defined as the percentage of a firm's shares held by institutional shareholders in year *t*.
SOE	An indicator variable for state-owned enterprises, which equals one if the ultimate controller of a firm is the state, and zero otherwise.

Appendix 4: Measuring equity misvaluation

We follow Rhodes-Kropf and Viswanathan (2004) and Rhodes-Kropf et al. (2005) to measure equity misvaluation.

First, we estimate the following model at the industry (*j*)-year (*t*) level.

$$m_{i,t} = \alpha_{0j,t} + \alpha_{1j,t} b_{i,t} + \alpha_{2j,t}\, ln(NI)^{+}_{i,t} + \alpha_{3j,t} I_{(<0)}\, ln(NI)^{+}_{i,t} + \alpha_{4j,t} LEV_{i,t} + \varepsilon_{i,t}$$

where *m* is the natural logarithm of a company's market value; *b* is the natural logarithm of the company's book value of equity. $ln(NI)^{+}$ is the natural logarithm of the absolute value of the company's net profit. *LEV* is the leverage ratio. $I_{(<0)}$ is an indicator variable that equals one if the firm makes a loss in year *t*, and 0 otherwise.

Second, we take the average of the estimated regression coefficients for each industry *j* during the sample period, and use the following model to estimate the intrinsic value $v(\theta_{i,t};\bar{\alpha}_j)$ of company *i*.

$$v(\theta_{i,t};\bar{\alpha}_j) = \bar{\alpha}_{0j} + \bar{\alpha}_{1j} b_{i,t} + \bar{\alpha}_{2j}\, ln(NI)^{+}_{i,t} + \bar{\alpha}_{3j} I_{(<0)}\, ln(NI)^{+}_{i,t} + \bar{\alpha}_{4j} LEV_{i,t}$$

Finally, we subtract the intrinsic value $v(\theta_{i,t};\bar{\alpha}_j)$ from the company's market value $m_{i,t}$ to obtain the equity misvaluation (*Misv*). The measure essentially captures the extent to which the observed market value (i.e., $m_{i,t}$) of the firm deviates from its intrinsic value (i.e., $v(\theta_{i,t};\bar{\alpha}_j)$) as predicted by the firm fundamentals (e.g., net income and leverage).