Managerial myopia and firm innovation and moderating effects of the government and corporate governance: Evidence from China

Abstract

Employing textual analysis of "short-term vision" vocabulary in annual reports, we investigate the impact of managerial myopia on firm innovation and performance. We discover managerial myopia hampers innovation, and this is confirmed after robustness checks. Managerial myopia also weakens the positive impact of innovation on firm growth, and value in the long run. We find that state ownership and good corporate governance mitigate the negative impact of managerial myopia. The evidence supports the upper echelon theory and time orientation theoretical frameworks. This paper enriches the research on the influencing factors of corporate innovation, by providing evidence that people's perception of time affects decision making and provides support for government ownership and good corporate governance practices in minimizing the negative effects of managerial myopia.

Keywords: Managerial myopia; firm innovation; state ownership; corporate governance

JEL codes: G30, F40, O10, P21

1. Introduction

The time orientation psychology theory suggests that there are large differences in people's perception of time (Keough et al., 1999). It can result in overemphasizing the past, present, or future when people make decisions (Van Ittersum, 2011). Myopia often stems from a sense of urgency at the time of the event, which induces managerial preference towards short-term profitability (Chen et al., 2023) and results in delayed or renunciation of the firm's long-term strategy. Consistent with the upper echelon theory where strategic decisions are influenced by top management team characteristics (Hambrick & Mason, 1984), time perception is likely to be especially critical for managers' decisions involving risky long investment and return cycles, such as innovation. Innovation, which affects firm competitiveness (Chen et al., 2016), requires a large amount of continuous investment with long return cycles, possibly leading to high operational risk and lower short-term profitability. Such characteristics of innovation are likely to trigger time perception preferences in decision-makers.

The question is, if myopic managers exhibit short time orientation and pursue short-term returns, whether long-term investments such as innovation projects are sacrificed. The conflicts between managerial myopia behavior and firm future prospects, are worth investigated in corporate governance field, particularly to determine mitigating factors of such behavior. Following the time orientation and upper echelon theories, myopic managers neglect innovation investment, thereby damaging future innovation performance. How the firm mitigates the negative impacts management's short-sightedness on innovation performance becomes the key research question in our study. The Chinese government uses state-owned enterprises (SOEs) to solve issues that cannot be solved by the market itself (Lin et al., 2020), including maximizing resource mobility through interventions (Lin & Tan, 1999), and mitigating stock price crash risk by reducing firm sensitivity to policy uncertainty (Xie et al., 2023). More specifically, government intervention of SOEs can influence firm goals to be

consistent with the government's long-term interests. Therefore, state ownership may influence the relationship between management myopia and innovation performance. Further, corporate governance may also moderate the negative impact of managerial short-sightedness on long-term investments (e.g. Hu et al., 2021; Fan et al., 2024). Therefore, in this paper, we add to the literature by investigating whether government control, and various types of corporate governance mechanisms, moderate the negative influence of myopia on innovation.

We choose China as the setting for our study for several reasons. First, according to Linguistic Savings Hypothesis (LSH), native language affects economic behavior (Thoma & Tytus, 2018). Tang et al. (2021) argue Chinese is a weak future-time reference (FTR) language which is more short-term focused than strong FTR languages such as English, and therefore may affect long term risky decisions. By adapting text mining, we explore whether managers' time perception affects firm's long-term decision and performance. Second, considering innovation has been recognized as the key embodiment of firm sustainable competitiveness and economic growth (Chuluun et al., 2017), we investigate factors that mitigate the negative impact of managerial myopia on innovation which would be particularly useful to policy makers and investors. Third, as a common feature of Chinese firms, government ownership performs a significant role in the economy. Our study by linking the government and managerial myopia behavior, enriches the literature on the positive effects of government ownership on firms.

We use panel data of 8,944 firm year observations to examine the relationship between managerial myopia and firm innovation. We measure managerial myopia following the approach of Hu et al. (2021) to construct Chinese "short-term vision" vocabulary using textual analysis and machine learning that identifies myopic words from the management discussion and analysis (MD&A) section in annual reports. We find that myopia has a negative effect on R&D investment, patent applications and patent grants. The result is robust to including additional fixed effects, adding forward values of innovation measures, and the propensity

score matching (PSM) approach. To address the potential endogeneity concern, we introduce the 2SLS-Instrumental Variable (IV) approach. Previous literatures discuss that if managers are from regions where gambling activities are more popular, the gambling preference encourages managerial opportunism (Sheng, et al., 2022). We use provincial level gambling preference measured by lottery sales scaled by GDP as an instrumental variable to capture the exogenous variation in managerial myopia. We find management myopia is more serious in the regions with higher lottery expenditures. The second stage result is consistent with baseline finding, which indicates our baseline findings are robust without endogeneity concerns.

In addition, we try to explain whether decreased firm innovation by managerial myopia would hinder firm's long-term prospects. We introduce Tobin's Q as explained variable of firm growth opportunity in the model following Fan et al. (2024), and the result shows managerial myopia weakens the positive impact of innovation on growth, and firm value over the long-term. Considering short-sightedness hinders innovation and firm growth, it is necessary to explore how to curb this negative impact.

Government ownership may mitigate this negative effect. In contrast to value maximization goals of private firms, SOEs have additional national development goals (Xin et al., 2019; Xie e al., 2023), indicating that SOE managers may be more long-time orientated and are less burdened with short-term profit maximization. Thus, myopic behaviors are potentially less evident among SOE mangers. In addition, as regulatory authorities, the government pays more attention to the development path of firm, especially for SOEs, to ensure that their operation strategy aligns with the interests of stakeholders and the direction of national policies. As an important means of high-quality development and deepening reform in China, firm's R&D and innovation performance is valued. Thus, short-time orientation bias towards innovation may be less prevalent among SOE managers. By adapting heterogeneity tests, we find the

government ownership and policies moderate the negative impact of managerial myopia on firm innovation.

Further, good corporate governance may mitigate the negative impact of managerial myopia on firm's total factor productivity, financial asset allocation and ESG performance (e.g. Sheng et al., 2022; Chen et al., 2023; Fan et al., 2024). Therefore, we argue corporate governance may mitigate the negative effects of managerial myopia of firm's innovation investment. This is what we find. Good corporate governance factors, namely having top auditors, institutional investors, independent directors, and gender diversity in the board, moderate the negative impact of management myopia on firm innovation.

The contributions of this paper are as follows. First, to the best of our knowledge, we are the first to examine the causes of firm innovation from the perspective of cognitive psychology, specifically managerial myopia, which has been discussed (e.g. Yu et al., 2024), but not extensively tested in terms of innovation performance, efficiency and its negative impact in the long run using the textual mining approach. Thus, we expand the research on the influencing factors of firm innovation decisions and performance from the perspective of the managers' psychological characteristics.

Second, previous studies (e.g. Tang et al., 2021; Thoma & Tytusm 2018) show institutional settings such as language's FTR may influence time-preference, with weak FTR languages like Chinese being short-term focused. By adapting the text mining approach and capturing the short-termism words from firm's annual reports, we find managerial short time-preference, namely myopia, negatively affect long-term risky investments such as innovation. We argue weak FTR language countries could be particularly susceptible to this influence, and we explore several ways of moderating the negative impact of management myopia, which is particularly important for both policymakers and investors.

Third, we add to the literature by providing insight into whether government intervention works when managers are myopic in the face of firm's long-term investment. The results of this paper show that the government ownership, political intervention, and effective corporate governance are conducive to moderating management myopia effects on corporate innovation activities. This provides further evidence on positive effects of the government on firms and is a timely addition to the literature in the field of corporate governance and innovation studies.

The remainder of paper is as follows. Section 2 reveals the literature and develops our hypotheses. In section 3, we discuss our research design. We present the empirical results in Section 4 and explore some further analyses in section 5. Section 6 concludes the paper.

2. Literature review and hypothesis development

The time orientation theory in psychology holds that people have very different perceptions of time, and their attitudes and behavior towards specific events have both long-term and short-term orientations (Keough et al., 1999). People with a short-term orientation focus more on opportunism, while people with a long-term orientation prefer future possibilities (Wang & Bansal, 2012). According to the upper-echelon theory (Hambrick & Mason, 1984), which is widely used in management, the strategic decision-making of enterprises is affected by many characteristics of managers, such as age, education, gender and psychological characteristics (Manner, 2010). Applying time tendency in psychology to the upper echelon theory helps us observe how managers' perception of time affects corporate decision-making.

The manager's time orientation reflects the manager's personal characteristics. The existing literature shows that managers with a long-term perspective carefully consider the future results of investments and the long-term development of the enterprise when making decisions (Chen & Nadkarni, 2017). Managers who have a long-term orientation prioritize potential future benefits over short-term costs (Sherf et al., 2019). On the contrary, myopic managers focus on

the immediate consequences of decisions, hindering recognition of future opportunities and prompting managers to prioritize current profits over long-term interests (Hu et al., 2021). Empirical research shows consideration for current performance and stock performance, short-sighted managers prefer short-term financial performance at the expense of long-term corporate interests. Therefore, they are more inclined to choose projects with short duration and high returns (Holmstrom, 1999). Bereskin et al. (2021) find that managers' myopic cuts to marketing budgets that lead to a significant decrease in the survival rate of new brands, thereby incurring higher agency costs and reducing firm value.

In addition to managers' personal time preferences, language, itself, may also contributes to managerial myopia behavior. Literatures argue Chinese is a weak FTR language which is more short-term focused than strong FTR languages such as English, and therefore managers of Chinese firms could be particularly susceptible to the influence of myopia (Tang et al., 2021). However, findings based on managers' short-sighted behavior and firm innovation are currently unclear. Richardson (2006) find that short-sighted managers can be overconfident and overinvest in high-cost projects. As such, myopia may lead managers to overweight the benefits and/or downplay the uncertainties of innovation, and thereby increase R&D investment as a result. However, Hu et al. (2021) find short-sighted managers reduce R&D expenditure, because innovation requires continuous investment of large amounts of capital, with a long return cycle and high operating risks. Sheng et al. (2023) find that managerial myopia is closely related to innovation attenuation, as investment in innovation is considered harmful to short-term profits. Accordingly, we propose our first hypothesis:

H1: Managerial myopia has a negative impact on firm innovation.

SOEs play a significant role in China. Based on the Fortune Global 500 data in 2017, 75 of the 102 FG500 SOEs were from China (Lin et al., 2020). In terms of firm performance, according

to the State-owned Assets Supervision and Administration Commission of the State Counsil (SASAC), the total sales income from Chinese SOEs reached 85.7 trillion Chinese RMB in 2023. How well the government performs its ownership and functions in SOEs, including pursuing both economic and political benefits, depends on the quality of government governance (Dinc & Gupta, 2011). Many studies reveal government intervention affects corporate governance, and particularly in SOEs (e.g. Zhang et al., 2020). Xie et al. (2023) find state control reduces stock price crash risk through implementing conservative policies. Jia et al. (2019) find that state control enhances the functionality of corporate governance instruments and further reduces agency risk in innovation. In addition, even though Chinese SOEs have evolved to more market orientation organizations over the last 40 years, they still have strong obligations to fulfill political goals (Liu et al., 2019). McWilliams et al. (2006) find SOEs' response to government mandates is a key driver of managerial decision-making. Therefore, we argue that the prevalence of state ownership, and government's influence of SOEs' management decisions will be monitored under government intervention and guidance. More specifically, government ownership will reduce myopic behavior since managers are tasked with social and political goals in addition to the profit maximization objective of private firms (Xin et al., 2019). As such, they may be less concerned with short-run profitability, and therefore more likely to engage innovation investment.

In addition, as innovation is strategically significant to countries' future prospects (Hsu et al., 2014), the government's long-term national goals help negate managerial myopia towards firm innovation. Thus, our second hypothesis is presented as

H2: State ownership has a moderating role on the negative relationship between managerial myopia and firm innovation.

Many scholars have previously tested the role of corporate governance moderators in constraining and balancing firm-specific behavior (e.g. Hu et al., 2021; Fan et al., 2024). These influences include internal factors such as board characteristics, as well as external stakeholders of the firm, such as creditors, auditors, and institutional investors.

Zeng and Wu (2012) find that female executives in China mitigate agency problems through less financial manipulation and have a positive impact on firm innovation as a result. Allen et al. (2005) find that board structure affects firm decision-making. Independent directors have a positive impact on reducing agency costs and improving the corporate governance environment (Balsmeier et al., 2016), while institutional investors perform an external governance monitoring role (Jiang & Yuan, 2018). In addition, the improvement of audit quality reduces information asymmetry and improves governance transparency (Reichelt & Wang, 2010). In summary, we infer that a higher level of corporate governance promotes the cultivation of firms' long-term goals and reduces management opportunism, thereby moderating the negative impact of managerial myopia on corporate innovation.

Based on the above discussion, we propose the third hypothesis:

H3: Good corporate governance has a moderating role on the negative relationship between managerial myopia and firm innovation.

3. Research design

3.1 Sample and source of data

This paper employs a sample of A-share listed firms in China's Shanghai and Shenzhen markets from 2015-2020. In line with common practices in the previous finance literature (e.g. Wang et al., 2021; Chen et al., 2023), first we exclude firms from financial industries, since they have unique characteristics compared with other industries, for example the management of intangible assets and capital structure. Second, we exclude special treatment firms to mitigate

the bias of survivorship effect. After removing observations with missing data, the final sample consists of 8,944 firm-year observations for 2014 unique firms. All the continuous variables are winsorzied at the 1% level at both tails of their distributions to reduce the influence of outliers. Detailed definitions of relevant variables in the study are reported in the Appendix A1. Variables used in this study are obtained from a series of databases, which include firm's annual reports, Chins Stock Market Accounting Research (CSMAR), Wind, Huazheng ESG Index and National Bureau of Statistics of China (NBSC).

3.2 Measurement of variables

3.2.1 Measures of managerial myopia

We adopt managerial myopia (*Myopia*) as the main independent variable. The conceptual complexity of myopia makes its measurement challenging[1]. Following recent studies using textual analysis and machine learning methods (Brochet et al., 2015; Hu et al., 2021), we build a "short-term horizon" vocabulary in Chinese and confirm its validity of the short-sightedness indicator after actual comparison, internal consistency test and credibility test. We train a GloVe model on corporate textual disclosures of MD&A[2] part in annual reports and use the trained model to predict words with similar semantics to the seed words. We finally identify 37 myopia words, which include 28 short-term horizon words and 9 pressure words[3]. Then, based

[1] Previous literatures explore several approaches to proxy the short-termism behaviour in the management team, such as questionnaire (Marginson & McAulay, 2008) and horizon analysis using the ratio of firm's short-term investment (Fang & Jin, 2016). The shortcomings of these methods have been fully discussed in the previous literatures (e.g. Liu & Zhang, 2023; Hu et al., 2021). The management executives are busy people with heavy workloads as well as career concern, thus the response rate of questionnaires may be low and may prone to subjective bias (Chen et al., 2023). The horizon analysis by Fang and Jin (2016) observes managers' ex post facto and perceptions, not what they really feel at the time.
Social psychology suggests that language reflects a person's perceptions, preferences and personality (Webb et al., 1966), and that personality traits can be understood by analysing the type and frequency of words used in an observer's language (Pennebaker et al., 2003). In addition, the text mining approach can overcome the difficulties of low response late or cognitive bias from using questionnaire, and it has been widely used in recent studies (e.g. Liu & Zhang, 2023; Sheng et al., 2022; Zhang et al., 2023).

[2] Management discussion and analysis (MD&A) is a section within a listed company's annual report where executives investigate firm performance. It includes various discussion of decisions, risks, future goals and new projects.

[3] The 37 myopia words are reported in Appendix A3.

on the word set, the ratio of the total word frequency of the "myopia words" to the total word frequency of MD&A is calculated using the dictionary method. We multiply 100 to generate the manager's myopia attention index. The higher the value of the index, the more myopic the management team is.

3.2.2 Measures of firm innovation

Following previous literature (e.g. Ho et al., 2004; Kong et al., 2020), we measure a firm's innovation performance from both input and output perspective. The dependent variable of innovation input is based on R&D expenditure. Companies with missing R&D information have been removed from the sample and we scale real R&D expenditure by total assets and create the variable R&D ratio (*R&D*).

We measure the output performance with two patent-based metrics. The first metric is the quantity of output, defined as the natural logarithm of one plus the number of patent applications (*PA*) of the firm in the current year. The second metric is the quality of output, defined as the natural logarithm of one plus the number of patents that are eventually granted (*PG*) in a year.

3.2.3 Control variables

Financial data are retrieved from the CSMAR database and Wind database. Following previous literature in corporate innovation and managerial behavior (Faleye et al., 2014; Zhang et al., 2023), we control firm-level variables including company size (*Firm Size*), firm age (*Firm Age*), debt ratio (*Leverage*) and return on assets (*ROA*). We also include the ratio of market value and book value of total assets (*Tobin's Q*) and cash ratio (*Cash Ratio*). We consider the role of government subsidies (*Subsidy*) in firm innovation behavior (Guo et al., 2016). We also include a dummy variable indicating whether a firm is controlled by the government (*SOE*).

As corporate governance influences on firm innovation performance (e.g. Chang & Wu, 2021), we control the number of independent directors to the total number of directors on the board (*Independence*), the number of directors (*Board Size*) and the largest shareholding (*Concentration*). Chen et al. (2016) show that CEO characteristics, managerial skills and executive compensation affect innovation performance. Therefore, we control for the CEO's age (*CEO Age*), tenure (*CEO Tenure*), gender (*CEO Gender*), educational background (*CEO Education*), power (*CEO Duality*), as well as the compensation of the company's top three highest paid executives (*Gpay*). Finally, we include the annual GDP growth rate in a province during the fiscal year (*GDP Growth*).

3.3 Model specification

To test our main hypothesis, the following OLS regression model is designed based on the previous research methods of Hu et al. (2021) and Fan et al. (2024):

$$Innovation_{i,t} = \alpha + \beta_1 Myopia_{i,t} + \beta_2 Firm\ Size_{i,t} + \beta_3 Leverage_{i,t} + \beta_4 Firm\ Age_{i,t} + \beta_5 Tobin's\ Q_{i,t} + \beta_6 ROA_{i,t} + \beta_7 Cash\ Ratio_{i,t} + \beta_8 Subsidy_{i,t} + \beta_9 SOE_{i,t} + \beta_{10} Independence_{i,t} + \beta_{11} Board\ Size_{i,t} + \beta_{12} Concentration_{i,t} + \beta_{13} CEO\ Age_{i,t} + \beta_{14} CEO\ Tenure_{i,t} + \beta_{15} CEO\ Gender_{i,t} + \beta_{16} CEO\ Education_{i,t} + \beta_{17} CEO\ Duality_{i,t} + \beta_{18} Gpay_{i,t} + \beta_{19} GDP\ Growth_{i,t} + \sum \text{Industry FE} + \sum \text{Year FE} + \varepsilon_{i,t} \quad (1)$$

The dependent variables for *Innovation* in the regression include innovation input (*R&D*), innovation output quantity (*PA*), and innovation output quality (*PG*) respectively. The independent variable is managerial myopia (*Myopia*), and others are control variables. The model controls for industry fixed effect and year fixed effect, while *t*-statistics are calculated from the robust standard errors clustered at the firm level.

4. Empirical results

4.1 Summary statistics

Table 1 reports the sample descriptive statistics. The average value of *Myopia* is 0.12 with the standard deviation is 0.088. The results are very similar to previous studies using the same text mining approach (e.g. Zhang et al., 2023). The R&D expense of an average firm accounts for 2% of total assets, and the mean of patent application and patent grant are 3.218 and 2.861, which are consistent with existing literature (e.g. Fan et al., 2022; Kong et al., 2020). In terms of control variables, average leverage ratio is 43.4%, and average ROA is 3.1%. The average board size is 9 members[4] and nearly 38% of whom act as independent directors. This composition structure complies with the China Securities Regulatory Commission (CSRC) standards. The average age of CEOs in our sample is around 49 years[5] with an average education level of bachelor's degree. Overall, the distribution of the control variables in our sample is consistent with previous Chinese studies (e.g. Wang et al., 2021).

Insert Table 1 here

4.2 Sample distribution

Table 2 shows the sample distribution of our main independent variables managerial myopia (*Myopia*) across years, industries, and provinces.

Insert Table 2 here

Panel A shows the yearly distribution of the annual average managerial myopia index. From 2015 to 2017, we can notice a decreasing trend, before increasing to 2019. The index drops to 0.119 in 2020, with 6% drop compared with the number in the year of 2019. Panel B reports the average myopia index distribution at the industry level using the one-digit CSRC industry code. The highest myopia index is from transportation industry with the mean of 0.182 while

[4] The number is calculated as $e^{2.127} = 8.390$
[5] The number is calculated as $e^{3.892} = 49.009$

the lowest number 0.07 for the education industry. The panel reflects significant differences between industries. In Panel C, we see that there are also great differences in managerial myopia index between regions. To be specific, we draw a heat map of the myopia index of each province using the average number during the sample period[6]. Figure 1 represents the behavior of managerial myopia in each province of China. The darker the colour, the higher the variable value. We find on average, myopic managers are more concentrated in the central and south-western provinces. Overall, Panel C and Figure 1 imply large variations in the key independent variable across different regions.

Insert Figure 1 here

4.3 Correlation analysis

Table 3 shows the correlation matrix for independent variables. Most of the correlations reported are between -0.30 and 0.30. We also run the VIF test and the highest and mean VIF of our sample is 2.46 and 1.33 (results can be provided on request). Overall, the correlations and VIF results do not indicate any serious multicollinearity problems.

Insert Table 3 here

4.4 Baseline results

Table 4 reports the baseline results of Eq. (1), which utilize regression models to explore the relationship between managerial myopia and firm innovation decision and performance. We display all the control variables and include industry-fixed and year-fixed effects. In all model specifications, the coefficients of managerial myopia (*Myopia*) are negative and statistically significant at the 1% level; this supports our hypothesis 1, namely, that managerial myopia are negatively associated with firm innovation.

[6] Due to the data availability, we only include 27 provinces and 4 municipalities directly under the Central Government which are Beijing, Shanghai, Tianjin, and Chongqing.

As for the control variables, our findings demonstrate that firms with better performance and growth opportunities invest more in innovation activities. Also, large firms, firms securing more subsidies and SOEs have a higher level of innovation output. Additionally, CEO with longer tenure and higher education level contributes to better corporate innovation performance. Overall, the regression results of control variables are consistent with prior studies (e.g. Guo et al., 2016; Faleye et al., 2014).

4.5 Robustness tests

We next conduct a series of tests to ensure our results are robust.

4.5.1 Test of innovation efficiency

Following Quan and Yin (2017), we construct an indicator of innovation efficiency (*Efficiency*) based on the number of patent applications per unit of R&D investment, expressed as Ln(1+PA)/Ln(1+R&D investment). Further, we take the forward values of *Efficiency* to examine whether the relationship endures over time. The regression results in Panel A of Table 5 shows that the regression coefficients of *Myopia* in the regression models of innovation efficiency are all significantly negative, indicating that managerial myopia effects current and forward values of innovation efficiency.

4.5.2 Forward values of innovation measures

According to Brick et al. (2006), there exists a time lag between management decisions and firm performance. To be specific, our study focuses on the managerial myopia on firm innovation performance, and there is likely to be a lag between the managerial behavior and the implementation of the firm policy and its performance. To address this concern, we take the one-year forward value of our innovation measurements, which are one-year forward value of R&D expenditure ($R\&D_{t+1}$), one-year forward value of patent application (PA_{t+1}) and one-year forward value of patent grant (PG_{t+1}). Another issue as suggested by the innovation

literature (e.g. Kong et al., 2020) is there also exists a time lag between the firm's expenditure in innovation and its output. Thus, we further take the two-year forward value of innovation output measurements (PA_{t+2}) and (PG_{t+2}). We present the results in the Panel B of Table 5. Consistent with baseline findings, the coefficients of managerial myopia (*Myopia*) are still negative and statistically significant at the 1% level, which indicates our baseline results are robust. We also add province fixed effects and rerun this regression, and the coefficients of *Myopia* remain significantly negative at the 1% level[7].

4.5.3 Remove big cities

As there are development and resource allocation differences, key cities with well-developed economy often face more competitive markets and innovation intention. For example, Beijing firms may have greater access to subsidies according to Boeing (2016), while firms located in Shanghai and Shenzhen may have deeper access to financial markets and private funds (e.g. Huang et al., 2020), all of which would allow greater financing of innovation activities.

Therefore, it is necessary to test the impact of the myopia and innovation excluding key cities. Following Shen and Ren (2023), four municipalities directly under the central government, 22 provincial capitals and five cities specifically designated in the state plan[8] are excluded, and the regression results are shown in Table 5 Panel C. The results show that the impact of managerial myopia on innovation is still significantly negative after excluding the corresponding key cities, which indicates the baseline findings are robust.

4.5.4 Additional fixed effects to alleviate the problem of missing variables

Following Zhang et al. (2023), we add the joint effect of industry and year (*Industryear*) fixed effects and province (*Province*) fixed effects. Panel D of Table 5 shows that the coefficients of

[7] Results are available on request.
[8] The city specifically designated in the State Plan include Shenzhen, Dalian, Qingdao, Ningbo and Xiamen.

Myopia are all significantly negative at the 1% level after controlling for the joint effect of industry and year, as well as province fixed effects. Thus, the baselines results remain robust.

Insert Table 5 here

4.5.4 Propensity score matching

Next, we apply a propensity score matching (PSM) approach (Rosenbaum & Rubin, 1983). Our matching procedure relies on a one-to-one neighbor matching of propensity scores without replacement, which is estimated by a probit regression of the binary dummy variable on a set of firm control variables. The balanced test results are consistent with pairwise comparisons of the covariates on which the matching is performed before and after the matching process (Kong et al., 2020). Specifically, the results show no statistical differences across any of the firm characteristics after the PSM[9], suggesting that firms in the matched sample are comparable. The post-matching results shown in Table 6 indicate that managerial myopia negatively affects innovation.

Insert Table 6 here

4.5.5 Endogeneity – 2SLS

Our baseline results may be affected by endogeneity issues. First, potential omitted variables may affect both managerial myopia behavior and firm innovation. Second, causality problems may exist. To address these issues, we use an instrumental variable (IV) and a two-stage least square (2SLS) regression to reproduce the baseline estimation. Research shows gambling preferences affect the personal decision-making with regard to equity options, stock trading, as well as management decisions (Byun & Kim, 2016; Yao et al., 2019). According to Chen et al. (2015), managers from regions where gambling activities are more acceptable and universal,

[9] Balanced tests results after PSM are reported in Appendix A2.

care more about short-term returns and profits. The gambling preferences of a district reveal managerial opportunism (Sheng, et al., 2022), as local attitudes towards gambling may encourage mangers to act speculatively by making short-term decision and avoiding long-term investment. We employ the instrumental variables *Lottery*, which is the total welfare lottery sales scaled by GDP of a given year and province, following Ji et al. (2021), as the measure of provincial level gambling preference. The lottery sales information is obtained from the National Bureau of Statistics of China.

We first regress index of managerial myopia (*Myopia*) on our instrumental variable (*Lottery*). As expected, *Lottery* is positively related to *Myopia* index, and the coefficients are statistically significant at the 5% level. The results are presented in Table 7, which shows that regional gambling preference encourages the opportunism behavior and causes the short-termism of firm mangers. The first stage F statistics is 14.098, which are larger than the critical value of 10 suggested by Staiger and Stock (1994), indicating that our instrumental variable is not weak. The second stage results are shown in Columns (2) to (4) of Table 7. We use both industry year fixed effects, following Sheng et al. (2022). The coefficients of *Myopia* all remain significantly negative, which is consistent with the baseline results. Overall, our 2SLS IV analysis results support our baseline finding that managerial myopia reduces corporate innovation.

Insert Table 7 here

5. Further analysis

5.1 Impact of myopia and innovation on firm growth

Firm innovation has long been recognized as one of the key embodiments of firm sustainable competitiveness, firm growth and survival (Chuluun et al., 2017). Previous tests support our hypothesis 1 that myopia negatively affects innovation decision and hampers innovation performance, and consequently it is worthwhile to investigate whether reduced innovation will

weaken the firm's growth prospects. Following Fan et al. (2024), we use Tobin's Q as the explained variable. We interact the myopia index (*Myopia*) and R&D investment (*R&D*), taking the interaction term (*Myopia*R&D*) as the main explanatory variable. The test results in Table 8 show that the coefficients of interaction term are negative, and the coefficients are significant for the two- and three-years forward values of Tobin's Q. This result demonstrates that the managerial myopia weakens the positive impact of corporate innovation on firm growth and the value of the company, although this damage is not immediate, and instead there is a lagged effect before it becomes significant.

Insert Table 8 here

5.2 The moderating role of government ownership

The negative relationship between myopia and firm innovation is evident when myopia is proxied using a textual-mining approach. Given the importance of innovation to the Chinese sustainable growth and long-term goals, whether Chinese government prevent mangers short-sighted behaviors is worthwhile to investigate. To explore hypothesis 2, we investigate the moderating effects of government into two aspects, which are, the role of government ownership and strategic policies. More specifically, we divide our sample into SOE and non-SOE firms, and the result are shown in the Panel A of Table 9. We find in non-SOEs, the negative impact of myopia on all our innovation measures is significantly negative at the 1%. While myopia is negatively related to the innovation input measure at the 10% level for SOEs, and it is less economically significant[10]. Further, the negative impact on our innovation output measures is totally muted, indicating state ownership effectively moderates the negative impact of managerial myopia on firm innovation.

[10] According to the baseline results, the economic significance of myopia equals to -0.013*0.088/0.021 = -0.054 In SOE subsample of Table 9 panel A, the economic significance of myopia is -0.051, and – 0.061 in non-SOE subsample.

Normally, central government SOEs are more politically driven, and have stronger government involvement and monitoring (Xie et al., 2019). Thus, we further divide our sample into central-SOEs and local-SOEs and anticipate the moderating effect will be more pronounced in central-SOEs. As shown in the Panel B of Table 9, the negative impact of myopia on innovation performance is only significant in local-SOEs. Even though the impact of managerial myopia exists in local SOEs, the impact is still less statistically and economically significant compared with results from full sample regression. Moreover, firms belonging to central government ownership avoid the adverse effects of short-sightedness of managers.

As argued earlier, innovation investment is partially driven by the government concern of long-term economic growth. Therefore, we expect that companies bearing greater government policy priorities and support should experience lower impact of myopia on innovation. To support our hypothesis, we separate the full sample into the sub-samples of strategic and non-strategic industries. Strategic industries are defined to include mining, electric power, heat, gas and water, transportation, telecommunications and information technology, and scientific research and services as in Boubakri et al. (2009), Li and Yamada (2015), among others. According to Panel C of Table 9, myopia significantly reduces firm innovation only in the non-strategic industries subsample. The results highlight the mediating effect is more pronounced in firms which are in line with government influence through objectives and policy preferences.

To sum up, the results from heterogeneity analysis shown in Table 9 support our hypothesis 2 that government intervention has a moderating role on managerial myopia behavior.

Insert Table 9 here

5.3 The moderating effect of corporate governance

Corporate governance can monitor and moderate the managerial myopia (e.g. Hu et al., 2021; Fan et al., 2024). Fan et al. (2024) find that higher corporate governance inhibits the negative

impact of myopia on ESG performance. Hu et al. (2021) reveals the negative impact of myopia on capital expenditure could also be moderated by corporate governance.

Previous research suggests that audit quality can help firms raise equity more frequently with larger issues (Chang et al., 2009), lower the cost of debt (Mansi et al., 2004) and increase firm innovation performance by reducing the moral hazard costs of innovation investment (Nguyen et al., 2020). Moreover, audit quality constrains managers' opportunistic behavior (Lobo et al., 2018), since high quality of audit work mitigates information opacity and agency problems (Reichelt & Wang, 2010). Therefore, we expect audit quality to reduce the negative impact of short-sightedness on R&D and innovation performance. Following previous studies (Che et al., 2020), we introduce the dummy variable for the top 4 international audit firms (*Big 4*) as a proxy of auditor quality. This dummy variable equals one if a firm is audited by Big 4 audit firms, and zero otherwise. The Panel A of Table 10 presents the results after we interact the *Big 4* and *Myopia* variables. As predicted, we find the negative relationship between managerial myopia and innovation is moderated when the audit quality is high. In addition, we observe that auditors monitoring contributes to better patent application and grant.

Second, we argue institutional investors have a monitoring and inhibiting effect on management's short-sighted behavior. Unlike individual investors, institutional investors have large capital and strong expertise, and have a strong value investment philosophy, which is motivated by acquiring the long-term value of the firm rather than focusing only on the short-term performance of the firm (Jiang & Yuan, 2018). In addition, institutional investors can implement their investment objectives into the production and operational behaviors of firms through their influence on the management team, thus romote long-term investment behaviors (Fan et al., 2024). Aghion et al. (2013) find a positive relation between R&D expenditures and the fraction of shares owned by institutional investors. Jiang and Yuan (2018) find institutional investors promote corporate innovation through site visits to firms. Therefore, we expect that

institutional investors can effectively monitor management, inhibit managerial myopia behavior, and promote firms' attention and investment in R&D and innovation. Considering the potential effect, we add the term of institutional investors (*Institution*) in the model and interact it with myopia variable. According to the results presented in the Panel B of Table 10, there is no significant negative relation between the interaction term and firm innovation measurements. The results highlight that institutional investor external monitoring role effectively inhibits the negative impact of management myopia on firm innovation.

Moreover, the structure of board affects firm decisions and performance (Allen et al., 2005). Evidence shows firms in China rely heavily on board members to access capital and improve market competitiveness (Sun & Zou, 2021). Balsmeier et al. (201) suggest independent directors have positive impact on reducing agency costs and improving firm governance. They find companies transitioning to independent boards are more focused on technology and long-term development. These companies file more patents and receive more citations. Consistent with these studies, we argue board with more independent directors enhance firm governance and reduce managers' behavior of myopia. To test our hypothesis, we introduce the interaction term between board independence (*Independence*) and myopia index (*Myopia*) in Eq. (2), and the result in the Panel C of Table 10. It reveals that the negative impact is missing, indicating independence board directors ease the tension of managerial myopia on innovation.

Additionally, gender may also be important. Zeng and Wu (2012) find that female executives in China have a positive impact on corporate innovation. Further, Tate and Yang (2015) suggest that having women in leadership can have important externalities and improve team efficiency, while Liu et al. (2014) find female CFOs engage in less earning manipulation and have higher quality of financial reporting. This literature supports the existence of gender differences between male and female executives in making corporate decisions. Typically, women are less overconfident (Gao et al., 2016). We interact the female ratio of board members (*Board*

diversity) and managerial myopia index in Eq. (2) and rerun the baseline regression. The results are reported in the Panel D of Table 10, which shows that the negative impact of myopia on R&D expenditure and patent is offset.

Overall, Table 10 reveals that corporate governance plays a moderating role on the negative relationship between managerial myopia and innovation, which supports our hypothesis 3.

Insert Table 10 here

6. Conclusion

Innovation is the key to firm's sustainable development. Management is the leading decision maker in the company and plays a significant role in the innovation process. Following time orientation theory in psychology, this paper focuses on the short-termism behaviors of management, namely, managerial myopia, and its impact on firm innovation. We introduce recent text mining approach to proxy myopia, and we capture the significant negative relationship between managerial myopia and firm R&D expenditure, patent output, patent quality and innovation efficiency. Results are robust after several model specifications and endogeneity checks. Moreover, we find this negative relationship would further harm the company's future growth prospects in the long run. Further analyses reveal that government ownership, political support and good corporate governance greatly inhibit the negative effects of management short-sightedness.

Our findings shed light on the importance of managerial myopia in corporate innovation decisions and performance. We also capture a potential advantage of government ownership to management decision-making at the firm level, which is of interest to both policymakers and investors.

Table 1. Summary Statistics

Variables	N	Mean	S.D.	Min	25%	Median	75%	Max
R&D	8,944	0.021	0.019	0	0.008	0.018	0.029	0.099
PA	8,944	3.217	1.641	0	2.197	3.332	4.277	7.276
PG	8,944	2.859	1.568	0	1.792	2.944	3.892	6.843
Myopia	8,944	0.120	0.088	0	0.055	0.102	0.165	0.423
Firm Size	8,944	22.502	1.227	20.154	21.642	22.340	23.197	26.302
Leverage	8,944	0.432	0.196	0.066	0.279	0.426	0.579	0.898
Firm Age	8,944	2.990	0.253	2.305	2.833	2.998	3.162	3.610
Tobin's Q	8,944	2.122	1.410	0.836	1.233	1.667	2.441	8.758
ROA	8,944	0.032	0.071	-0.303	0.011	0.034	0.064	0.211
Cash Ratio	8,944	0.140	0.101	0.012	0.067	0.114	0.182	0.513
Subsidy	8,944	0.005	0.005	0	0.002	0.003	0.006	0.027
SOE	8,944	0.352	0.478	0	0	0	1	1
Independence	8,944	0.375	0.053	0.333	0.333	0.333	0.429	0.571
Board Size	8,944	2.127	0.197	1.609	1.946	2.197	2.197	2.708
Concentration	8,944	0.327	0.140	0.088	0.218	0.304	0.418	0.708
CEO Age	8,944	3.892	0.138	3.466	3.807	3.912	3.989	4.174
CEO Tenure	8,944	4.855	3.608	1	2	4	7	17
CEO Gender	8,944	0.936	0.244	0	1	1	1	1
CEO Education	8,944	3.159	1.278	1	2	4	4	5
CEO Duality	8,944	0.256	0.437	0	0	0	1	1
Gpay	8,944	14.532	0.667	12.967	14.093	14.504	14.926	16.438
GDP Growth	8,944	0.075	0.053	-0.192	0.053	0.077	0.107	0.202

This table presents summary statistics for main variables in our samples. All variables are defined in Appendix A1.

Table 2. Sample Distribution

Panel A.	Myopia
Myopia across years	
Year	
2015	0.137
2016	0.118
2017	0.111
2018	0.118
2019	0.125
2020	0.119
Panel B.	Myopia
Myopia across industries	
Industry	
Transportation	0.182
Mining	0.176
Electricity, Gas and Water	0.170
Real estate	0.162
Comprehensive	0.156
Wholesale and Resale Trade	0.133
Construction	0.131
Culture, Sports and Entertainment	0.125
Agriculture, Forestry, Animal Husbandry, and Fishery	0.124
Manufacturing	0.116
Public Facilities Management	0.110
Scientific Research and Services	0.103
Leasing and Business Services	0.092
Accommodation and Catering	0.089
Health and Social Service	0.076
Information Technology	0.073
Education	0.070
Panel C.	Myopia
Myopia across provinces	
Province	
Xizang	0.184
Shanxi	0.173
Qinghai	0.172
Heilongjiang	0.172
Gansu	0.166
Chongqing	0.156
Hainan	0.151
Shaanxi	0.147
Guangxi	0.142
Shanghai	0.138
Sichuan	0.137

Neimenggu	0.135
Guizhou	0.133
Tianjin	0.132
Yunan	0.130
Ningxia	0.129
Liaoning	0.128
Anhui	0.127
Xinjiang	0.124
Jiangsu	0.123
Henan	0.123
Fujian	0.122
Hebei	0.118
Hubei	0.117
Jiangxi	0.117
Zhejiang	0.115
Hunan	0.115
Jilin	0.114
Shandong	0.114
Beijing	0.111
Guangdong	0.098

This table presents the mean of managerial myopia by year, industry and province respectively.

Figure 1. Geographical characteristics of managerial myopia

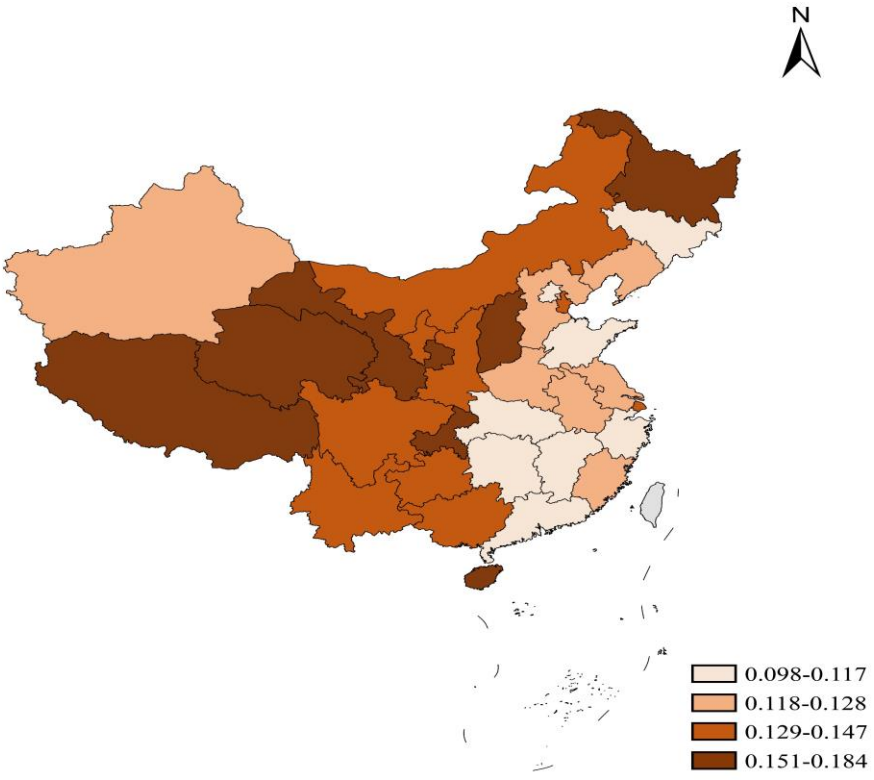

Table 3. Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. Myopia	1																		
2. Firm Size	0.190	1																	
3. Leverage	0.180	0.494	1																
4. Firm Age	0.091	0.122	0.120	1															
5. Tobin's Q	-0.111	-0.465	-0.321	-0.142	1														
6. ROA	-0.079	0.087	-0.312	-0.029	0.166	1													
7. Cash Ratio	-0.083	-0.155	-0.321	-0.019	0.237	0.214	1												
8. Subsidy	-0.050	0.165	-0.055	-0.033	0.130	-0.006	0.013	1											
9. SOE	0.262	0.355	0.277	0.154	-0.176	-0.040	0.019	-0.041	1										
10. Independence	-0.039	-0.004	0.001	-0.065	0.045	-0.022	0.033	0.040	-0.041	1									
11. Board Size	0.121	0.271	0.141	0.107	-0.141	0.039	-0.034	-0.055	0.266	-0.547	1								
12. Concentration	0.140	0.238	0.066	-0.080	-0.046	0.141	0.072	-0.071	0.276	0.054	0.054	1							
13. CEO Age	0.092	0.124	0.040	0.063	-0.050	0.043	0.010	0.007	0.140	0.017	0.072	0.086	1						
14. CEO Tenure	-0.027	-0.025	-0.074	0.075	0.018	0.066	0.004	0.029	-0.153	0.021	-0.012	-0.094	0.276	1					
15. CEO Gender	0.054	0.043	0.027	-0.019	-0.035	0.016	-0.025	0.017	0.081	-0.082	0.095	0.012	0.007	-0.010	1				
16. CEO Education	0.051	0.093	0.044	0.034	-0.010	0.010	0.019	0.035	0.151	-0.012	0.077	0.021	-0.034	-0.018	-0.009	1			
17. CEO Duality	-0.144	-0.143	-0.103	-0.095	0.092	0.016	0.013	0.030	-0.292	0.109	-0.182	-0.072	0.151	0.243	-0.008	-0.069	1		
18. Gpay	0.004	0.432	0.110	0.182	-0.124	0.172	0.048	0.028	0.038	0.001	0.100	0.001	0.112	0.056	0.014	0.086	-0.004	1	
19. GDP Growth	-0.029	-0.035	-0.044	-0.098	0.004	0.040	0.034	0.005	-0.044	0.008	0.005	0.001	-0.026	0.011	0.025	-0.008	0.036	-0.001	1

This table displays the correlation statistics of main variables. All variables are defined in the Appendix A1. The VIF is also tested, and results show that there is no multicollinearity issue in our model.

Table 4. Baseline

VARIABLES	(1) R&D	(2) PA	(3) PG
Myopia	-0.013***	-0.938***	-0.829***
	(-4.811)	(-3.983)	(-3.600)
Firm Size	-0.001***	0.602***	0.554***
	(-3.051)	(20.034)	(18.608)
Leverage	-0.001	-0.039	-0.031
	(-0.380)	(-0.247)	(-0.205)
Firm Age	-0.002	-0.224**	-0.170
	(-1.564)	(-2.085)	(-1.635)
Tobin's Q	0.002***	0.006	-0.009
	(5.741)	(0.322)	(-0.505)
ROA	0.010**	0.475	-0.206
	(2.349)	(1.551)	(-0.715)
Cash Ratio	0.009***	0.160	0.121
	(2.641)	(0.685)	(0.549)
Subsidy	0.717***	39.695***	38.382***
	(8.811)	(8.712)	(8.606)
SOE	0.001	0.140**	0.106*
	(0.713)	(2.261)	(1.779)
Independence	0.016**	-0.061	0.011
	(2.470)	(-0.111)	(0.021)
Board Size	-0.001	0.084	0.071
	(-0.243)	(0.498)	(0.461)
Concentration	-0.002	-0.281	-0.027
	(-0.912)	(-1.406)	(-0.143)
CEO Age	-0.002	0.084	0.009
	(-0.935)	(0.472)	(0.056)
CEO Tenure	0.000***	0.015**	0.013**
	(3.350)	(2.206)	(2.062)
CEO Gender	0.002	0.142	0.105
	(1.233)	(1.580)	(1.280)
CEO Education	0.000	0.039**	0.030*
	(1.289)	(2.191)	(1.761)
CEO Duality	0.000	0.016	0.007
	(0.299)	(0.292)	(0.131)
Gpay	0.005***	0.184***	0.173***
	(9.656)	(4.484)	(4.299)
GDP Growth	0.011***	1.971***	1.938***
	(2.755)	(5.250)	(5.586)
Constant	-0.025**	-13.470***	-12.314***
	(-2.041)	(-13.582)	(-12.894)
Observations	8,944	8,944	8,944
Adjusted R^2	0.389	0.410	0.417
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

The sample consists of 8,944 firm-year observations between 2015 and 2020. The dependent variable is the firm innovation input measured by R&D expenditure (*R&D*), innovation output quantity

measured by the numbers of patent application (*PA*), innovation output quality measured by the numbers of patent grant (*PG*). The independent variable is the indicator of managerial myopia (*Myopia*) based on the text analysis. All variables are defined in the Appendix A1. The *t*-statistics in parentheses are calculated from the robust standard errors clustered at the firm level. The symbols ***, **, and* denote significance level at the 1%, 5%, and 10% levels, respectively.

Table 5. Robustness test

Panel A. Test of innovation efficiency

	(1)	(2)	(3)	(4)
VARIABLES	Efficiency	$Efficiency_{t+1}$	$Efficiency_{t+2}$	$Efficiency_{t+3}$
Myopia	-0.043***	-0.046***	-0.054***	-0.042**
	(-3.448)	(-3.243)	(-3.499)	(-2.502)
Constant	-0.499***	-0.486***	-0.459***	-0.433***
	(-9.708)	(-8.424)	(-7.569)	(-6.536)
Observations	8,944	6,301	4,859	3,471
Adjusted R^2	0.326	0.318	0.321	0.312
Control	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Panel B. Forward looking

	(1)	(2)	(3)	(4)	(5)
VARIABLES	$R\&D_{t+1}$	PA_{t+1}	PG_{t+1}	PA_{t+2}	PG_{t+2}
Myopia	-0.014***	-1.020***	-0.895***	-1.182***	-1.027***
	(-4.430)	(-3.799)	(-3.525)	(-4.075)	(-3.702)
Constant	-0.021	-13.402***	-11.801***	-13.082***	-11.325***
	(-1.479)	(-11.993)	(-11.069)	(-11.089)	(-9.728)
Observations	6,301	6,301	6,301	4,859	4,859
Adjusted R^2	0.373	0.401	0.418	0.401	0.412
Control	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes

Panel C. Remove big cities

	(1)	(2)	(3)
VARIABLES	R&D	PA	PG
Myopia	-0.007**	-1.376***	-1.321***
	(-2.107)	(-4.237)	(-4.153)
Constant	-0.017	-13.286***	-11.821***
	(-1.155)	(-9.858)	(-8.828)
Observations	4,268	4,268	4,268
Adjusted R^2	0.318	0.372	0.368
Control	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

Panel D. Add fixed effects to alleviate the issue of missing variables

VARIABLES	(1) R&D	(2) PA	(3) PG
Myopia	-0.011***	-0.799***	-0.675***
	(-3.960)	(-3.380)	(-2.921)
Constant	-0.028**	-14.324***	-12.859***
	(-2.249)	(-13.981)	(-13.147)
Observations	8,944	8,944	8,944
Adjusted R^2	0.406	0.426	0.433
Control	Yes	Yes	Yes
Industry*Year FE	Yes	Yes	Yes
Province FE	Yes	Yes	Yes

Table 5 reports the robustness test results. In panel A, we test the innovation efficiency. Efficiency measures how many output the firm achieve in terms of one unit of R&D expenditure, calculated as Ln (1+PA) divided by Ln (1+ R&D investment). In panel B, we take the one-year forward value of all dependent variables first and results are presented in columns (1), (2) and (3). Furthermore, we take the two-year forward value of innovation output measurements and show the results in columns (4) and (5). In panel C, we remove the key cities in the sample and rerun the baseline regression. In panel D, we add the fixed effect of province and joint effect of industry and year. All variables are defined in the Appendix A1. The *t*-statistics in parentheses are calculated from the robust standard errors clustered at the firm level. The symbols ***, **, and* denote significance level at the 1%, 5%, and 10% levels, respectively.

Table 6. PSM - matched sample regression

VARIABLES	(1) R&D	(2) PA	(3) PG
Myopia	-0.016***	-1.035***	-1.015***
	(-5.341)	(-3.923)	(-3.922)
Constant	-0.021	-13.060***	-11.888***
	(-1.628)	(-12.295)	(-11.545)
Observations	6,692	6,692	6,692
Adjusted R^2	0.345	0.413	0.418
Control	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

This table reports the results after we rerun the baseline regression using the matched sample. The balanced test results after matching are reported in the Appendix A2. All variables are defined in the Appendix A1. The *t*-statistics in parentheses are calculated from the robust standard errors clustered at the firm level. The symbols ***, **, and* denote significance level at the 1%, 5%, and 10% levels, respectively.

Table 7. 2SLS – IV regression

	First Stage	Second Stage		
	(1)	(2)	(3)	(4)
VARIABLES	MP	R&D	PA	PG
Lottery	4.191**			
	(2.311)			
Myopia		-0.334***	-28.244***	-29.137***
		(-3.298)	(-3.232)	(-3.295)
Constant	-0.206***	-0.096***	-19.776***	-18.827***
	(-3.441)	(-4.054)	(-9.589)	(-9.067)
Observations	8,944	8,944	8,944	8,944
Adjusted R^2	0.138	-1.596	-1.443	-1.764
Control	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
F-value	14.859			

This table reports the results of the 2SLS regression with instrumental variable. The instrumental variable is total welfare lottery sales scaled by GDP in the province. All variables are defined in the Appendix A1. The *t*-statistics in parentheses are calculated from the robust standard errors clustered at the firm level. The symbols ***, **, and* denote significance level at the 1%, 5%, and 10% levels, respectively.

Table 8. Managerial myopia and innovation impact on firm growth opportunities

	(1)	(2)	(3)	(4)
VARIABLES	Tobin's Q	Tobin's Q_{t+1}	Tobin's Q_{t+2}	Tobin's Q_{t+3}
Myopia*R&D	-10.364	-14.849	-31.667*	-36.221*
	(-0.632)	(-0.903)	(-1.762)	(-1.895)
Myopia	0.216	0.416	0.637**	0.925***
	(0.732)	(1.371)	(1.978)	(2.700)
R&D	12.327***	11.486***	13.267***	15.425***
	(5.127)	(4.433)	(4.535)	(4.414)
Constant	10.589***	7.245***	5.025***	3.765***
	(12.225)	(7.491)	(4.988)	(3.505)
Observations	8,944	6,301	4,859	3,471
Adjusted R^2	0.404	0.313	0.255	0.250
Control	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes

Table 8 investigates whether the negative impact of myopia on firm innovation weaken firm growth prospect in the long run. We take Tobin's Q as the explained variable. All variables are defined in the Appendix A1. The *t*-statistics in parentheses are calculated from the robust standard errors clustered at the firm level. The symbols ***, **, and* denote significance level at the 1%, 5%, and 10% levels, respectively.

Table 9. The merits of government ownership and policy

Panel A: SOE & Non-SOE

	SOE			Non-SOE		
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	R&D	PA	PG	R&D	PA	PG
Myopia	-0.009*	-0.450	-0.401	-0.017***	-1.233***	-1.103***
	(-1.927)	(-1.336)	(-1.255)	(-4.624)	(-3.816)	(-3.392)
Constant	0.025	-13.766***	-13.488***	-0.039**	-12.408***	10.724***
	(1.343)	(-7.375)	(-7.462)	(-2.489)	(-10.213)	(-9.145)
Observations	3,151	3,151	3,151	5,793	5,793	5,793
Adjusted R^2	0.395	0.491	0.493	0.384	0.354	0.365
Control	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Panel B. Central SOE & Local SOE

	Central SOE			Local SOE		
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	R&D	PA	PG	R&D	PA	PG
Myopia	-0.009	0.003	-0.105	-0.008*	-0.756*	-0.654*
	(-1.466)	(0.007)	(-0.209)	(-1.912)	(-1.799)	(-1.723)
Constant	-0.003	-12.570***	-12.370***	0.037	-14.409***	-14.455***
	(-0.068)	(-3.816)	(-3.941)	(1.528)	(-6.299)	(-6.465)
Observations	1,208	1,208	1,208	1,943	1,943	1,943
Adjusted R^2	0.433	0.538	0.540	0.360	0.473	0.477
Control	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Panel C. Strategic industry

	Strategic industry			Non-strategic industry		
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	R&D	PA	PG	R&D	PA	PG
Myopia	-0.009	-1.138	-1.138	-0.014***	-0.890***	-0.770***
	(-1.267)	(-1.586)	(-2.085)	(-4.885)	(-3.492)	(-3.071)
Constant	-0.087*	-19.759***	-16.171***	-0.016	-12.704***	-11.905***
	(-1.805)	(-5.088)	(-6.335)	(-1.304)	(-12.100)	(-11.646)
Observations	1,408	1,408	1,408	7,536	7,536	7,536
Adjusted R^2	0.559	0.269	0.273	0.297	0.427	0.430
Control	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes

Table 9 presents the moderating role of government on myopia and innovation. We consider two aspects, which are government ownership and policies. We divide our sample into SOE & Non-SOE, Central SOE & Local SOE and whether the firm belongs to the strategic industry. All variables are defined in the Appendix A1. The *t*-statistics in parentheses are calculated from the robust standard errors clustered at the firm level. The symbols ***, **, and* denote significance level at the 1%, 5%, and 10% levels, respectively.

Table 10. The moderating role of corporate governance

Panel A: Auditors monitoring

	(1)	(2)	(3)
VARIABLES	R&D	PA	PG
Myopia*Big 4	0.008	2.277**	2.442***
	(0.886)	(2.563)	(2.806)
Myopia	-0.013***	-1.069***	-0.982***
	(-4.794)	(-4.401)	(-4.147)
Big4	-0.001	-0.636***	-0.563***
	(-0.710)	(-3.049)	(-2.855)
Constant	-0.025**	-14.116***	-12.744***
	(-2.013)	(-13.846)	(-12.938)
Observations	8,944	8,944	8,944
Adjusted R^2	0.388	0.412	0.419
Control	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

Panel B. Institutional investors

	(1)	(2)	(3)
VARIABLES	R&D	PA	PG
Myopia*Institution	-0.022	3.502	3.827
	(-0.623)	(1.059)	(1.186)
Myopia	-0.011***	-1.008***	-0.932***
	(-3.757)	(-3.797)	(-3.530)
Institution	0.018***	0.997**	0.682
	(2.797)	(2.217)	(1.545)
Constant	-0.019	-12.964***	-11.905***
	(-1.585)	(-13.028)	(-12.359)
Observations	8,944	8,944	8,944
Adjusted R^2	0.391	0.413	0.419
Control	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

Panel C. Independent directors

	(1)	(2)	(3)
VARIABLES	R&D	PA	PG
Myopia*Independence	-0.077	0.162	-0.405
	(-1.597)	(0.038)	(-0.100)
Myopia	0.016	-0.999	-0.679
	(0.872)	(-0.621)	(-0.444)
Independence	0.025**	-0.081	0.059
	(2.568)	(-0.102)	(0.081)
Constant	-0.028**	-13.462***	-12.333***
	(-2.234)	(-13.190)	(-12.562)
Observations	8,944	8,944	8,944
Adjusted R^2	0.389	0.410	0.417
Control	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes

Year FE	Yes	Yes	Yes

Panel D. Female ratio in board

	(1)	(2)	(3)
VARIABLES	R&D	PA	PG
Myopia*Board diversity	0.016	0.139	-0.281
	(0.876)	(0.083)	(-0.173)
Myopia	-0.015***	-0.954***	-0.786**
	(-3.862)	(-2.843)	(-2.472)
Female CEO	-0.005	-0.175	-0.073
	(-1.432)	(-0.685)	(-0.300)
Constant	-0.023*	-13.383***	-12.261***
	(-1.889)	(-13.475)	(-12.816)
Observations	8,944	8,944	8,944
Adjusted R^2	0.389	0.410	0.417
Control	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes

Table 10 reports the moderating tests of good corporate governance effect on myopia and innovation. The moderators are auditors monitoring (*Big 4*), institutional investors (*Institution*), board independence (*Independence*) and female ratio of board members (*Board diversity*). All variables are defined in the Appendix A1. The *t*-statistics in parentheses are calculated from the robust standard errors clustered at the firm level. The symbols ***, **, and* denote significance level at the 1%, 5%, and 10% levels, respectively.

Appendix. Table A1

Variables	Definition
R&D	R&D expenditure scaled by total assets
PA	The natural logarithm of one plus the number of patent applications in a year
PG	The natural logarithm of one plus the number of patent grants in a year
MP	Myopia, number of short-term keywords divided by total words multiplied by 100 in the section of management discussion and analysis (MD&A) in the annual reports
Firm Size	The natural logarithm of total assets of a firm
Leverage	Total debt divided by total assets
Firm Age	The natural logarithm of listing age of a firm
Tobin's Q	The ratio of market value and book value of total assets
ROA	Net income divided by total assets
Cash Ratio	The ratio of cash and tradable securities to total assets
Subsidy	Government subsidies to firms divided by total assets
SOE	Dummy variable equal to 1 if the firm is state-owned, and 0 otherwise
Independence	The number of independent directors as a percentage of the total number of directors on the board
Board Size	The natural logarithm of the total number of directors on the board
Concentration	Top one shareholding, which is the largest shareholding
CEO Age	The natural logarithm of CEO age
CEO Tenure	Tenure of CEO
CEO Gender	Dummy variable equal to 1 if the CEO is male, and 0 for female
CEO Education	A five-point scale reflecting the highest levels of education attained (1 = below college degree, 2 = college degree, 3 = undergraduate degree, 4 = master's degree, 5 = Ph.D. degree)
CEO Duality	Dummy variable equal to 1 if the CEO also serves as the chairman, and 0 otherwise
Gpay	The natural logarithm of the compensation of the company's top three highest paid executives
GDP Growth	The annual GDP growth rate in a province during the fiscal year
Efficiency	Innovation efficiency, calculated as the natural logarithm of one plus the number of patent applications divided by the natural logarithm of one plus R&D expenditure, following Quan and Yin (2017).
Lottery	An indicator of provincial-level gambling preference. It is calculated as the total welfare lottery sales scaled by GDP in the province in a year, following Sheng et al. (2022)
Big 4	An indicator variable for auditor quality. It equals one if a firm is audited by Big 4 audit firms, and zero otherwise
Institution	The number of shares held by institutional investors over the total number of shares
Board Diversity	Measured by the female ratio among board members

Appendix Table A2. Balanced tests after PSM

Variable	Sample	Treated	Control	%bias	bias	t-statistics	p>t
Firm Size	Unmatched	22.702	22.305	32.8		15.50	0.000
	Matched	22.436	22.453	-1.4	95.9	-0.58	0.564
Leverage	Unmatched	0.461	0.403	29.7		14.04	0.000
	Matched	0.426	0.429	-1.5	95.0	-0.62	0.532
Firm Age	Unmatched	3.010	2.970	15.9		7.52	0.000
	Matched	2.998	2.996	0.7	95.8	0.28	0.781
Tobin's Q	Unmatched	1.984	2.258	-19.5		-9.22	0.000
	Matched	2.131	2.138	-0.5	97.3	-0.22	0.826
ROA	Unmatched	0.027	0.036	-11.7		-5.54	0.000
	Matched	0.033	0.032	1.5	87.6	0.60	0.548
Cash Ratio	Unmatched	0.131	0.148	-16.6		-7.85	0.000
	Matched	0.138	0.136	2.0	88.0	0.84	0.403
Subsidy	Unmatched	0.004	0.005	-7.8		-3.67	0.000
	Matched	0.005	0.005	0.3	95.5	0.14	0.887
SOE	Unmatched	0.457	0.249	44.6		21.12	0.000
	Matched	0.316	0.322	-1.3	97.1	-0.52	0.600
Independence	Unmatched	0.374	0.377	-5.4		-2.56	0.011
	Matched	0.374	0.375	-1.5	72.8	-0.61	0.541
Board Size	Unmatched	2.147	2.107	20.3		9.61	0.000
	Matched	2.124	2.123	0.3	98.5	0.13	0.896
Concentration	Unmatched	0.343	0.311	23.4		11.07	0.000
	Matched	0.321	0.324	-2.0	91.4	-0.85	0.397
CEO Age	Unmatched	3.902	3.882	14.2		6.70	0.000
	Matched	3.891	3.891	-0.6	96.0	-0.23	0.816
CEO Tenure	Unmatched	4.834	4.876	-1.2		-0.55	0.581
	Matched	4.873	4.918	-1.3	-7.8	-0.52	0.604
CEO Gender	Unmatched	0.948	0.925	9.6		4.54	0.000
	Matched	0.935	0.935	-0.4	96.2	-0.15	0.882
CEO Education	Unmatched	3.210	3.107	8.1		3.81	0.000
	Matched	3.107	3.123	-1.2	85.2	-0.48	0.629

CEO Duality	Unmatched	0.204	0.309	-24.2		-11.43	0.000
	Matched	0.250	0.254	-1.0	95.7	-0.42	0.673
Gpay	Unmatched	14.537	14.528	1.2		0.59	0.555
	Matched	14.533	14.535	-0.3	74.0	-0.13	0.895
GDP Growth	Unmatched	0.073	0.077	-7.7		-3.63	0.000
	Matched	0.075	0.075	-0.3	95.9	-0.13	0.896

This table reports the balanced test result after matching. Our matching procedure relies on a one-to-one nearest neighbor matching of propensity scores without replacement, which are estimated by a probit regression. All variables are defined in the Appendix A1.

Appendix Table A3. List of short-termism words

Myopia Words					
Time (*28*)	尽快	尽早	早日	抓紧	及早
	as soon as possible	as early as possible	early	make the most of	at the earliest time
	力争	全力	立即	加紧	数月
	strive	fully	immediately	speed up	several months
	年内	立刻	马上	日内	数天
	within a year	at once	right away	within a day	several days
	随即	即刻	在即	最晚	最迟
	immediately	instantly	imminent	late	no later than
	关头	恰逢	来临之际	前夕	适逢
	critical moment	coincide with	approaching	the day before	just happened to
	遇上	正逢	之时		
	encounter	just in time for	at the time of		
Pressure (*9*)	契机	之际	压力	考验	难度
	opportunity	at the point of	pressure	test	difficulty
	困境	严峻考验	双重压力	通胀压力	
	dilemma	severe test	double stress	inflation pressure	

References

Aghion, P., Van Reenen, J., & Zingales, L. (2013). Innovation and institutional ownership. *American Economic Review*, *103*(1), 277-304.

Allen, F., Qian, J., Qian, M. (2005). Law, finance, and economic growth in China. *Journal of Financial Economics*, *77*(1), 57–116.

Balsmeier, B., Fleming, L., & Manso, G. (2016). Independent boards and innovation. *Journal of Financial Economics*, *123*(3), 536-557.

Bereskin, F., Hsu, P. H., Na, K., & Rotenberg, W. (2021). Managerial myopia and brand innovation. *Available at SSRN 3103340*.

Boeing, P. (2016). The allocation and effectiveness of China's R&D subsidies-Evidence from listed firms. *Research Policy*, *45*(9), 1774-1789.

Boubakri, N., Cosset, J. C., & Guedhami, O. (2009). From state to private ownership: Issues from strategic industries. *Journal of Banking & Finance*, *33*(2), 367-379.

Brick, I. E., Palmon, O., & Wald, J. K. (2006). CEO compensation, director compensation, and firm performance: Evidence of cronyism? *Journal of Corporate Finance*, *12*(3), 403-423.

Brochet, F., Loumioti, M., & Serafeim, G. (2015). Speaking of the short-term: Disclosure horizon and managerial myopia. *Review of Accounting Studies*, *20*, 1122-1163.

Byun, S. J., & Kim, D. H. (2016). Gambling preference and individual equity option returns. *Journal of Financial Economics*, *122*(1), 155-174.

Chang, C. H., & Wu, Q. (2021). Board networks and corporate innovation. *Management Science*, *67*(6), 3618-3654.

Chang, X., Dasgupta, S., & Hilary, G. (2009). The effect of auditor quality on financing decisions. *The Accounting Review*, *84*(4), 1085-1117.

Che, L., Hope, O. K., & Langli, J. C. (2020). How big-4 firms improve audit quality. *Management Science*, *66*(10), 4552-4572.

Chen, C., Chen, Y., Hsu, P. H., & Podolski, E. J. (2016). Be nice to your innovators: Employee treatment and corporate innovation performance. *Journal of Corporate Finance*, *39*, 78-98.

Chen, C., Wang, T., & Jia, X. (2023). Short-termism in financial decision-making: Uncovering the influence of managerial myopia on corporate financial asset allocation through MD&A textual analysis. *International Review of Financial Analysis*, *90*, 102900.

Chen, J., & Nadkarni, S. (2017). It's about time! CEOs' temporal dispositions, temporal leadership, and corporate entrepreneurship. *Administrative Science Quarterly*, *62*(1), 31-66.

Chen, Y., Wang, S. S., Li, W., Sun, Q., & Tong, W. H. (2015). Institutional environment, firm ownership, and IPO first-day returns: Evidence from China. *Journal of Corporate Finance*, *32*, 150-168.

Chuluun, T., Prevost, A., & Upadhyay, A. (2017). Firm network structure and innovation. *Journal of Corporate Finance*, *44*, 193-214.

Dinc, I. S., & Gupta, N. (2011). The decision to privatize: Finance and politics. *The Journal of Finance*, *66*(1), 241-269.

Fan, J., Liu, Y., Zhang, Q., & Zhao, P. (2022). Does government debt impede firm innovation? Evidence from the rise of LGFVs in China. *Journal of Banking & Finance*, *138*, 106475.

Fan, Z., Chen, Y. & Mo, Y. (2024). Management myopia and corporate ESG performance. *International Review of Financial Analysis*, 103071.

Fang, H., & Jin, Y. (2016). Corporate governance, internal control and management decision horizon. *Finance Research, 11*, 3–14 (In Chinese).

Gao, H., Lin, Y., & Ma, Y. (2016). Sex discrimination and female top managers: Evidence from China. *Journal of Business Ethics, 138*, 683-702.

Guo, D., Guo, Y., & Jiang, K. (2016). Government-subsidized R&D and firm innovation: Evidence from China. *Research Policy*, *45*(6), 1129-1144.

Hambrick, D. C., & Mason, P. A. (1984). Upper echelons: The organization as a reflection of its top managers. *Academy of Management Review*, *9*(2), 193-206.

Ho, Y. K., Xu, Z., & Yap, C. M. (2004). R&D investment and systematic risk. *Accounting & Finance*, *44*(3), 393-418.

Holmström, B. (1999). Managerial incentive problems: A dynamic perspective. *Review of Economic Studies, 66*(1), 169-182.

Hsu, P. H., Tian, X., & Xu, Y. (2014). Financial development and innovation: Cross-country evidence. *Journal of Financial Economics, 112*(1), 116-135.

Hu, N., Xue, F. J., Wang, H. N. (2021). Does managerial myopia affect long-term investment? Based on text analysis and machine learning. *Management World, 37*, 139–156 (In Chinese).

Huang, Y., Pagano, M., & Panizza, U. (2020). Local crowding-out in China. *The Journal of Finance*, *75*(6), 2855-2898.

Ji, Q., Quan, X., Yin, H., & Yuan, Q. (2021). Gambling preferences and stock price crash risk: Evidence from China. *Journal of Banking & Finance*, *128*, 106158.

Jia, N., Huang, K. G., & Man Zhang, C. (2019). Public governance, corporate governance, and firm innovation: An examination of state-owned enterprises. *Academy of Management Journal*, *62*(1), 220-247.

Jiang, X., & Yuan, Q. (2018). Institutional investors' corporate site visits and corporate innovation. *Journal of Corporate Finance*, *48*, 148-168.

Keough, K. A., Zimbardo, P. G., & Boyd, J. N. (1999). Who's smoking, drinking, and using drugs? Time perspective as a predictor of substance use. *Basic and Applied Social Psychology*, *21*(2), 149-164.

Kong, D., Wang, Y., & Zhang, J. (2020). Efficiency wages as gift exchange: Evidence from corporate innovation in China. *Journal of Corporate Finance, 65*, 101725.

Li, Z., & Yamada, T. (2015). Political and economic incentives of government in partial privatization. *Journal of Corporate Finance, 32*, 169-189.

Lin, J. Y., & Tan, G. (1999). Policy burdens, accountability, and the soft budget constraint. *American Economic Review, 89*(2), 426-431.

Lin, K. J., Lu, X., Zhang, J., & Zheng, Y. (2020). State-owned enterprises in China: A review of 40 years of research and practice. *China Journal of Accounting Research, 13*(1), 31-55.

Liu, H., & Zhang, Z. (2023). The impact of managerial myopia on environmental, social and governance (ESG) engagement: Evidence from Chinese firms. *Energy Economics*, *122*, 106705.

Liu, Q., Luo, T., & Tian, G. G. (2019). How do political connections cause SOE s and non-SOE s to make different M&A decisions/performance? Evidence from China. *Accounting & Finance*, *59*(4), 2579-2619.

Liu, Y., Wei, Z., & Xie, F. (2014). CFO gender and earnings management: Evidence from China. *Review of Quantitative Finance and Accounting*, 1–25.

Lobo, G. J., Xie, Y., & Zhang, J. H. (2018). Innovation, financial reporting quality, and audit quality. *Review of Quantitative Finance and Accounting*, *51*, 719-749.

Manner, M. H. (2010). The impact of CEO characteristics on corporate social performance. *Journal of Business Ethics*, *93*, 53-72.

Mansi, S. A., Maxwell, W. F., & Miller, D. P. (2004). Does auditor quality and tenure matter to investors? Evidence from the bond market. *Journal of Accounting Research*, *42*(4), 755-793.

Marginson, D., & McAulay, L. (2008). Exploring the debate on short-termism: A theoretical and empirical analysis. *Strategic Management Journal*, *29*(3), 273-292.

McWilliams, A., Siegel, D. S., & Wright, P. M. (2006). Corporate social responsibility: Strategic implications. *Journal of Management Studies*, *43*(1), 1-18.

Nguyen, L., Vu, L., & Yin, X. (2020). The undesirable effect of audit quality: Evidence from firm innovation. *The British Accounting Review*, *52*(6), 100938.

Pennebaker, J. W., Mehl, M. R., & Niederhoffer, K. G. (2003). Psychological aspects of natural language use: Our words, our selves. *Annual Review of Psychology*, *54*(1), 547-577.

Quan, X., & Yin, H. (2017). Chinese short selling mechanism and corporate innovation: a natural experiment from Chinese margin trading program. *Management World*, *1*, 128-44 (in Chinese).

Richardson, S. (2006). Over-investment of free cash flow. *Review of Accounting Studies*, *11*, 159-189.

Reichelt, K. J., & Wang, D. (2010). National and office-specific measures of auditor industry expertise and effects on audit quality. *Journal of Accounting Research*, *48*(3), 647-686.

Rosenbaum, P. R., & Rubin, D. B. (1983). The central role of the propensity score in observational studies for causal effects. *Biometrika*, *70*(1), 41-55.

Sheng, X., Guo, S., & Chang, X. (2022). Managerial myopia and firm productivity: Evidence from China. *Finance Research Letters*, *49*, 103083.

Sherf, E. N., Tangirala, S., & Venkataramani, V. (2019). Why managers do not seek voice from employees: The importance of managers' personal control and long-term orientation. *Organization Science*, *30*(3), 447-466.

Staiger, D. O., & Stock, J. H. (1994). Instrumental variables regression with weak instruments. In: National Bureau of Economic Research Cambridge, Mass., USA.

Sun, R., & Zou, G. (2021). Political connection, CEO gender, and firm performance. *Journal of Corporate Finance*, *71*, 101918.

Tang, J., Yang, J., Ye, W., & Khan, S. A. (2021). Now is the time: The effects of linguistic time reference and national time orientation on innovative new ventures. *Journal of Business Venturing*, *36*(5), 106142.

Tate, G., Yang, L. (2015). Female leadership and gender equity: evidence from plant closure. *Journal of Financial Economics, 117*(1), 77–97.

Thoma, D., & Tytus, A. E. (2018). How cross-linguistic differences in the grammaticalization of future time reference influence intertemporal choices. *Cognitive Science, 42*(3), 974-1000.

Van Ittersum, K. (2012). The effect of decision makers' time perspective on intention–behavior consistency. *Marketing Letters, 23*(1), 263–277.

Wang, L., Dai, Y., & Kong, D. (2021). Air pollution and employee treatment. *Journal of Corporate Finance*, *70*, 102067.

Wang, T., & Bansal, P. (2012). Social responsibility in new ventures: profiting from a long-term orientation. *Strategic Management Journal, 33*(10), 1135-1153.

Webb, E. J., Campbell, D. T., Schwartz, R. D., & Sechrest, L. (1966). *Unobtrusive Measures: Nonreactive research in the social sciences*. Chicago: Rand McNally.

Xie, F., Anderson, H. D., Chi, J., & Liao, J. (2019). Does residual state ownership increase stock return volatility? Evidence from China's secondary privatization. *Journal of Banking & Finance*, *100*, 234-251.

Xie, F., Anderson, H. D., Chi, J., & Liao, J. (2023). State control and stock price crash risk: new evidence of the conservatism of state-owned enterprises. *International Journal of Managerial Finance*, *19*(4), 853-889.

Xin, Q., Bao, A., & Hu, F. (2019). West meets east: Understanding managerial incentives in Chinese SOEs. *China Journal of Accounting Research, 12*(2), 177-189.

Yao, S., Wang, C., Cui, X., & Fang, Z. (2019). Idiosyncratic skewness, gambling preference, and cross-section of stock returns: Evidence from China. *Pacific-Basin Finance Journal*, *53*, 464-483.

Yu, Y., Bingyuan, X., Zhuo, D., & Qilong, F. (2024). Managerial Myopia and Corporate Innovation Strategy. *Finance Research Letters*, 105733.

Zeng, P., & Wu, Q. (2012). The impact of female executives participation on technological innovation: Evidence from Chinese GEM companies. *Studies in Science of Science, 50*, 773–781.

Zhang, J., Li, Y., Xu, H., & Ding, Y. (2023). Can ESG ratings mitigate managerial myopia? Evidence from Chinese listed companies. *International Review of Financial Analysis*, *90*, 102878.

Zhang, X., Yu, M., & Chen, G. (2020). Does mixed-ownership reform improve SOEs' innovation? Evidence from state ownership. *China Economic Review*, *61*, 101450.