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Corporate Ownership and Managerial Turnover in China and Eastern Europe: A Comparative Meta-Analysis[†]

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Abstract: In this paper, we perform a meta-analysis of 736 estimates extracted from 31 previous studies to compare China and Eastern Europe from the viewpoint of the relationship between corporate ownership and managerial turnover. Our results strongly suggest the presence of asymmetric circumstances between the two. Namely, in Eastern Europe, private outside investors and large shareholders exert a positive influence on the managerial discipline of the companies they invest in, and the government is also actively involved in the corporate governance of state-owned enterprises. In contrast, the Chinese government and the Communist Party of China have such significant control over companies as corporate owners that private shareholders only have limited influence over top management. In this sense, Chinese firms are more likely than their East European counterparts to face greater problems in corporate governance.

Keywords: corporate ownership; managerial turnover; meta-analysis; publication selection bias; China; Eastern Europe

JEL classification numbers: D22, G32, G34, G38, P21, P31

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1 Introduction

Over the last quarter century, both China and Eastern Europe have made great progress toward market economies. Companies in these countries are now extremely different from what they used to be during the era of the planned economy from the perspective of corporate management and internal organization. On the other hand, China and Eastern Europe fundamentally differ from one another in terms of the policy intentions behind their transition strategies (Iwasaki and Suzuki, 2016), which may considerably impact the relationship between corporate owners and management executives. However, these two geographical areas display a high level of corporate opaqueness relative to the United States and other advanced economies. As a result, knowledge and insights are quite limited about how the corporate governance systems in China and Eastern Europe diverge against a backdrop of policy and institutional dissimilarities.

As an analytical angle for approaching this issue, we focus on the effect of corporate ownership on managerial turnover. As is evident to experts of financial economics, measuring turnover of a corporate management team and empirically analyzing its determinants are important topics in the study of corporate governance (Shleifer and Vishny, 1997; Fee et al., 2018). In fact, many researchers have long been investigating and analyzing the likelihood and/or frequency of managerial turnover and the factors behind it (Kang and Shivdasani, 1995; Franks and Mayer, 2001; Volpin, 2002; Fich and Shivdasani, 2006; Chakraborty et al., 2009). Even today, active research is being conducted on the turnover of chief executive officers (CEOs) and other corporate executives in not only the USA but also other countries and regions of the world. Studies published in recent years include those of Ursel and Zhong (2018), which focused on Canadian companies; Buchwald (2017), which extensively investigated EU companies; Rizzotti et al. (2017), which compared companies in France and Italy; Miyajima et al. (2018), which carried out empirical analyses of listed companies in Japan; Srivastav et al. (2017), which studied major banks in 46 countries all over the world; and Urban (2019), which examined the effects of national culture on CEO transitions across 37 countries.

These energetic research activities are driven by the belief that the dismissal of poorly performing corporate executives not only is important to improving the managerial discipline of the affected company but also can be an effective way of resolving or mitigating the so-called “agency problem” (Anderson et al., 2018; Wu and Weng, 2018). In other words, the enforceability of managerial turnover could be regarded as an important sign indicating sound corporate governance. From this viewpoint, many studies have empirically examined the impact of firm performance on managerial turnover, repeatedly verifying that, when performance is poor, company executives are increasingly likely to be replaced in countries with good corporate governance systems, as HomRoy (2015) pointed out. Nevertheless, we focus on the ownership-

turnover nexus with the aim of unraveling the principal-agency relationship in China and Eastern Europe in a direct manner. Based upon their empirical findings that, controlling for stock price performance, the probability of top executive turnover is negatively related to insider ownership and positively associated with outsider shareholding, Denis et al. (1997) stated that “ownership structure plays an important role in determining the effectiveness of internal control mechanism” (p. 219). By sharing a similar concern, more than a few transition studies empirically examined the relationship between ownership structure and management change (Kapelyushnikov and Demina, 2005; Cvelbar et al., 2008; Chi and Wang, 2009; Radjen and Stanistic, 2017). Inspired by the same motivation, in this paper, we question whether the close linkage between corporate ownership and managerial turnover in China and Eastern Europe can be observed as Denis et al. (1997) found in the USA. Taking account of the development of the socialist market economy with “Chinese characteristics” (Huang, 2008)¹ and the “great rebirth” of capitalism in Eastern Europe (Åslund and Djankov, 2014), we predict that the relationship between corporate ownership and managerial turnover in China shows quite a different picture from the experience in developed economies, while the association between the two in Eastern Europe exhibits a similar correspondence with the standard view of corporate finance literature. The notable difference in the marketization and privatization processes between China and Eastern Europe is regarded as a quasi-social experiment. The comparative analysis of these regions, therefore, can provide new insights for the study of both corporate finance and transition economies.

As discussed later, there is no shortage of empirical results provided by studies of China and Eastern Europe. Furthermore, reflecting a high level of interest in the new wealthy class that has emerged as a result of the transition to a market economy and the mass privatization of companies as well as in the role of the state in the governance of state-owned enterprises (SOEs) and public corporations, these studies of transition economies have paid much greater attention to the effect of corporate ownership structure on managerial turnover, as compared to studies of developed economies. These conditions enable us to test the above prediction by synthesizing and comparing the evidence reported in previous studies with application of advanced meta-analytic techniques (Stanley and Doucouliagos, 2012) and then to identify similarities and differences in corporate governance systems in China and Eastern Europe.²

¹ Since the 1980s, the Communist Party of China has been using the term *socialist market economy* to describe the Chinese economic system. As a significant feature of a socialist market economy, despite the drastic economic transition from a planned system to a market-oriented economy, the *de facto* Communist Party dictatorship is strongly maintained in the political sphere, and the influences of the Communist Party’s organization on firm management in both the public and private sectors are still remarkable (Ma, 2018).

² In order to evaluate the soundness of corporate governance in China and Eastern Europe, it would

To this end, in this paper, we perform a comparative meta-analysis of China and Eastern Europe that involves meta-synthesis, meta-regression analysis, and testing for publication selection bias of a total of 736 estimates of various ownership variables, from the state to large shareholders, extracted from 31 previous studies; thus, we demonstrate “review-generated evidence” (Nakagawa et al., 2017) regarding a research topic that is difficult to address with standard empirical analysis.³ As we stated above, the results of meta-analysis in this paper contribute not only to the study of transition economies but also to the financial and management literature by providing dissimilar evidence regarding the ties between institutional settings and corporate governance outcomes as compared with the advanced economies investigated in the majority of previous studies.

The remainder of this paper is structured as follows: The next section discusses enterprise reforms and corporate governance in China and Eastern Europe. Based on its arguments, Section 3 proposes a set of testable predictions regarding the effect of corporate ownership on managerial turnover in these economies for meta-analysis. Section 4 describes the literature search procedure and the meta-analysis methodology. Sections 5, 6, and 7 conduct a meta-synthesis of the collected estimates, a meta-regression analysis of literature heterogeneity, and an assessment of publication selection bias, respectively. Finally, Section 8 summarizes the findings obtained from meta-analysis and concludes the paper.

2 Enterprise Reforms and Corporate Governance in China and Eastern Europe: Policy and Institutional Background

In this section, by surveying the relevant literature and legal documents, we present the policy and institutional background related to the enterprise reforms and corporate governance in China and Eastern Europe.

2.1 China

The corporate ownership structure in contemporary China was formed during the process of gradual market reforms that started in 1984 and is still working to reorganize the state-run corporate system from the planned economy period.⁴ It is characterized by a mixed-ownership

be ideal to examine the impacts of ownership structure on the forced turnover of corporate executives in poorly performing companies. However, such empirical evidence is extremely scarce in the extant literature. Hence, the meta-analytic approach applied in this paper serves as the second best way of tackling our research objective. The comment from the referee on this point was highly appreciated.

³ Meta-analysis in this paper was conducted in general conformity with the reporting guidelines in Havránek et al. (2020).

⁴ During the period from the founding of the country in 1949 until 1956, all companies in China either

system consisting mainly of SOEs and privately owned enterprises (POEs), including foreign-owned enterprises (FOEs), joint ventures, and multinational corporations. The features of corporate governance in China differ greatly from those in Western countries and Eastern Europe, reflecting the country's unique policy and institutional background, which can be summarized as follows.

First, the influence of the state and the Communist Party of China (CPC) on the management of SOEs is remarkably strong. Formally, in China, SOEs belong to the state and the people. In reality, however, control over ownership and management of companies lies in the hands of the central or local government, which is monitored by the party organizations. In 1984, a series of reforms, such as the decentralization of management discretion, the transfer of profits to firms, and the separation of government functions from company management, were implemented, which significantly expanded the management autonomy of state-run enterprises. At the same time, these policies restricted the involvement of party organizations in corporate management.⁵ However, after the 1989 Tiananmen Square incident, the CPC again tightened its political reins, and the party organizations began to exert a greater influence on SOEs.

Beginning in 1993, the Chinese government adopted a set of regulations and laws to enforce enterprise reform and endeavor to establish modern corporate governance systems in SOEs. For example, the Company Law enacted in 1993 (as amended in 1999) specifies that the general shareholders' meeting is the ultimate authority for important management decisions, including those relating to the appointment and termination of the chairman, directors, and other top executives. Moreover, the Code of Corporate Governance for Listed Firms in China⁶ expands the company law by specifying the duties and responsibilities of shareholders and directors following the standards in Western countries (Hampel, 1998; OECD, 1999). The CG Code states that the

were state-run or collectively owned enterprises (COEs). To strengthen the public ownership system, the CPC started promoting the director responsibility system in 1956, thereby establishing a unified guidance system that enabled party organizations to centrally control all companies in China.

⁵ During the aforementioned period, corporate managers assumed full responsibility for business administration as representatives of SOEs. Party organizations, on the other hand, took part in enterprise management as members of the "enterprise management committee" that served as an internal council. According to Article 2 of the regulations of directorship for all people-owned industrial enterprises promulgated by the Central Committee of the Communist Party of China and the State Council in September 1986, the enterprise management committee consists of the company president, vice president, chief engineer, chief economist, chief accountant, party committee secretary, trade union leader (chairman), secretary of the Youth League, and workers' representatives selected by the Workers' Congress; therefore, the party representative is not granted a deciding voice in company affairs.

⁶ The Code of Corporate Governance is published by the State Economic and Trade Commission (SETC) and the China Securities Regulatory Commission (CSRC), and it is enforced by the CSRC.

controlling shareholder makes recommendations to the board of directors regarding the appointment and termination of the chairman and other top management positions (Art. 20). Despite these institutional changes, because the state maintains its position as controlling shareholder in the overwhelming majority of SOEs, the government and the CPC play decisive roles in the appointment and dismissal of top management in their own companies.

Second, during the transition period, private sector development advanced greatly, being achieved by deregulating private business, lifting the ban on foreign direct investment (FDI), promoting globalization policies, and promoting the privatization of small and medium-sized SOEs. In fact, according to the National Bureau of Statistics of China (2017), the number of workers in urban areas employed in the public sector decreased from 74.5 million in 1978 to 61.7 million in 2016, whereas those employed by POEs and FOEs increased drastically from 60,000 in 1985 to 206.6 million in 2016.

The expansion of the private sector is expected to bring a corporate governance system that meets international standards. However, China's specific circumstances hamper its realization. In fact, the party dictatorship has powerful influence over not only SOEs but also companies in the private sector (Yan and Huang, 2017). In China, all companies, regardless of the ownership type, are under the management, supervision, and guidance of the internal firm party organization in order to "ensure that the Party's policies are carried out in their entirety, guide and supervise companies to secure compliance with national laws and regulations, provide guidance to people's organizations such as trade unions and the Communist Youth League of China, unite laborers and preserve/protect their interests, and promote the sound development of companies" (Constitution of the CPC, Art. 32, Para. 3). In addition, despite the policies implemented to separate government or the CPC from company management, cross appointment, where the party leader of the internal firm party organization also holds the post of corporate manager, is prevalent in many Chinese companies, including private ones (Ma et al., 2012; Rong and Li, 2016). There is no doubt that this party-controlled human resource management system (Cheng et al., 2016) and the *nomenklatura* system (Brodsgaard, 2012) strongly influence the appointment of corporate managers in not only SOEs but also POEs.

Third, in order to absorb capital from the market to reduce the state's financial burden of SOEs, the government established the Shenzhen and Shanghai Stock Exchanges in 1990 (Firth et al., 2014). Investors can obtain shares by trading in these stock markets and become shareholders of listed companies without any specific restrictions. However, government agencies retain about two-thirds of total shares in the form of non-tradable stock to maintain state control over the listed firms (Sun and Tong, 2003). Consequently, the actual influence of private outside shareholders on the management and governance of listed companies is extremely limited. At the same time,

the role of inside shareholders in their own listed companies is also restrictive. In China, the employee stock-owned system is operating in small and medium-sized SOEs. According to the Guiding Opinions of Test of Employee-Owned Stock of Listed Firms adopted in 2014, the share of employee-owned stocks must be under 20% of total corporate stocks, and employee-owned stocks cannot be tradable in the stock market within a certain period of time. It is said that these regulations effectively deter so-called “insider control” in Chinese listed firms.

2.2 Eastern Europe

Eastern Europe has undergone drastic reforms that involved the complete separation of politics from the economy. It clearly distinguishes itself from China, in that state and party intervention in corporate management is now quite limited or negligible. In this region, the Communist Party has completely lost its ability to influence the economy. Furthermore, in terms of the laws and regulations stipulating the status and career paths of corporate managers and the corporate ownership structure, Eastern Europe stands in sharp contrast to China in the following two respects.

First, as systematic transformation progressed, the government and parliament of East European countries modified the relevant laws and institutions to ensure that business activities and firm organizations are in line with market principles. The laws inherited by countries in Eastern Europe are not the same. Under the socialist regime, almost all East European countries passively admitted the former laws inherited from the continental law culture (Suzuki, 2004).⁷ From a legal angle, Eastern Europe has something common with European countries. On the other hand, the Soviet Union did not inherit modern law (culture), and socialist laws became dominant from the beginning.

Corporate laws, in particular, have given legitimacy to the status and position of corporate managers. In Hungary, for example, although the 1988 Corporate Law was still in effect during the initial phase of the reform, a new law incorporating the continental European model of corporate governance was introduced in 1998. Two years later, in 2000, Poland established a similar corporate law. As for the Czech Republic, the commercial code that regulates corporations and is modeled after those of the UK and the USA went into effect in 1992. Since then, the code has been amended several times.⁸ Furthermore, Bosnia and Herzegovina, Latvia, and Lithuania improved company law in 2000 in accordance with European standards (EBRD, 2000). The

⁷ Even though legislation in East European countries was based on the Soviet model, the effects of former laws were not totally negligible, and they coexisted with the new model of Soviet law (Suzuki, 2004).

⁸ The code became void in 2014, and a new code and new business corporation acts promptly went into effect.

corporate laws introduced by many of the East European countries were brought into harmony with the *acquis communautaire*, the incorporation of which was one of the prerequisites for EU accession. As a result, the legal systems adopted by East European countries generally resembled one another.

The modernization of corporate laws was also promoted in Russia, beginning with the enactment of Civil Code Part I in 1994 and the Law on Joint-stock Companies in 1995 (Iwasaki, 2007). These laws are comparable in quality to those of developed countries, which is one reason an investigation based on the World Bank's country-by-country comparison has recently shown Russia as ranking high in ease of doing business.⁹ Supported by various provisions of the civil code and labor law, the corporate laws in East European countries clearly establish the appointment and dismissal of top managers as exclusive rights of company owners and board members, precluding any involvement by third parties such as the government and political parties.

Second, in Eastern Europe, great efforts were put into the privatization of SOEs to give substance to a legal system in line with the principles of a market economy. After difficult but daring political efforts, private entities in all East European countries ended up with far greater ownership than the state in an overwhelming majority of privatized companies. Furthermore, in many East European countries, the process of enterprise privatization was widely opened to the international business community, giving foreign strategic investors opportunities to take over many privatized companies (Åslund, 2007). In practice, in the 1990s, FDI occupied the dominant position in domestic capital formation instead of domestic credit (Krkoska, 2001). Some countries had FDI inflows that exceeded 10% of GDP (EBRD, 2000). At the same time, due to the political consideration given to pro-reform citizens as well as the lack of capital in most East European countries, priority was given to privatization methods that could benefit incumbent managers and employees (i.e., voucher privatization, management and employee buyouts, etc.). As a result, insider ownership also became prominent in these countries (Vagliasindi and Vagliasindi, 2003; Iwasaki and Mizobata, 2018).

Through the process of corporate restructuring during the post-privatization period, the ownership of privatized companies became concentrated in wealthy capitalists as well as financial institutions and business groups (Adachi, 2010; Iwasaki and Mizobata, 2020). Nevertheless, insider ownership and control remain strong in many East European companies. Furthermore, in Russia, Ukraine, and other countries where political pressure from the EU is either nonexistent or weak, the state remains a prominent company owner, particularly in naturally monopolistic

⁹ In fact, the World Bank's Doing Business 2019 Report shows Russia ranked 35th of 190 economies in the world, leaving behind many EU member states in Central and Eastern Europe (Iwasaki, 2018).

sectors, the military industry, and so-called “strategic enterprises.” This is exactly why researchers investigating the corporate ownership structure in East European economies have focused their attention on not only private outside shareholders, including foreign investors, but also insiders and the state (Djankov and Murrell, 2002; Estrin et al., 2009).

3 Testable Predictions

Based on the arguments and observations of the previous section, we propose four testable predictions about the effects of corporate ownership on managerial turnover in China and Eastern Europe for meta-analysis.

First, with regard to state ownership, in terms of the principal-agent theory (Berle and Means, 1932), the conflicts of interest (or objectives) between shareholders (principals) and top managers (agents) require boards of directors to represent shareholders by monitoring, evaluating, and replacing top managers, when necessary (Morck et al., 1989). Economic objectives, such as firm performance, are generally used as an index for managers’ assessments in POEs.¹⁰ However, agents of the government tend to use SOEs not only to serve economic objectives (i.e., to maximize profit or firm value in the capital market), but also to serve political and social objectives, such as to maintain social security and stability and conform to macroeconomic regulations and controls (Shleifer and Vishny, 1994, 1997; Lin and Li, 1997, 2004; Bai et al., 2009; Shen and Lin, 2009; Chang and Wong, 2009; Firth et al., 2014; Liu and Zhang, 2018). Thus, from the management agenda and multi-objectives perspectives, it can be assumed that the appointment of corporate managers in SOEs lacks flexibility as compared to that in POEs.¹¹ For China, where unique circumstances exist due to the system of one-party dictatorship, SOEs tend to value the achievement of political and social objectives over the seeking of profits (Lin and Li, 1997, 2004; Sun and Tong, 2003; Chang and Wong, 2004, 2009; Firth et al., 2006, 2014; Fan et al., 2007; Bai et al., 2009; Shen and Lin, 2009; Cheng and Leung, 2016; Liu and Zhang, 2018). Therefore, in China, as compared to POEs, SOEs are expected to reduce the probability of managerial turnover.

Eastern Europe is not unlike China, in that there are concerns about the government’s paternalistic attitude toward SOEs and public corporations. However, several previous studies shake off such fears by claiming that the soft budget constraints in Eastern Europe have already

¹⁰ HomRoy (2015) pointed out that the sensitivity of economic objectives-turnover is a soundness of good and effective corporate governance.

¹¹ Shleifer and Vishny (1994), Shleifer (1998), Megginson and Netter (2001), and Claessens and Djankov (2002) found that the state-owned companies have multiple objectives (economic and non-economic) for the developed countries.

been removed completely (Mueller and Peev, 2007; Moore, 2009). In addition, several circumstances fundamentally distinguish Eastern Europe from China. It is a fact that, as the democratic political system permeated the region, the public began to demand government accountability to taxpayers, making it difficult for the state to maintain or invest in inefficient public projects. This is because, as stressed in OECD (2015), transparency and accountability are the standards most important for protecting the nation's interests in SOEs and the government's monitoring. Another noteworthy fact is that the conditions of state budgets in East European countries are far from ideal, which is why governments have high stakes in maximizing tax revenues from SOEs and public corporations (Frydman et al., 2007).

Furthermore, as shown by an empirical analysis of government directors dispatched to SOEs, even in Russia, where improper collusion between the state and the business circle is a grave concern, the federal government has shown a clear willingness to make certain political efforts to improve the managerial discipline of SOEs (Frye and Iwasaki, 2011). From a similar viewpoint, Muravyev (2001, 2003) demonstrated that state ownership exerts much greater influence on managerial turnover than does ownership by private outside entities. In addition, the frequent change in political leaders seen in East European countries has also been cited as an important factor contributing to large management shakeups at major state companies.¹²

In summary, we conjecture that state ownership in China, where unique circumstances exist due to the system of one-party dictatorship, is expected to negatively impact managerial turnover, while state ownership in Eastern Europe exerts a positive effect on managerial turnover because accountability to taxpayers and political interest in the profitability of public projects are likely to take precedence over paternalism. Accordingly, we submit the following hypothesis:

H1: *State ownership has a negative association with managerial turnover in China and a positive association in Eastern Europe.*

Second, concerning the influence of domestic outside ownership and foreign ownership on the turnover of corporate executives, the agency theory suggests that the monitoring of top managers is more effective when the board is outsider dominant (Johnson et al., 1996; Chatterjee and Harrison, 2001). It is reasonable to assume that both domestic outside shareholders and foreign investors with strong profit-making motivations would flexibly replace the management of the companies they invest in if top managers are performing poorly. Thus, shareholding by private investors is expected to be positively related to the probability of managerial turnover.

In the Chinese context, however, there are two reasons the influence of outsiders may be limited. First, it is argued that, in China, most outsiders are not truly independent, since outside

¹² We would like to thank Evžen Kočenda for his comments on this point.

shareholders normally share close networks with the owner (i.e., government or CPC organizations) or managers; as a result, they may have insufficient incentive to closely monitor or replace managers (Fan et al., 2007).¹³ Second, the presence of the state as the largest shareholder gives the government and the CPC great power over the appointment of corporate executives in SOEs and listed companies.¹⁴ Even in POEs, an internal firm party organization retains absolute controls. For these reasons, it is highly likely that the effect of corporate ownership by private outside investors on managerial turnover is limited in China.

On the contrary, for Eastern Europe, through the implementation of large-scale enterprise privatization and the process of corporate restructuring during the post-privatization period, private outside investors have come to play a crucial role as owners of East European companies. Other measures, such as the restriction of public business projects and the reorganization of the legal system to adapt to the market economy system, have also contributed to strengthening the voice of private outside investors in corporate management. As a consequence, top managers in the region are now carefully monitored by outside shareholders. Just as is the case with developed economies (Jensen and Meckling, 1976; Gillan and Starks, 2000), these private shareholders value profits above all, demand better performance from the companies in which they invest, and are likely to be the most influential figures in managerial turnover. Strategic investors who participate in corporate management from abroad are believed to be at the forefront of this movement (Estrin et al., 2009; Iwasaki and Mizobata, 2018). These arguments lead us to assume that:

H2: *In East European companies, corporate ownership by private outside investors of all nationalities is strongly and positively correlated with managerial turnover, while outside ownership—either domestic shareholders or foreign investors—has a positive but weaker association with managerial turnover in China than in Eastern Europe.*

Third, with respect to the relationship between insider ownership and top management dismissals, the agency theory expects that, when the interests (objectives) of shareholders and managers are consistent, the agency cost may decrease, and principal-agent conflicts may be reduced. Therefore, the high share of inside shareholders (e.g., top managers, senior managers,

¹³ Hambrick and Jackson (2002) and Westphal (1999) also point out that in the Western countries, the outsiders and CEO may be handpicked or co-opted by CEOs, and there could be collusion with the boardroom.

¹⁴ The state is the largest shareholder for not only SOEs but also many of the listed companies, with their ownership share being considerably larger than that of the second-largest shareholder (Kato and Long, 2006ab). In fact, according to Mengistae and Xu (2004), the average stock ownership share is 46% for the largest shareholder and merely 7% for the second-largest shareholder.

employees of a company) may increase managers' efforts to pursue the objectives of companies and reduce the moral hazard problem, which decreases the probability of managerial dismissal. In addition, the entrenchment hypothesis (Monks and Minow, 1991; Conyon and Peck, 1998) states that having a high share of inside shareholders may increase the motivation of self-protection among corporate managers, and their powerful influence on rank-and-file employees would likely prevent the dismissal of corporate managers in a company (Berger et al., 1997; Volpin, 2002; Brunello et al., 2003; Hu and Kumar, 2004; Fan et al., 2007; Young et al., 2008).¹⁵ In the same context, it is also likely that ownership by incumbent managers and employees is negatively correlated with managerial turnover in China. However, as shown in the previous section, due to the strong presence of the Chinese government and CPC organizations in corporate management, insider ownership is considerably limited; just as with private investors, its effect on managerial turnover in China would be limited, to a certain extent.¹⁶

In Eastern Europe, while private entities have gained a decisive voice in corporate management, as described above, the same can be said about insiders. In particular, when a corporate manager owns his own company, the entrenchment effect can be significant (Filatotchev et al., 1999); this, when coupled with collusive ties between the manager and rank-and-file employees, can work to significantly suppress managerial dismissals. Managerial entrenchment has significant explanatory power (Hu and Kumar, 2004), and, given the underdeveloped legal conditions, weak shareholder protection makes managers extract benefits from employment protection (Pagano and Volpin, 2005), and alliances with employee-shareholders may be regarded as manager-specific investments (Shleifer and Vishny, 1989). Researchers have pointed out that several factors have greatly enhanced the predominant position of insiders in East European companies, including corporate managers' strong tendency of hostility toward outside shareholders, vulnerabilities in both the information disclosure system and the legal framework for shareholder protection, and the absence of a managerial labor market (Andreff, 2003; Muravyev, 2003; Muravyev et al., 2010). It is highly likely that this situation has produced the negative correlation between insider ownership and managerial turnover in Eastern Europe. Hence, we predict that:

H3: *Insider ownership has a negative impact on managerial turnover, both in China and Eastern*

¹⁵ For example, Volpin (2002) and Brunello et al. (2003) indicated that in Italy, top-executive turnover is lower and less sensitive to performance if the controlling shareholder is an executive.

¹⁶ During the initial phase of enterprise reform, the Chinese government allowed employees to purchase the shares issued to promote the privatization of small and medium-sized SOEs. However, although more than a few corporate managers acquired these shares, it was extremely rare for non-management employees to actually become shareholders. Furthermore, the issuance of new employee shares has been prohibited since 1998.

Europe, but its effect is weaker in China than in Eastern Europe.

Fourth, as for the influence of large shareholding on managerial turnover, based on the agency theory, Jensen and Meckling (1976) and Hengartner (2006) argued that minority shareholders have little power and few chances or incentives to monitor managers of companies; in contrast, majority shareholders have incentives and power to monitor CEOs and senior managers, either through their voting power, through representation on the board, or both.¹⁷ A number of previous studies, including those of Shleifer and Vishny (1986) and Rizzotti et al. (2017), reported a positive correlation between ownership by large shareholders and the probability of managerial turnover for the developed countries.¹⁸ However, it is extremely doubtful that this empirical finding is applicable to Chinese firms, as the state is the largest shareholder in the overwhelming majority of them (Liu and Imai, 2005; Kato and Long, 2006ab; Pi and Loew, 2011).¹⁹ As mentioned in Subsection 2.1, because the Chinese government operates SOEs to pursue multiple objectives, and because the CPC organizations strongly influence corporate management, particularly the appointment of corporate top managers, the large concentration of state shareholding may decrease the probability of managerial dismissal. Thus, the influence of ownership concentration on managerial turnover is unpredictable for China.

In contrast, in Eastern Europe, underdeveloped financial markets and incomplete legal systems governing ownership and shareholder protection seem to provide strong incentives for large shareholders to monitor top management and enforce managerial discipline on the operating activities of their own companies, as predicted by Shleifer and Vishny (1986). La Porta et al. (1998) also insisted that ownership dispersion is a consequence of the poor legal protection of

¹⁷ Shleifer and Vishny (1986) argued that majority shareholders might pursue their own interests at the cost of other shareholders, which causes another type of agency problem between majority and minority shareholders.

¹⁸ Boeker (1992), Grabke-Rundell and Gomez-Mejia (2002), and Kang and Shivdasani (1995) found that ownership concentrated in the hands of a few individuals (other than the CEO) may limit CEOs' influence over their organizations.

¹⁹ This observation is supported by the following arguments. The stock issuance regulations and stock exchange regulations imposed by the Chinese central government give listed companies very few options with regard to ownership structure. In fact, stock issuance regulations stipulate that almost half of shares in SOEs must belong to the government. On the other hand, according to stock exchange regulations, while the shares of listed companies are divided into tradable and non-tradable shares, both state-owned shares and company-owned shares are basically non-tradable shares, with only government-approved relative transfers allowed. From the 1990s to 2000s, two-thirds of the issued shares were non-tradable, and despite the expanding stock market, the ratio of tradable to non-tradable shares remained more or less the same during this period (Liu and Imai, 2005). Kato and Long (2006a) reported that, in 2002, the government remained the largest shareholder in more than 80% of the listed firms.

minority shareholders and that controlling shareholders had significant power over firms. This prediction is strongly supported by the meta-analysis of Iwasaki and Mizobata (2020), which detected a positive effect of ownership concentration on the financial and operating performance of East European companies. Therefore, we propose to test the following hypothesis:

H4: *The presence of large shareholders in Eastern Europe has a positive effect on managerial turnover at the companies they own, while, with regard to China, the association between large shareholding and managerial turnover is unpredictable.*

Table 1 summarizes our testable predictions regarding the relationship between corporate ownership structure and managerial turnover as contrasted in China and Eastern Europe. To empirically verify these predictions, the following sections feature a comparative analysis of China and Eastern Europe utilizing advanced meta-analysis techniques.

4 Literature Selection Procedure and Meta-Analysis Methodology

In this section, we will first describe the procedure for selecting the literature and then explain the methodology of the meta-analysis adopted in this paper.

4.1 Literature selection procedure

As a first step toward identifying literature that has empirically examined the impacts of corporate ownership on managerial turnover in China and East European countries, we utilized EconLit, Web of Science, and websites of major publishing companies to search for relevant studies. The final literature search was performed in October 2018. When using these electronic databases, we adopted search terms that combined one of “*managerial*,” “*CEO*,” or “*executive*” and one of “*turnover*,” “*change*,” or “*dismissal*.” This generated around 1,000 hits, which contain a large number of unempirical research works. Therefore, as a next step, we closely examined the contents of these papers and limited our literature list to those containing estimates that could be subjected to meta-analysis in this paper, finally selecting a total of 31 research papers.²⁰

Table 2 lists the studies selected for meta-analysis in accordance with the literature selection procedure described above. As shown in this table, studies of Eastern Europe and those of China that empirically examined the effect of corporate ownership on managerial turnover began to

²⁰ In the selection of literature, we did not perform a so-called “self-screening,” referring to a third-party evaluation of the publication media and the research content that may lead to a kind of publication selection bias. As described later, we have, rather, adopted the approach of testing the possible influence of differences in research quality on empirical results by meta-regression analysis that adopts a series of meta-independent variables designed to control for various aspects of precedent works.

appear in the early 2000s and the late 2000s, respectively, and papers addressing this topic have been regularly published since then. A total of 19 studies—from Firth et al. (2006) to Liu and Zhang (2018)—investigated managerial turnover in Chinese companies during a period of 21 years from 1993 to 2013 in a wide range of industrial sectors. Meanwhile, 12 studies—from Goltsman (2000) to Karminsky et al. (2018)—conducted research mainly in the mining and manufacturing industry in the six East European countries during the period from 1995 to 2016.²¹

In general, studies on managerial turnover focus on the appointment or dismissal of CEOs. The same trend can be seen in transition studies. In fact, 26 of 31 previous studies listed in **Table 2** use the CEO turnover dummy as a dependent variable in their empirical analysis, whereas only seven studies utilize the turnover likelihood or frequency of the entire management team or board members. Rather, the empirical features of transition studies can be found in the way in which these studies center on the impacts of the corporate ownership structure. Although studies of developed economies typically shed light on how shareholding by corporate managers, board members, or institutional investors affects managerial turnover, studies of transition economies pay greater attention to the state than to private shareholders. Actually, while 20 studies listed in **Table 2** deal with state ownership as a determinant of managerial turnover, the numbers of studies that used ownership by domestic outside shareholders, foreign investors, and insiders as independent variables are limited to 14, 5, and 11, respectively.

As discussed in Section 2, researchers of transition economies share a strong interest in the influence of the government and the CPC on SOEs in China and the role of the state in the corporate governance of domestic companies in the post-privatization period in Eastern Europe. These academic interests are clearly reflected in the frequent use of a state ownership variable in transition studies. In addition, as pointed out in Iwasaki and Mizobata (2020), transition studies also focus on the effect of ownership concentration on corporate governance. Indeed, 18 of the 31 selected studies reported estimates of the ownership effect of top shareholder(s) and block shareholders on managerial turnover at the companies in question. Depending on the definitions of variables, some of the extracted estimates of ownership variables of the state, domestic outside shareholders, foreign investors, and insiders are also classified into categories of top

²¹ The research of Abe and Iwasaki (2009) and Abe and Iwasaki (2010) were based on the same enterprise survey of Russian joint-stock companies (JSCs) conducted in 2005. However, the former conducted an empirical analysis using the entire sample, including public (open), private (closed), and workers' JSCs (people's enterprises); while the latter focuses solely on public JSCs. Hence, we included both articles in the literature subject to meta-analysis in this paper. See Iwasaki (2014, 2018) for details of the legal forms of Russian JSCs. We confirmed that the results do not change, if we only include Abe and Iwasaki (2009) in meta-analysis. We acknowledge the comment from the referee on this point.

shareholder(s) and block shareholders.

As shown in the farthest-right column in **Table 2**, we collected a total of 736 estimates from the 31 selected studies. Along with estimates of ownership share variable, we also collected estimates of binary dummy variables for full ownership, control ownership, and dominant ownership. The dummy variable for partial/minor ownership was excluded. Of them, 529 estimates were extracted from studies of China and 207 from studies of Eastern Europe. The mean and median of collected estimates per study are 23.7 and 16, respectively. Hereafter, K denotes the total number of collected estimates ($k=1, 2, \dots, K$).

4.2 Methodology of meta-analysis

Next, we will provide a brief description of the methodology of meta-analysis performed in this study. To synthesize estimates derived from the selected studies, we employ the partial correlation coefficient (PCC) and the t value. The PCC is a measure of the association of a dependent variable and the independent variable in question when other variables are held constant. The PCC is calculated in the following equation:

$$r_k = \frac{t_k}{\sqrt{t_k^2 + df_k}}, \quad k = 1, 2, \dots, K, (1)$$

where t_k and df_k denote the t value and the degree of freedom of the k -th estimate, respectively, while K denotes the total number of collected estimates. We synthesize PCCs using the meta fixed-effect model and the meta random-effects model, and, according to the Cochrane Q test of homogeneity and the I^2 and H^2 heterogeneity measures, we adopt the synthesized effect size of one of these two models as the reference value.

The t values are combined using the following equation:

$$\overline{T}_w = \sum_{k=1}^K w_k t_k / \sqrt{\sum_{k=1}^K w_k^2} \sim N(0,1). \quad (2)$$

Here, w_k is the weight assigned to the t value of the k -th estimate. For the weight w_k in Eq. (2), we utilize a 10-point scale to mirror the quality level of each relevant study ($1 \leq w_k \leq 10$).²² Moreover, we report not only the combined t value, \overline{T}_w , weighted by the quality level of the study but also the unweighted combined t value, \overline{T}_u . As a supplemental statistic for evaluating the reliability of the above-mentioned combined t value, we also report Rosenthal's fail-safe N (fsN).²³

²² For more details on the method of evaluating the quality level of the study, see the **Appendix A**.

²³ Rosenthal's fail-safe N (fsN) denotes the number of studies with an average effect size equal to zero that needs to be added in order to bring the combined probability level of all studies to the standard

Following the synthesis of collected estimates, we conduct a meta-regression analysis (MRA) to explore the factors causing heterogeneity between selected studies. To this end, we estimate the meta-regression model:

$$y_k = \beta_0 + \sum_{n=1}^N \beta_n x_{kn} + e_k, \quad k = 1, 2, \dots, K, \quad (3)$$

where y_k is the PCC or the t value of the k -th estimate, x_{kn} denotes a meta-independent variable that captures the study-to-study variation in the selected literature, β_n denotes the meta-regression coefficient to be estimated, and e_k is the meta-regression disturbance term. As meta-independent variables, we adopted a total of 21 variables, including not only those representing differences in ownership variable types but also those capturing differences in other characteristics of ownership variables, types and definitions of managerial turnover variables, target industries, estimation periods, data types, estimators, the use of various control variables that would significantly affect estimation results, degrees of freedom,²⁴ and the quality of studies. **Table 3** shows the names, definitions, and descriptive statistics of these meta-independent variables.²⁵

There is no clear consensus among meta-analysts about the “best” model for estimating the afore-mentioned meta-regression equation. In fact, although conventional thinking indicates that the method chosen must be either a fixed- or random-effects model (Borenstein et al., 2009), Gonzalez-Mulé and Aguinis (2017) recommended using the mixed-effects model except in specific instances where the fixed-effects model is appropriate. However, Stanley and Doucouliagos (2015, 2017) demonstrated that the unrestricted weighted least squares (WLS) model outperforms the mixed-effects model, especially when there is selective reporting.²⁶ To check the statistical robustness of coefficient β_n in Eq. (3), we therefore estimate Eq. (3) using the following five estimators: (1) the cluster-robust WLS estimator, which clusters the collected estimates by study and computes robust standard errors using the above-mentioned quality level of the study as an analytical weight; (2) the cluster-robust WLS estimator with the inverse of the standard error ($1/SE$); (3) the multilevel mixed-effects restricted maximum likelihood (RML)

significance level (the 5% level in this paper) to determine the presence or absence of the effect. The larger the value of the fsN , the more reliable the estimation of the combined t value. In theory, the fail-safe N may have a negative value.

²⁴ The sample size has a considerable impact on the statistical significance of estimates. From this statistical standpoint, many meta-analyses employ the square root of degrees of freedom as a control variable in a meta-regression model.

²⁵ In addition to the meta-independent variables listed in **Table 3**, we also include country-level fixed effects on the right-hand side of Equation (3) of the East European Model to control for the possible influence of institutional diversity between countries on the empirical results in the selected literature.

²⁶ We are grateful to the referee for his/her comment on this point.

estimator; (4) the cluster-robust random-effects panel generalized least squares (GLS) estimator; and (5) the cluster-robust fixed-effects panel least square dummy variable (LSDV) estimator.

Testing for publication selection bias is a unique and important issue for meta-analysis. In this paper, we examine this problem by using a funnel plot and a Galbraith plot as well as by estimating a meta-regression model that is designed especially for this purpose. If the funnel plot is not bilaterally symmetrical but is deflected to one side, then an arbitrary manipulation of the study area in question is suspected, in the sense that estimates in favor of a specific conclusion (i.e., estimates with an expected sign) are more frequently published (type I publication selection bias). Meanwhile, a Galbraith plot is used for testing another arbitrary manipulation, in the sense that estimates with higher statistical significance are more frequently published, irrespective of their sign (type II publication selection bias). In general, the statistic, $|(\text{the } k\text{-th estimate} - \text{the true effect})/SE_k|$, should not exceed the critical value of ± 1.96 by more than 5% of the total estimates. In other words, when the true effect does not exist and there is no publication selection bias, the reported t values should vary randomly around zero, and 95% of them should be within the range of ± 1.96 . A Galbraith plot tests whether the above relationship can be observed in the statistical significance of the collected estimates and thereby identifies the presence of type II publication selection bias.

In addition to the above two scatter plots, we also report estimates of the meta-regression models, which have been developed to examine in a more rigorous manner the two types of publication selection bias and the presence of the true effect.

We can test for type I publication selection bias by regressing the t value of the k -th estimate on the inverse of the standard error ($1/SE$) using the following equation:

$$t_k = \gamma_0 + \gamma_1(1/SE_k) + v_k, \quad (4)$$

thereby testing the null hypothesis that the intercept term γ_0 is equal to zero. In Eq. (4), v_k is the error term. When the intercept term γ_0 is statistically significantly different from zero, we can interpret that the distribution of the effect sizes is asymmetric. For this reason, this test is called the funnel-asymmetry test (FAT). Meanwhile, type II publication selection bias can be tested by estimating the next equation, where the left side of Eq. (4) is replaced with the absolute t value:

$$|t_k| = \gamma_0 + \gamma_1(1/SE_k) + v_k, \quad (5)$$

thereby testing the null hypothesis of $\gamma_0 = 0$ in the same way as the FAT.

Even if there is a publication selection bias, a genuine effect may exist in the available empirical evidence. Stanley and Doucouliagos (2012) proposed examining this possibility by testing the null hypothesis that the coefficient γ_1 is equal to zero in Eq. (4). The rejection of the null hypothesis implies the presence of a genuine effect. They call this test the precision-effect

test (PET). Moreover, they stated that an estimate of the publication selection bias-adjusted effect size can be obtained by estimating the following equation that has no intercept:

$$t_k = \gamma_0 SE_k + \gamma_1 (1/SE_k) + v_k, \quad (6)$$

thereby obtaining the coefficient γ_1 . This means that, if the null hypothesis of $\gamma_1 = 0$ is rejected, then the non-zero effect does actually exist in the literature, and the coefficient γ_1 can be regarded as its estimate. Stanley and Doucouliagos (2012) called this procedure the precision-effect estimate with standard error (PEESE) approach. To test the robustness of the regression coefficient, we estimate Eqs. (4) to (6) above using not only the OLS estimator but also the cluster-robust OLS estimator and the unbalanced panel estimator, both of which treat possible heterogeneity among the studies.²⁷

As mentioned above, we basically follow the FAT-PET-PEESE approach advocated by Stanley and Doucouliagos (2012) as the test procedures for publication selection. However, we also include a test of type II publication selection bias using Eq. (5) because this kind of bias is repeatedly detected in the literature of transition economies.²⁸

The next sections present meta-synthesis and meta-regression analysis of the 736 collected estimates and then test for publication selection bias in the selected literature.

5 Meta-Synthesis

This section first reports the distribution of 736 collected estimates outlined in the previous section and then performs a meta-synthesis.

Table 4 shows descriptive statistics of the collected estimates by each ownership variable type for studies of China and Eastern Europe and presents the results of univariate comparison between these two study types. **Figure 1** illustrates the kernel density estimation. Findings from these materials point to a clear difference between studies of China and those of Eastern Europe in terms of the distribution of the collected estimates. While both the mean and median of PCCs of the estimates extracted from studies of China are negative for all ownership variable types, the mean and median are negative for only the ownership variables of insiders and block shareholders in studies of Eastern Europe. The same trend can be observed with t values as well, with the exception of the variable of domestic outside ownership in studies of China. These differences

²⁷ To estimate Eqs. (4) and (5), we use both the cluster-robust random-effects estimator and the cluster-robust fixed-effects estimator. With regard to Eq. (6), which does not have an intercept term, we report the random-effects model estimated by the maximum likelihood method and the population-averaged panel GEE model.

²⁸ For instance, see Iwasaki and Tokunaga (2014, 2016), Iwasaki and Uegaki (2017), Tokunaga and Iwasaki (2017), and Iwasaki (2020).

between the two study types are proven to be statistically significant by t test and/or Wilcoxon rank sum test.

Furthermore, according to **Figure 1**, the PCCs of the estimates extracted from studies of China have their peaks on the negative side for all ownership variable types except the variable of domestic outside ownership. On the other hand, while the PCCs of the estimates collected from studies of Eastern Europe show a similar trend for the variable of insider ownership, the ownership variable of block shareholders has its peak close to zero, and the other four types of ownership variables have their peaks on the positive side. As for the t values, studies of China show all ownership variable types to be skewed toward the negative side, whereas studies of Eastern Europe show a more complicated distribution, with the insider ownership variable and the variable of domestic outside ownership having their peaks on the negative side.

Table 5 displays the results of the meta-synthesis of the collected estimates. Column (a) in each panel of this table presents the synthesis results of PCCs, while Column (b) reports the test and measures of heterogeneity. In the studies of China, the Cochran Q test of homogeneity rejects the null hypothesis across all six ownership variable types at the 1% significance level. The I^2 and H^2 statistics also suggest the presence of heterogeneity. Hence, we adopt the estimate $\overline{R_r}$ of the random-effects model as the synthesized effect size of all ownership variables. With respect to studies of Eastern Europe, we adopt the estimate $\overline{R_f}$ of the fixed-effects model as the synthesized effect size for the foreign ownership variable and the ownership variable of block shareholders and the estimate $\overline{R_r}$ of the random-effects model as those for the remaining four ownership variable types.

Panel A of **Figure 2** compares the above-mentioned synthesized effect sizes between studies of China and Eastern Europe by ownership variable type. This figure clearly demonstrates that China and Eastern Europe stand in sharp contrast to one another in terms of the direction and magnitude of the effect of corporate ownership on managerial turnover. In Eastern Europe, ownership by the state, domestic outside shareholders, foreign investors, and large shareholders positively affect the likelihood or frequency of managerial turnover at the companies they invest in; on the other hand, the ownership of company insiders is negatively correlated with it, which corresponds with our hypotheses described in Section 3.²⁹ In addition, according to the assessment criteria of PCCs in economics research by Doucouliagos (2011), state and company insider ownership in Eastern Europe show synthesized effect sizes of 0.095 and -0.204, respectively, and, thus, seem to have an economically meaningful impact on managerial

²⁹ We must bear in mind, however, that the synthesized ownership effect of block shareholders in Eastern Europe is insignificant and, therefore, is not statistically different from zero.

turnover.³⁰ Meanwhile, in China, ownership by the state, foreign investors, insiders, and large shareholders has a negative effect on managerial dismissals. Furthermore, the synthesized effect size of these six ownership variables ranges from -0.030 to -0.010; hence, it is evaluated to be economically insignificant according to the Doucouliagos' standards. To sum up, while corporate ownership is clearly correlated with managerial turnover in Eastern Europe, the relationship between the two is very weak in China. This finding largely supports the series of hypotheses described in **Table 1**.

The combined t values and Rosenthal's fail-safe N (fsN) in Column (c) in both panels of **Table 5** and the combined t values weighted for the quality level of studies in Panel B of **Figure 2** are also mostly in agreement with the above-mentioned synthesis results of the PCCs. These results also tell us that, regardless of the difference in target economies, the combined t value, \overline{T}_w , weighted for the quality level of the studies is much lower than the unconditionally combined t value, \overline{T}_u ; in some cases, they do not even reach statistical significance at the 10% level. This result implies that various conditions that manifested as differences in the quality level of studies could have had a profound effect on the empirical findings reported in previous studies regarding the effect of corporate ownership on managerial turnover. It is, therefore, necessary to verify whether the meta-synthesis results reported in this section could be reproduced even when the quality level and other study conditions are simultaneously controlled for. The next section will address this issue by estimating a multivariate meta-regression model.

6 Meta-Regression Analysis

As the second step of meta-analysis, this section examines how heterogeneity across studies may affect the empirical results of the selected studies by estimating the aforementioned Eq. (3).

Table 6 presents the estimation results, which adopt PCCs as the dependent variable. Panels A and B of the table show the models estimated using the estimates extracted from studies of China and those of Eastern Europe, respectively. In both cases, the Cochrane Q test of homogeneity using all collected estimates strongly rejects the null hypothesis (Chinese studies: $Q = 2090.035$, $p = 0.000$; East European studies: $Q = 969.052$, $p = 0.000$), suggesting that heterogeneity between the studies is significant; hence, multivariate MRA is merited. As

³⁰ Cohen (1988), who is frequently cited for assessing correlation coefficients, defined a coefficient of 0.30 as the threshold between a small effect and a medium effect and a coefficient of 0.50 as the threshold between a medium effect and a large effect. However, this standard for zero-order correlations is not suitable for evaluating empirical results produced in the field of economics that are characterized by the frequent use of control variables. To address this issue, Doucouliagos (2011) proposed a new standard to replace Cohen's criteria for general purposes, setting 0.070, 0.173, and 0.327 as the lower thresholds for small, medium, and large effects, respectively.

illustrated in this table, estimates derived from meta-independent variables are generally sensitive to the choice of estimator. Thus, we will interpret the estimation results, assuming that meta-independent variables (those presented in each of the panels mentioned above) that are statistically significant and have the same sign in at least three models constitute statistically robust estimates.

The most important question here is whether the relative positions of ownership variable types remain the same even when a series of study conditions are given. From this viewpoint, we look at the estimates produced from the meta-independent variables, which capture differences in ownership variable types, taking the state ownership variable as the default category.

According to Panel A of **Table 6**, concerning studies in China, robust estimates are assigned to the foreign ownership variable with its regression coefficients, indicating that the effect size of this variable type is statistically significantly smaller in a range of 0.0185 to 0.0459, as compared to that of the state ownership variable. No robust estimates are generated from estimation of the meta-independent variables from foreign ownership to ownership of block shareholders, implying that, when other conditions are held constant, no statistically significant differences can be observed in the effect sizes between these four types of ownership variables and the state ownership variable.

On the other hand, in the studies of Eastern Europe, as shown in Panel B of the same table, insignificant estimates are given to the domestic outside ownership variable, whereas robust and negative estimates are assigned to the other four ownership variables. These results suggest that, while no statistically significant difference exists between the state and domestic outside shareholders in terms of the ownership effect size on managerial turnover, foreign investors, insiders, and large shareholders have on average a significantly smaller impact as compared to the state.

Table 7 reports the estimation results that utilize t values as the dependent variable. According to Panel A of this table, for studies of China, there are no statistically robust differences across all six ownership variable types. On the other hand, with regard to studies of Eastern Europe, Panel B shows that significant differences can be observed between the state ownership variable and all other ownership variable types except for the domestic outside ownership variable, indicating that the t values of foreign ownership, insider ownership, and ownership of top and block shareholders are on average significantly lower than that of the state ownership variable. These results are, for the most part, in agreement with the estimates presented in **Table 6**, where PCCs are used as the dependent variable.³¹

³¹ In appendix **Tables A1** and **A2**, we report the estimation results of Eq. (3) without studies of board member turnover for robustness check. The results indicate a weaker impact of ownership by insiders and block shareholders in China and a weaker impact of domestic outside ownership in Eastern Europe

To sum up, where studies of China are concerned, the relative positions of ownership variable types demonstrated by the estimates derived from meta-independent variables are mostly in agreement with the synthesis results reported in **Table 5** and **Figure 2**. On the other hand, for studies of Eastern Europe, certain discrepancies do exist between the estimates of meta-independent variables and the synthesis results in the effect sizes of the ownership variables. In particular, the results of meta-synthesis and meta-regression analysis disagree in relative positions between domestic outside shareholders, foreign investors, and company insiders in terms of the size of the ownership effect on managerial turnover. This finding suggests the possible presence of study conditions other than ownership variable types that could have a considerable influence on the empirical results in studies of Eastern Europe. In fact, as shown in Panel B of **Table 6**, the meta-regression analysis of the estimates extracted from studies of Eastern Europe revealed not only the ownership variable types but also many other meta-independent variables that yield robust and significant estimates. This is in stark contrast with the estimates collected from studies of China, which found all meta-independent variables except for the quality level to be statistically insignificant.³²

The results of meta-regression analysis in this section are not rigidly in line with the meta-synthesis results reported in the previous section, especially for studies of Eastern Europe. Thus, we will determine the validity of the hypotheses proposed in Section 3, taking into account the test results of publication selection bias presented in the next section.³³

compared with the state, if we focus on CEOs and management teams. Nevertheless, the main findings are largely unchanged. We thank the referee for his/her comment on this point.

³² In this regard, we note that the Chinese studies pay special attention to the difference between normal/voluntary and forced/involuntary managerial turnovers, because the latter has a particular meaning for the managerial discipline argument in China. In fact, as shown in **Table 4**, 54.3% of the estimates collected from the studies of China present empirical results of forced/involuntary turnovers. As indicated in Panel A of **Table 6**, however, the variable of forced and involuntary turnover does not show a robust estimate, implying that the distinction between normal/voluntary and forced/involuntary turnovers is not closely associated with the empirical evaluation of the impact of ownership structure. Panel B proves that it is the same for East European studies. Furthermore, in addition to the meta-independent variables listed in **Table 4**, we also estimated moderators, which capture the study-to-study difference in primary data sources and publication types and found that these factors also do not explain the systematic variation in the empirical results of the selected studies. The comments from the referee on these points are deeply appreciated.

³³ To consider the influences of institutional diversity in China and Eastern Europe, in **Appendix B**, we report the supplemental estimation results using pooling data, including the entire estimates of Chinese and East European studies. We thank the referee and the editor for their helpful recommendation to conduct this robustness check.

7 Assessment of Publication Selection Bias

As the final step of meta-analysis, this section assesses the likelihood of publication selection bias and the presence of genuine empirical evidence in the selected studies.

Figure 3 displays a funnel plot for each ownership variable type to examine type I publication selection bias. As shown in Panels A and E of the figure, in the cases of state ownership and ownership of top shareholder(s), respectively, which have relatively large numbers of estimates extracted from studies of China, the plots exhibit a clearly symmetrical distribution. Thus, the likelihood of type I publication selection bias is low for these two types of ownership variables. In contrast, estimates of the ownership variable of block shareholders reported in studies of China show a skewed distribution toward the negative side; hence, the risk of type I publication selection bias is judged to be high for this variable. With respect to estimates of the ownership variables of domestic outside shareholders, foreign investors, and insiders in the case of studies of China and all ownership variable types in the case of studies of Eastern Europe, the use of a funnel plot is ineffective for assessing publication selection bias due to the limited number of estimates.

In view of this fact, we performed a goodness-of-fit test to identify whether the collected estimates are symmetrically dispersed around the true effect. The test was carried out under two assumptions: that the true effect is close to zero and that the mean of the top 10% most precise estimates is regarded as the approximate value of the true effect.³⁴ The results are presented in Column (a) in each panel of **Table 8**. As shown in this table, when the true effect is assumed to be zero, the null hypothesis that the ratio of the positive versus negative values is equal is accepted only for the domestic outside ownership variable in the case of studies of China and ownership of the block shareholders in the case of studies of Eastern Europe. On the other hand, if we assume that the mean of the top 10% most precise estimates is the true effect, the null hypothesis—that the number of PCCs that lie below the true effect equals the number of those that lie above the true effect—is accepted for state ownership in the case of studies of China and the ownership of state, foreign investors, and block shareholders in the case of studies of Eastern Europe. The null hypotheses are rejected for all other variables. Accordingly, from the viewpoint of the symmetry of the distribution of estimates, type I publication selection bias is likely to be high for most ownership variables.

Figure 4 illustrates Galbraith plots that are designed to examine type II publication selection bias. As indicated in this figure, regardless of the differences in the studied economies and ownership variable types, many of the collected estimates appear to fall within the range of ± 1.96

³⁴ The analytical approach, whereby the mean of the most precise 10% of estimates is regarded as the approximate value of the true effect, was originally proposed by Stanley (2005).

(this range is defined by two-sided critical values at the 5% significance level). However, 178—or 33.6% of the 529 estimates extracted from studies of China—show absolute t values of 1.96 or greater, which strongly rejects the null hypothesis that estimates exceeding the two-sided critical values at the 5% significance level account for 5% of all estimates ($z = 30.233$, $p = 0.000$). Similarly, 51—or 24.6% of the 207 estimates derived from studies of Eastern Europe—exceed the threshold of ± 1.96 and, again, reject the null hypothesis ($z = 12.694$, $p = 0.000$). Thus, the presence of type II publication selection bias is highly likely in this research field as a whole.

In Column (b) in each panel of **Table 8**, the test results are presented for the purpose of examining the presence of type II publication bias in a more rigorous manner. When the true effect is assumed to be zero, the goodness-of-fit test rejects the null hypothesis that the share of estimates, the t value of which is within the range of ± 1.96 , is 95% in total estimates at the 1% level for all ownership variable types except for ownership of block shareholders in studies of Eastern Europe. Similarly, even when we assume that the true effect size is the mean of the top 10% most precise estimates, the null hypothesis—that estimates whose statistics $|(k\text{th estimate} - \text{true effect})/SE_k|$ do not exceed the threshold of ± 1.96 account for 5% of all estimates—is also strongly rejected for all variables except the state ownership variable in studies of Eastern Europe. Both the findings from the Galbraith plots in **Figure 4** and the results of univariate comparison in Column (b) in both panels of **Table 8** demonstrate that, irrespective of the difference in ownership variable types, the likelihood of type II publication selection bias is regarded to be high in the selected studies.

Finally, in accordance with the methods and procedures described in Subsection 4.2, we examine the two types of publication selection bias and the presence of genuine empirical evidence by estimating meta-regression models developed especially for this purpose. **Table 9** shows the estimation results for state ownership in China. According to Panel A of this table, the null hypothesis—that the intercept γ_0 in Eq. (3) is equal to zero—cannot be rejected in any of the five models. On the other hand, Panel B of the same table shows that the intercept γ_0 in Eq. (4) is given a statistically significant coefficient in four of five models. These results correspond with the test results obtained from **Figures 3** and **4** and **Table 8**, demonstrating that, while the likelihood of type I publication selection bias is extremely low, the presence of type II publication selection bias is strongly suspected.

The next step is to ascertain the presence of genuine empirical evidence. Panel A of **Table 9** shows that the coefficient γ_1 of the inverse of the standard error in Eq. (3) is estimated to be significant in four of five models. In addition, Panel C of the same table demonstrates that the coefficient γ_1 of the inverse of the standard error in Eq. (5) is estimated at the 5% or less significance level in all five models. We can therefore assess that the estimates extracted from

studies of China provide genuine empirical evidence regarding the effect of state ownership on managerial turnover, with the true effect size lying in a range between -0.0095 and -0.0074.

In **Table 10**, the estimation results are presented for state ownership in Eastern Europe. This table manifests that, while the risk of type I publication selection bias is high, the presence of type II publication selection bias is unlikely. As is the case with studies of China, the estimates reported in studies of Eastern Europe provide genuine empirical evidence regarding the ownership effect of the state on managerial turnover, with the true effect size lying in a range from 0.1621 to 0.2120, suggesting that the effect size of the state is economically significant in Eastern Europe.

Table 11 summarizes the results presented in **Tables 9** and **10** as well as the test results for other types of ownership variables. This table certifies that the estimates of all ownership variables collected from studies of Eastern Europe, except for the insider ownership variable, contain genuine empirical evidence of the effect on managerial turnover beyond publication selection bias.³⁵ Studies of China, on the other hand, yield evidence of a non-zero true effect for only the ownership variables of state and foreign investors. Further empirical analysis is needed to gain real perspectives on the interaction between different corporate owners in China.

8 Conclusions

In this paper, we performed a meta-analysis of 736 estimates extracted from 31 previous studies to compare China and Eastern Europe in terms of the effect of corporate ownership on managerial turnover. The results are summarized in **Table 12**. As shown in this table, the findings from studies of China correspond well with our predictions presented in **Table 1**. More concretely, the meta-analysis in this paper revealed that, in China, all other conditions being equal, the state and company insiders negatively impact managerial turnover at the companies they own, whereas both domestic and foreign private shareholders have a positive effect on turnover. Furthermore, it became evident that Chinese large shareholders exercise their ownership in a way that decreases managerial dismissal at the companies they invest in. However, we also found that, because the extant literature does not provide genuine evidence on the effect of domestic outside ownership, insider ownership, and large shareholding on managerial turnover, a definite judgment of our hypotheses must await the accumulation of further empirical evidence.

In respect to studies of Eastern Europe, the results of meta-analysis strongly support our predictions. It is confirmed that the state, domestic outside shareholders, foreign investors, and

³⁵ To examine possible difference in the empirical results of studies of former Soviet states and those of other East European countries, we also conducted a meta-analysis without estimates of Russian and Ukrainian companies and found that the main findings are almost the same as those reported in **Table 11**.

large shareholders in Eastern Europe tend to execute their ownership rights to promote managerial turnover at their companies. Furthermore, according to the standards proposed by Doucouliagos (2011), corporate ownership by the state and domestic outside shareholders has a medium effect size, suggesting that it actually has an economically meaningful impact on the appointment and dismissal of top management. In addition, in line with our prediction, insider ownership proved to be negatively correlated with managerial turnover, with a medium effect size. Unfortunately, however, no genuine empirical evidence of insider ownership could be found in the selected studies.

Overall, the results of meta-analysis in this paper clearly exhibited the presence of asymmetric circumstances between China and Eastern Europe from the viewpoint of the relationship between corporate ownership and managerial turnover. In fact, the role of private outside investors and large shareholders in Eastern Europe resembles that of their counterparts in developed economies as Denis et al. (1997) observed in the USA. In other words, as the agency theory suggests, these owners play a crucial role in improving the managerial discipline of the companies they invest in. On the other hand, company managers who are under strict supervision and monitoring by outside shareholders tend to exercise their ownership to defend their positions, often in conspiracy with rank-and-file employees. This entrenchment effect can impede efforts to improve corporate management in East European countries, where insider ownership is prevalent. On the other hand, it becomes obvious that, irrespective of their nationalities, private outside investors in China have no power to enforce sufficient discipline on the managers of the companies they own. The same can be said about Chinese insiders, who have limited influence over corporate management. One can say that corporate executives in China are relatively free from the restraints imposed by private investors. These findings strongly suggest that, reflecting the large differences in institutional settings, the Chinese experience is very dissimilar with that in the USA and other advanced economies.

The above asymmetry between China and Eastern Europe is probably related to the political attitude of the state toward the governance of domestic firms. As argued in Sections 2 and 3, we surmise that, forced by political need for accountability to voters regarding the state budget and, hence, to secure certain profitability of public projects, governments in Eastern Europe tend to take a tough stance with managers of SOEs and public corporations, just as private investors do. This pattern of behavior seen in governments in Eastern Europe, coupled with the presence of private outside investors who hold the most crucial positions in corporate ownership today, is likely producing positive effects on corporate governance in this region.

In China, where the one-party dictatorship is strongly maintained, the government and the CPC show a particularly strong tendency to seek political goals that are quite different from those

of the East European states. Consequently, when compared to Eastern Europe, individual performance in business administration does not necessarily determine the appointment or dismissal of managers in SOEs in China. This observation is backed up by the results of the meta-analysis in this paper, which demonstrated that corporate ownership by the Chinese state has only a minor effect on managerial turnover. Although the government and the Party in China do not necessarily adopt a paternalistic attitude toward the managers they appoint, neither do they play an active role in the governance of SOEs. One cannot deny the possibility that this passive attitude of the Chinese state, coupled with its powerful presence as a major corporate owner within the country, might prevent private shareholders from effectively executing their voting power in management of their companies. In this sense, Chinese enterprises might face a greater problem in corporate governance. To ensure sound corporate management, the Chinese government must make further strides in promoting transition to a market-oriented economy and reforming the public sector.

APPENDIX A

METHOD FOR EVALUATING THE QUALITY LEVEL OF A STUDY

This appendix describes the evaluation method used to determine the quality level of the studies subjected to our meta-analysis.

For journal articles, we used the ranking of economics journals that had been published as of November 1, 2012, by IDEAS—the largest bibliographic database dedicated to economics and available freely on the Internet (<http://ideas.repec.org/>)—as the most basic information source for our evaluation of quality level. IDEAS provides the world's most comprehensive ranking of economics journals; as of November 2012, 1173 academic journals were ranked.

We divided these 1173 journals into 10 clusters, using a cluster analysis based on overall evaluation scores. We then assigned each journal cluster a score (weight) from 1 (the lowest journal cluster) to 10 (the highest).

For academic journals that are not ranked by IDEAS, we referred to the Thomson Reuters Impact Factor and other journal rankings and identified the same level of IDEAS ranking-listed journals that correspond to these non-listed journals. We have assigned each of them the same score as its counterpart.

For academic books and book chapters, we assigned a score of 1 in principle; however, if at least one of the following conditions was met, each of the relevant books or chapters uniformly received a score of 4, which is the median value of the scores assigned to the above-mentioned

IDEAS ranking-listed economics journals: (1) the academic book or book chapter clearly states that it has gone through a peer review process; (2) its publisher is a leading academic publisher that has external evaluations carried out by experts; or (3) the research level of the study has been evaluated by the authors to be obviously high.

APPENDIX B

SUPPLEMENTAL META-REGRESSION ANALYSIS

This appendix reports supplemental meta-regression estimation results for a robustness check.

First, using the pooling data of all the estimates extracted from Chinese and East European studies listed in **Table 2**, we estimated Equation (3), adding China's fixed effect on its right-hand side. The result, in **Table A3**, indicates that China's fixed effect is statistically insignificant in most models, which denotes that, in general, the average effect size and statistical significance of ownership variables do not differ greatly between the Chinese and East European studies.

Second, we also estimated a model with a set of East European country level fixed effects, taking China as the reference. **Table A4** shows that the fixed effects of Russia, Slovakia, and Ukraine in Panel A and those of Russia and Ukraine in Panel B show robust estimates, suggesting that the effect size and statistical significance of ownership variables do vary between China and some East European countries and within Eastern Europe.

Finally, we estimated a model with China's fixed effect and its interaction terms with ownership variable types in **Table A5**. In this table, some interacted variables exhibit robust estimates, thus, indicating that notable differences exist in the empirical results between China and Eastern Europe for some ownership types, especially for insider ownership.

The supplemental regression results reported in **Tables A3 to A5** overall back up the main findings in Section 6 and provide additional insights for deeper understanding of the empirical results in the previous literature, indicating that differences in the economic and political institutions, corporate management systems, organizational culture, and other unobservable factors among China and East European countries should be considered in future research.

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Table 1.

Testable prediction of the impacts of corporate ownership on managerial turnover in China and Eastern Europe

Ownership type	Hypothesis No.	Prediction	
		China	Eastern Europe
State ownership	Hypothesis H1	Negative	Positive
Domestic outside ownership	Hypothesis H2	Positive, but weak or insignificant	Positive
Foreign ownership	Hypothesis H2	Positive, but weak or insignificant	Positive
Insider ownership	Hypothesis H3	Negative, but weak or insignificant	Negative
Large shareholding	Hypothesis H4	Unpredictable	Positive

This table summarizes testable predictions of the relationship between corporate ownership and managerial turnover in China and Eastern Europe based on the arguments in Section 3.

Table 2.

List of selected studies on the impact of corporate ownership on managerial turnover in China and Eastern Europe for meta-analysis

A. Chinese studies

Author(s) (publication year)	Publication type ^a	Target industry	Estimation period ^b	Managerial turnover variable type (dependent variable) ^c	Ownership variable type (independent variable) ^d	Number of collected estimates
Firth et al. (2006)	JA	Various industries	1998–2002	C	1-3, 5	48
Kato and Long (2006a)	JA	Various industries	1998–2002	A	2, 5	4
Kato and Long (2006b)	JA	Various industries	1998–2002	A	2, 5	20
Fan et al. (2007)	JA	Various industries	1999–2003	A	1, 2, 4	9
Cheng et al. (2008)	JA	Various industries	2000–2003	A, B, C	1, 2, 5, 6	88
Chang and Wong (2009)	JA	Various industries	1995–2001	A	1, 5	8
Chi and Wang (2009)	JA	Various industries	1993–2005	A, C	1-5	64
Shen and Lin (2009)	JA	Various industries	1999–2002	A	1	12
Pi and Lowe (2011)	JA	Various industries	1997–2006	A	1, 4-6	45
Chen et al. (2012)	JA	Various industries	2002–2008	A	1, 4, 5	16
Hu and Leung (2012)	JA	Various industries	2001–2005	B	1, 5	27
You and Du (2012)	JA	Various industries	2005–2008	A	1	4
Firth et al. (2014)	JA	Various industries	2005–2008	A	1, 5	22
Cheng and Leung (2016)	JA	Various industries	2001–2008	A, C	1	32
He et al. (2016)	DP	Various industries	2008–2013	A	1, 5	54
Zhang (2016)	JA	Various industries	2005–2011	A, C	2	6
Cao et al. (2017)	JA	Various industries	2002–2010	A	4	3
He et al. (2017)	JA	Various industries	2002–2011	A	1, 2, 4, 5	40
Liu and Zhang (2018)	JA	Various industries	1999–2012	B	1, 5, 6	27

B. East European studies

Author(s) (publication year)	Target country ^e	Publication type ^a	Target industry	Estimation period ^b	Managerial turnover variable type (dependent variable) ^c	Ownership variable type (independent variable) ^d	Number of collected estimates
Goltsman (2000)	RU	DP	Manufacturing	1998–1999	A, B, C	1, 2, 4, 6	72
Muravyev (2003)	RU	JA	Mining and manufacturing	1999–2000	A	1, 2	16
Eriksson (2005)	CZ, SK	JA	Various industries	1998–2000	A	1, 3, 5	8
Kapelyushnikov and Demina (2005)	RU	JA	Mining and manufacturing	1995–2003	A, C	1, 2, 4	10
Fidrmuc and Fidrmuc (2007)	CZ	JA	Various industries	1996–1997	A	5, 6	8
Cvelbar et al. (2008)	SI	JA	Various industries	1998–2002	C	1, 2	9
Abe and Iwasaki (2009)	RU	BC	Mining and manufacturing	2001–2004	A, B	3, 5	32
Abe and Iwasaki (2010)	RU	JA	Mining and manufacturing	2001–2004	A, B	3, 5	32
Muravyev et al. (2010)	UA	JA	Various industries	2002–2006	A	4	10
Iwasaki (2014)	RU	BC	Mining and manufacturing	2001–2004	A	2, 4	7
Radjen and Stanisic (2017)	SB	JA	Various industries	2009–2015	B	2	2
Karminsky et al. (2018)	RU	JA	Banking	2014–2016	A	4	1

This table shows the results from the literature selection procedure described in Section 4. The final literature search using EconLit, Web of Science, and websites of major publishing companies was performed in October 2018. A total of 31 research works was collected. Panels A and B list Chinese and East European studies in order of publication year, respectively.

^a BC: Book chapter; DP: Discussion/working paper; JA: Journal article

^b Estimation period may differ depending on target countries.

^c A: CEO turnover; B: Turnover of management team; C: Turnover of board chairman/directors

^d 1: State ownership; 2: Domestic outside ownership; 3: Foreign ownership; 4: Insider ownership; 5: Ownership by top shareholder(s); 6: Ownership by block shareholders

^e Country abbreviations: CZ—Czech Republic; RU—Russia; SB—Serbia; SI—Slovenia; SK—Slovakia; UA—Ukraine

Table 3.

Descriptive statistics of collected estimates and univariate comparison between Chinese and East European studies

A. PCC

Ownership variable type	Chinese studies						East European studies					
	Number of estimates (K)	Mean ^a	Median ^b	S.D.	Max	Min	Number of estimates (K)	Mean	Median	S.D.	Max	Min
State ownership	248	-0.010 ***	-0.012 †††	0.029	0.087	-0.100	35	0.084	0.094	0.100	0.209	-0.143
Domestic outside ownership	95	-0.009 ***	0.003 †††	0.076	0.139	-0.184	43	0.043	0.054	0.108	0.227	-0.180
Foreign ownership	20	-0.031 ***	-0.026 †††	0.024	0.012	-0.058	36	0.051	0.072	0.069	0.150	-0.112
Insider ownership	37	-0.022 ***	-0.031 †††	0.034	0.029	-0.073	35	-0.199	-0.055	0.250	0.117	-0.585
Ownership by top shareholder(s)	250	-0.007 ***	-0.007 †††	0.041	0.092	-0.172	44	0.048	0.052	0.063	0.158	-0.102
Ownership by block shareholders	67	-0.049 **	-0.037	0.052	0.059	-0.184	22	-0.011	-0.045	0.092	0.175	-0.149

B. *t* value

Ownership variable type	Chinese studies						East European studies					
	Number of estimates (K)	Mean ^a	Median ^b	S.D.	Max	Min	Number of estimates (K)	Mean	Median	S.D.	Max	Min
State ownership	248	-0.602 ***	-0.750 †††	1.459	3.400	-4.960	35	1.170	1.282	1.330	3.660	-1.466
Domestic outside ownership	95	0.088 *	0.200 †††	1.922	3.527	-3.450	43	0.668	0.500	1.358	4.150	-1.645
Foreign ownership	20	-1.674 ***	-1.623 †††	1.280	1.179	-3.000	36	0.954	1.080	1.174	2.950	-0.980
Insider ownership	37	-1.703	-2.579 †††	2.414	3.000	-5.160	35	-2.606	-0.500	3.277	1.282	-7.500
Ownership by top shareholder(s)	250	-0.176 ***	-0.400 †††	2.207	7.003	-5.160	44	0.865	0.893	1.193	3.850	-1.459
Ownership by block shareholders	67	-1.221 ***	-1.300	1.314	3.390	-4.960	22	-0.013	-0.500	1.105	1.645	-1.645

This table presents descriptive statistics of the partial correlation coefficient (PCC) and *t* value of estimates of ownership variables extracted from the selected studies listed in Table 2. In each panel, results of univariate comparison by *t* test and Wilcoxon rank sum test between Chinese and East European studies are reported.

^a ***, **, and * denote that *t* tests reject null hypotheses of equality of means with East European studies at the 1%, 5%, and 10% significance levels, respectively.

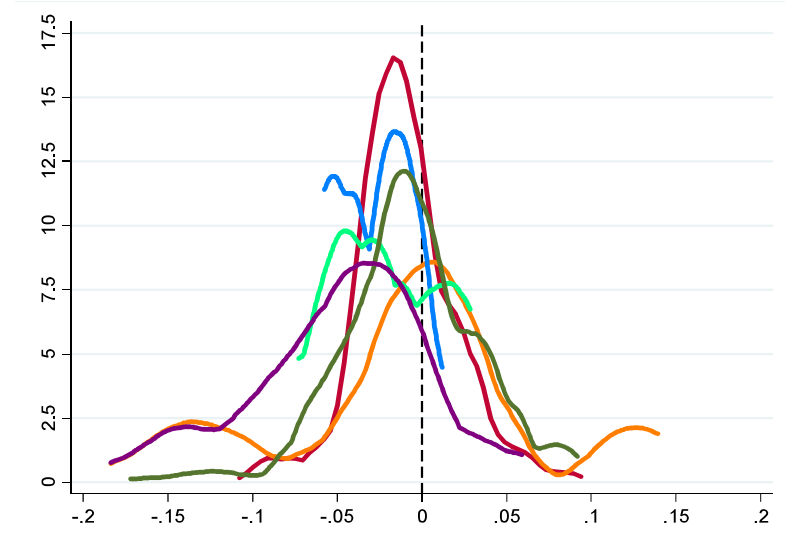
^b ††† denotes that the Wilcoxon rank sum test rejects the null hypothesis of equality with East European studies at the 1% significance level.

Table 4.
Names, definitions, and descriptive statistics of meta-independent variable

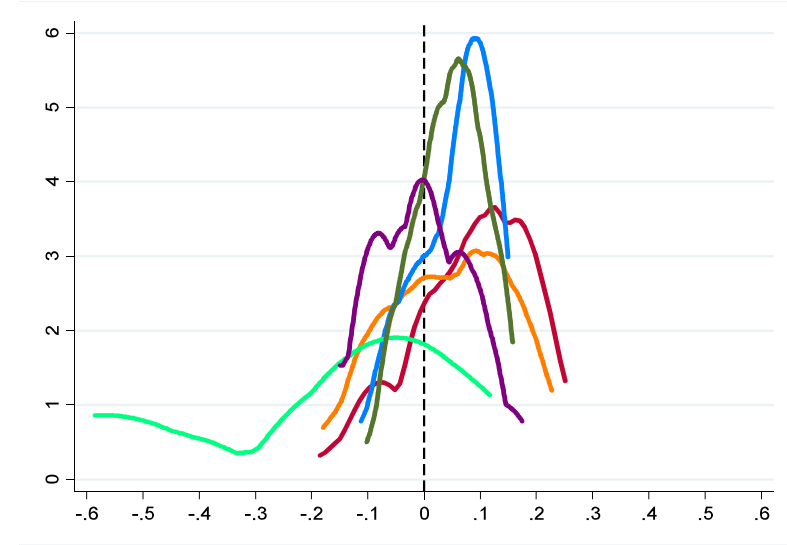
Variable name	Definition	Descriptive statistics					
		Chinese studies			East European studies		
		Mean	Median	S.D.	Mean	Median	S.D.
State ownership	1 = if ownership variable used for estimation belongs to the category of state, 0 = otherwise	0.469	0	0.499	0.169	0	0.376
Domestic outside ownership	1 = if ownership variable used for estimation belongs to the category of domestic outside investors, 0 = otherwise	0.180	0	0.384	0.208	0	0.407
Foreign ownership	1 = if ownership variable used for estimation belongs to the category of foreign investors, 0 = otherwise	0.038	0	0.191	0.174	0	0.380
Insider ownership	1 = if ownership variable used for estimation belongs to the category of insiders, 0 = otherwise	0.070	0	0.255	0.169	0	0.376
Ownership by top shareholder(s)	1 = if ownership variable used for estimation belongs to the category of top shareholder(s), 0 = otherwise	0.473	0	0.500	0.213	0	0.410
Ownership by block shareholders	1 = if ownership variable used for estimation belongs to the category of block shareholders, 0 = otherwise	0.127	0	0.333	0.106	0	0.309
Ownership share	1 = if ownership variable is ownership share, 0 = otherwise	0.433	0	0.496	0.744	1	0.438
Dummy variable	1 = if ownership variable is a dummy variable, 0 = otherwise	0.567	1	0.496	0.256	0	0.438
Lagged variable	1 = if a lagged ownership variable is used for estimation, 0 = otherwise	0.164	0	0.371	0.082	0	0.275
With an interaction term(s)	1 = if estimation is carried out with an interaction term(s) of the ownership variable, 0 = otherwise	0.308	0	0.462	0.348	0	0.477
CEO turnover	1 = if turnover likelihood or frequency of chief executive officers is used as the dependent variable, 0 = otherwise	0.675	1	0.469	0.478	0	0.501
Turnover of management team	1 = if turnover likelihood or frequency of management team is used as the dependent variable, 0 = otherwise	0.117	0	0.322	0.454	0	0.499
Turnover of board chairman/director	1 = if turnover likelihood or frequency of board chairman/directors is used as the dependent variable, 0 = otherwise	0.208	0	0.406	0.068	0	0.252
All kinds of turnover	1 = if all kinds of turnover are the focus of empirical analysis, 0 = otherwise	0.248	0	0.432	0.966	1	0.181
Forced and involuntary turnover	1 = if forced and involuntary turnover is the focus of empirical analysis, 0 = otherwise	0.543	1	0.499	0.034	0	0.181
Normal and voluntary turnover	1 = if normal and voluntary turnover is the focus of empirical analysis, 0 = otherwise	0.210	0	0.408	-	-	-
Mining and manufacturing industry	1 = if target industry is mining and manufacturing industry, 0 = otherwise	-	-	-	0.512	1	0.501
Various industries	1 = if target industry is various industries, 0 = otherwise	-	-	-	0.488	0	0.501
First year of estimation	First year of estimation period	1999.913	2000	4.041	1999.280	1999	2.311
Length of estimation	Years of estimation period	7.412	6	3.361	3.353	2	1.731
Panel data	1 = if paneldata is employed for empirical analysis, 0 = otherwise	0.537	1	0.499	0.092	0	0.289
Cross-sectional data	1 = if cross-sectional data is employed for empirical analysis, 0 = otherwise	0.463	0	0.499	0.908	1	0.289
Non-probit/logit estimator	1 = if non-probit/logit estimator is used for estimation, 0 = otherwise	0.384	0	0.487	0.217	0	0.413
Probit/logit estimator	1 = if probit or logit estimator is used for estimation, 0 = otherwise	0.616	1	0.487	0.783	1	0.413
Industry fixed effects	1 = if estimation simultaneously controls for industry fixed effects, 0 = otherwise	0.280	0	0.449	0.469	0	0.500
Time fixed effects	1 = if estimation simultaneously controls for time fixed effects, 0 = otherwise	0.467	0	0.499	0.048	0	0.215
$\sqrt{\text{Degree of freedom}}$	Root of degree of freedom of the estimated model	57.852	56.25833	26.616	13.871	11.31371	5.024
Quality level	Ten-point scale of the study's quality level	4.981	5	1.837	3.348	4	2.153

This table presents names, definitions, and descriptive statistics of variables introduced into the right-hand side of meta-regression Eq. (3) described in Section 4. See Appendix A for more details of the quality level variable. The variables of state ownership, ownership share, CEO turnover, all kinds of turnover, mining and manufacturing industry, panel data, and non-probit/logit estimator are treated as default categories in meta-regression analysis.

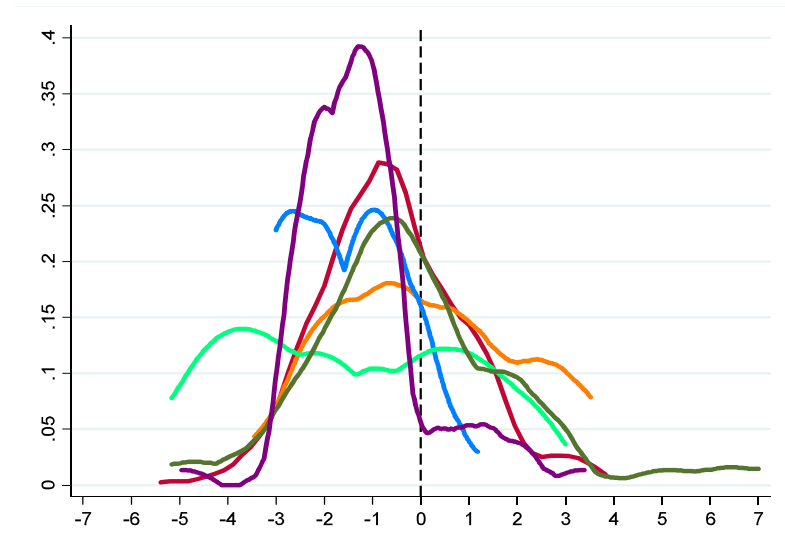
A. Chinese studies: PCC



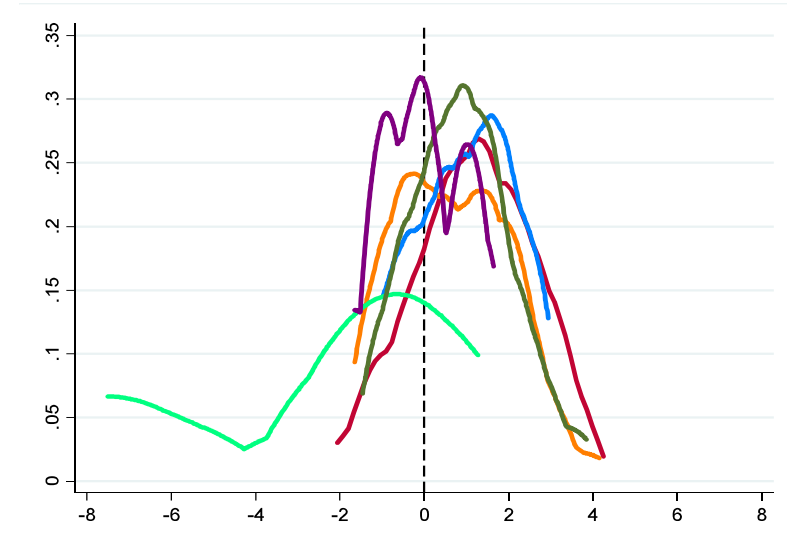
B. East European studies: PCC



C. Chinese studies: t value



D. East European studies: t value



— State ownership
 — Domestic outside ownership
 — Foreign ownership
 — Insider ownership
 — Ownership by top shareholder(s)
 — Ownership by block shareholders

Fig. 1. Kernel density estimation of collected estimates

This figure displays kernel density estimation of estimates extracted from selected studies listed in Table 2. Panels A and B illustrate the distribution of partial correlation coefficients of estimates reported in Chinese and East European studies, respectively, while Panels C and D show that of t values. The vertical axis is the kernel density. The horizontal axis is the variable value.

Table 5
Synthesis of estimates

A. Chinese studies

Ownership variable type	Number of estimates (<i>K</i>)	(a) Synthesis of PCCs		(b) Heterogeneity test and measures			(c) Combination of <i>t</i> values		
		Fixed-effect model (<i>z</i> value) ^a	Random-effects model (<i>z</i> value) ^a	Cochrane <i>Q</i> test of homogeneity (<i>p</i> value) ^b	<i>I</i> ² statistic ^c	<i>H</i> ² statistic ^d	Unweighted combination (<i>p</i> value)	Weighted combination (<i>p</i> value)	Fail-safe <i>N</i> (<i>fsN</i>)
State ownership	248	-0.010 *** (-10.08)	-0.010 *** (-6.63)	514.247 *** (0.00)	97.86	45.75	-9.482 *** (0.00)	-1.850 ** (0.03)	7992
Domestic outside ownership	95	0.001 (0.79)	0.005 (1.39)	347.473 *** (0.00)	96.83	30.59	0.862 (0.19)	0.141 (0.44)	-69
Foreign ownership	20	-0.022 *** (-6.32)	-0.028 *** (-4.98)	47.216 *** (0.00)	76.70	3.29	-7.485 *** (0.00)	-1.099 (0.14)	394
Insider ownership	37	-0.027 *** (-11.41)	-0.024 *** (-4.36)	187.086 *** (0.00)	81.29	4.35	-10.361 *** (0.00)	-1.846 ** (0.03)	1431
Ownership by top shareholder(s)	250	-0.001 (-1.15)	-0.003 (-1.54)	1219.600 *** (0.00)	99.10	109.87	-2.775 *** (0.00)	-0.530 (0.30)	461
Ownership by block shareholders	67	-0.017 *** (-6.70)	-0.030 *** (-6.37)	168.818 *** (0.00)	89.93	8.93	-9.991 *** (0.00)	-2.210 ** (0.014)	2405

B. East European studies

Ownership variable type	Number of estimates (<i>K</i>)	(a) Synthesis of PCCs		(b) Heterogeneity test and measures			(c) Combination of <i>t</i> values		
		Fixed-effect model (<i>z</i> value) ^a	Random-effects model (<i>z</i> value) ^a	Cochrane <i>Q</i> test of homogeneity (<i>p</i> value) ^b	<i>I</i> ² statistic ^c	<i>H</i> ² statistic ^d	Unweighted combination (<i>p</i> value)	Weighted combination (<i>p</i> value)	Fail-safe <i>N</i> (<i>fsN</i>)
State ownership	35	0.099 *** (7.74)	0.095 *** (6.04)	48.199 * (0.06)	81.33	4.36	6.924 *** (0.00)	1.790 ** (0.04)	585
Domestic outside ownership	43	0.069 *** (5.59)	0.059 *** (3.72)	65.446 ** (0.012)	86.25	6.27	4.381 *** (0.00)	1.385 * (0.08)	262
Foreign ownership	36	0.064 *** (6.57)	0.063 *** (6.17)	37.826 (0.34)	78.85	3.73	5.722 *** (0.00)	1.137 (0.13)	400
Insider ownership	35	-0.221 *** (-16.50)	-0.204 *** (-4.78)	330.423 *** (0.00)	97.28	35.71	-15.418 *** (0.00)	-6.108 *** (0.00)	3039
Ownership by top shareholder(s)	44	0.049 *** (5.90)	0.050 *** (5.02)	59.376 ** (0.05)	86.53	6.42	5.741 *** (0.90)	1.009 (0.16)	492
Ownership by block shareholders	22	0.014 (0.97)	0.007 (0.43)	24.677 (0.26)	63.53	1.74	-0.059 (0.37)	-0.017 (0.49)	-22

This table presents meta-synthesis of estimates extracted from selected studies listed in Table 2. Panels A and B show the synthesis results of Chinese and East European studies, respectively. In each panel, Column (a) contains the synthesized value of partial correlation coefficients (PCC) using fixed-effects and random-effects models. Column (b) reports heterogeneity test results and measures. Column (c) shows combined *t* values and Rosenthal's fail-safe *N*. Section 3 describes details of the methodology of meta-synthesis adopted in this table.

^a Null hypothesis: The synthesized effect size is zero.

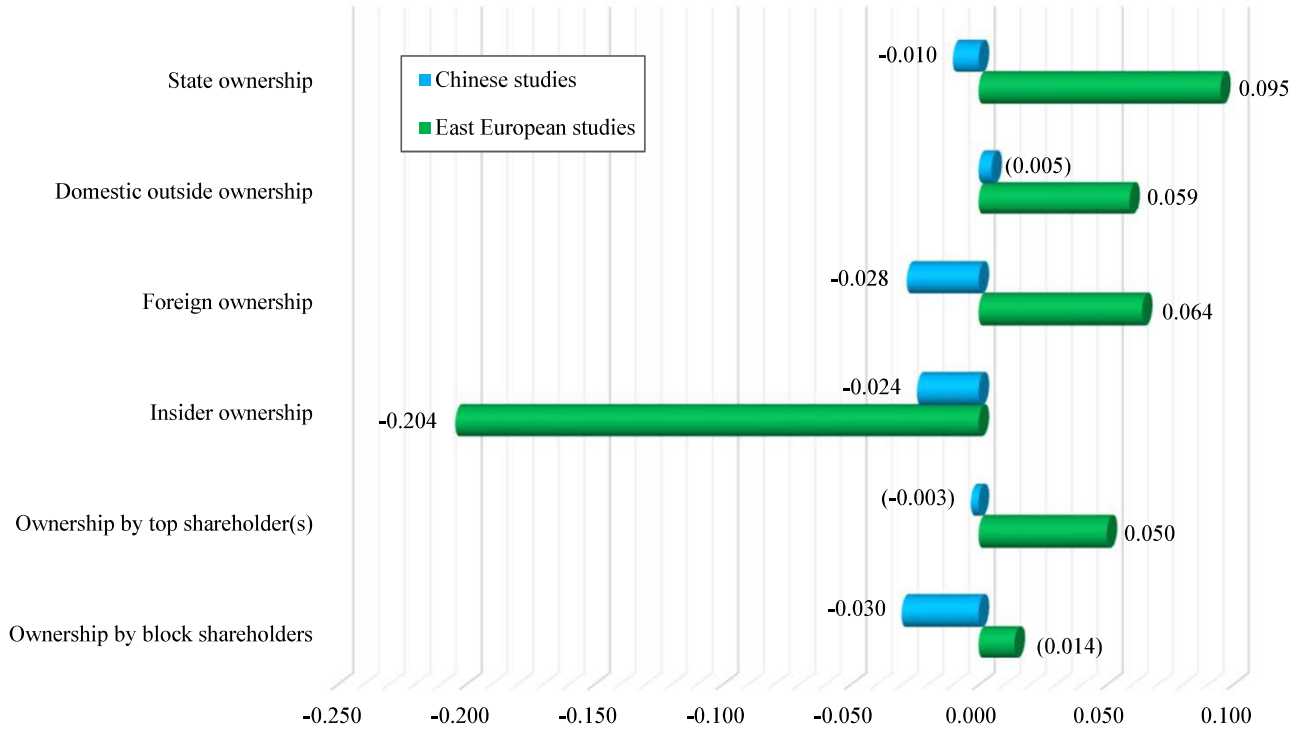
^b Null hypothesis: Effect sizes are homogeneous.

^c Ranges between 0 and 100%, with larger scores indicating heterogeneity.

^d Takes zero in the case of homogeneity.

***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

A. Synthesized value of PCCs



B. Weighted combination of t values

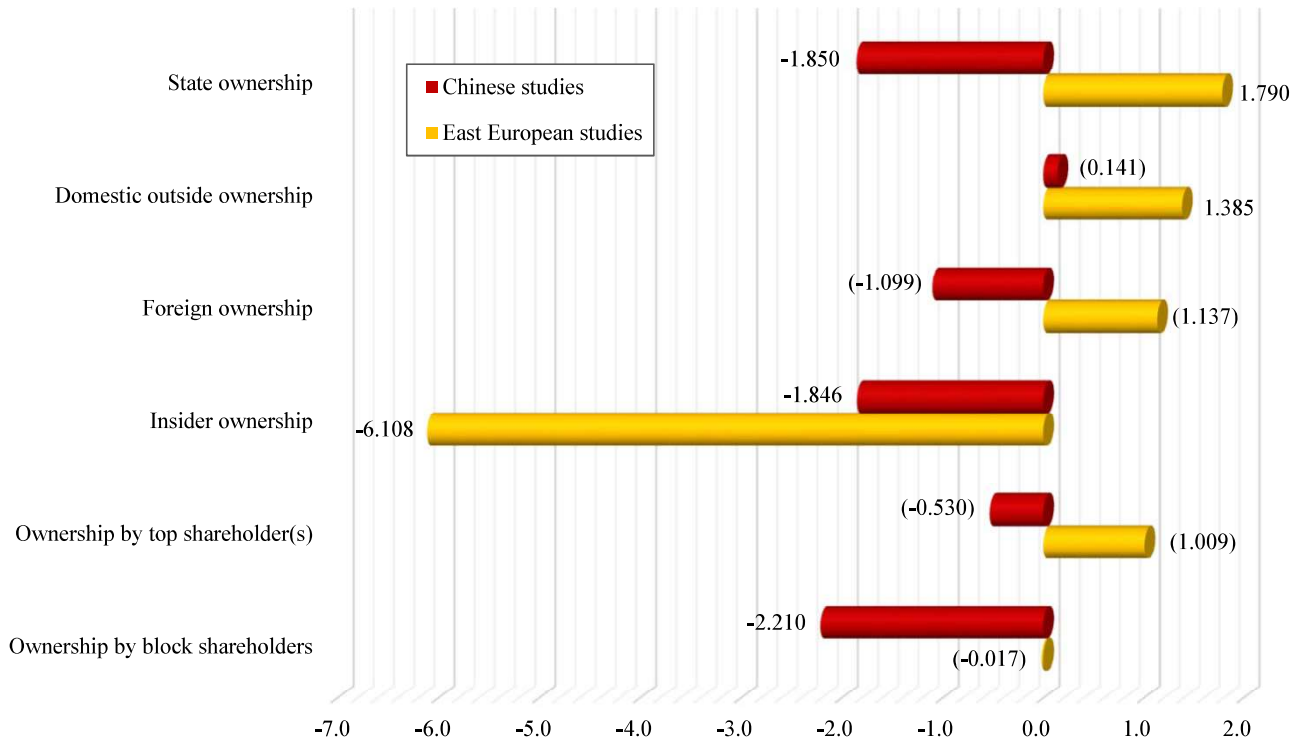


Fig. 2. Illustrated comparison of synthesis results

This figure illustrates the synthesis results reported in Table 5. Panel A displays the synthesized values of partial correlation coefficients (PCCs) adopted according to the result of the homogeneity test. Panel B shows combined t values weighted for the quality level of studies. Synthesized values in parentheses are not statistically significantly different from zero.

Table 6.
Meta-regression analysis of partial correlation coefficient

A. Chinese studies

Estimator (analytical weight in parentheses)	Cluster-robust WLS [Quality level]	Cluster-robust WLS [1/SE]	Multilevel mixed-effects RML	Cluster-robust random-effects panel GLS	Cluster-robust fixed-effects panel LSDV
Meta-independent variable (default)/model	[1]	[2]	[3]	[4] ^a	[5] ^b
Ownership variable type (state ownership)					
Domestic outside ownership	-0.0036 (0.024)	-0.0069 (0.016)	-0.0030 (0.023)	-0.0126 (0.024)	-0.0017 (0.023)
Foreign ownership	-0.0459 [*] (0.024)	-0.0185 [*] (0.009)	-0.0357 (0.023)	-0.0438 [*] (0.024)	-0.0338 (0.023)
Insider ownership	-0.0163 (0.014)	-0.0019 (0.007)	-0.0193 (0.014)	-0.0280 [*] (0.016)	-0.0172 (0.014)
Ownership by top shareholder(s)	-0.0138 (0.014)	0.0097 (0.008)	-0.0073 (0.013)	-0.0113 (0.013)	-0.0073 (0.013)
Ownership by block shareholders	-0.0425 ^{***} (0.012)	-0.0058 (0.009)	-0.0230 (0.015)	-0.0346 ^{***} (0.012)	-0.0231 (0.015)
Other characteristics of ownership variables					
Dummy variable (ownership share)	0.0046 (0.011)	-0.0129 (0.015)	-0.0217 (0.018)	-0.0130 (0.014)	-0.0221 (0.019)
Lagged variable	-0.0369 [*] (0.018)	-0.0269 (0.027)	-0.0199 (0.020)	-0.0421 ^{***} (0.016)	
With an interaction term(s)	0.0462 ^{**} (0.017)	0.0133 (0.020)	0.0333 (0.025)	0.0300 (0.022)	
Managerial turnover variable type (CEO turnover)					
Turnover of management team	-0.0138 (0.018)	0.0223 (0.014)	-0.0074 [*] (0.004)	0.0228 (0.028)	-0.0122 [*] (0.006)
Turnover of board chairman/directors	-0.0128 (0.013)	-0.0031 (0.010)	0.0054 (0.008)	-0.0108 (0.012)	0.0075 (0.008)
Definition of managerial turnover (all kinds of turnover)					
Forced and involuntary turnover	-0.0173 (0.014)	0.0077 (0.006)	0.0248 ^{***} (0.005)	0.0022 (0.013)	0.0269 ^{***} (0.006)
Normal and voluntary turnover	-0.0338 ^{**} (0.015)	0.0017 (0.005)	0.0206 ^{***} (0.007)	-0.0061 (0.018)	0.0230 ^{***} (0.006)
Estimation period					
First year of estimation	0.0031 (0.003)	0.0227 ^{***} (0.006)	0.0064 (0.004)	0.0115 ^{**} (0.005)	
Length of estimation	0.0033 (0.002)	0.0038 (0.004)	0.0002 (0.005)	0.0032 (0.003)	
Data type (panel data)					
Cross-sectional data	0.0166 (0.017)	0.0242 (0.021)	0.0090 (0.022)	0.0187 (0.015)	
Estimator (non-probit/logit estimator)					
Probit/logit estimator	-0.0124 (0.020)	-0.0699 ^{***} (0.019)	0.0020 (0.025)	-0.0307 (0.023)	
Control variable					
Industry fixed effects	0.0174 (0.022)	-0.0886 [*] (0.047)	-0.0182 (0.022)	-0.0228 (0.029)	0.0004 (0.004)
Time fixed effects	-0.0010 (0.017)	0.1034 ^{**} (0.038)	0.0198 (0.022)	0.0313 (0.024)	
Degree of freedom and research quality					
√ Degree of freedom	-0.0003 (0.0003)	-0.0004 (0.0004)	0.0005 ^{***} (0.0002)	0.0001 (0.0002)	0.0005 ^{**} (0.0002)
Quality level		0.0392 ^{***} (0.008)	0.0125 [*] (0.007)	0.0194 ^{**} (0.008)	
Intercept	-6.1765 (5.635)	-45.5178 ^{***} (12.625)	-12.9172 (8.167)	-23.0353 ^{**} (9.291)	-0.0380 [*] (0.020)
<i>K</i>	529	529	529	529	529
<i>R</i> ²	0.369	0.478	-	0.321	0.023

B. East European studies

Estimator (analytical weight in parentheses)	Cluster-robust WLS [Quality level]	Cluster-robust WLS [1/SE]	Multilevel mixed-effects RML	Cluster-robust random-effects panel GLS	Cluster-robust fixed-effects panel LSDV
Meta-independent variable (default)/model	[6]	[7]	[8]	[9] ^c	[10] ^d
Ownership variable type (state ownership)					
Domestic outside ownership	0.0025 (0.036)	-0.0101 (0.020)	-0.0136 (0.027)	-0.0136 (0.029)	-0.0136 (0.028)
Foreign ownership	-0.1285 ** (0.042)	-0.1638 ** (0.071)	-0.1592 ** (0.063)	-0.1592 ** (0.067)	-0.1592 ** (0.065)
Insider ownership	-0.1221 *** (0.036)	-0.1393 *** (0.018)	-0.1085 *** (0.012)	-0.1085 *** (0.012)	-0.1085 *** (0.012)
Ownership by top shareholder(s)	-0.0911 *** (0.035)	-0.0049 (0.074)	-0.0967 ** (0.043)	-0.0967 ** (0.046)	-0.0967 ** (0.046)
Ownership by block shareholders	-0.0653 (0.044)	-0.0699 *** (0.021)	-0.1016 *** (0.019)	-0.1016 *** (0.020)	-0.1016 *** (0.019)
Other characteristics of ownership variables					
Dummy variable (ownership share)	-0.0439 (0.066)	-0.1619 *** (0.010)	-0.0673 (0.072)	-0.0673 (0.076)	-0.0673 (0.074)
Lagged variable	-0.0736 (0.053)	0.1574 (0.127)	0.6173 *** (0.064)	0.0220 (0.086)	
With an interaction term(s)	-0.0427 *** (0.008)	-0.0708 *** (0.007)	-0.0381 *** (0.006)	-0.0381 *** (0.006)	-0.0381 *** (0.006)
Managerial turnover variable type (CEO turnover)					
Turnover of management team	-0.0091 (0.014)	-0.0347 ** (0.013)	-0.0194 (0.015)	-0.0194 (0.016)	-0.0194 (0.015)
Turnover of board chairman/directors	-0.0013 (0.001)	0.0028 (0.005)	-0.0008 (0.001)	-0.0008 (0.001)	-0.0008 (0.001)
Definition of managerial turnover (all kinds of turnover)					
Forced and involuntary turnover	-0.0084 (0.048)	0.0626 *** (0.007)	0.0074 (0.050)	0.0074 (0.053)	
Target industry (mining and manufacturing industry)					
Various industries	0.1046 ** (0.044)	0.1004 (0.083)	0.1205 ** (0.061)	0.1205 * (0.065)	
Estimation period					
First year of estimation	-0.0019 (0.002)	0.0026 (0.008)	-0.0012 (0.002)	-0.0012 (0.002)	-0.0012 (0.002)
Length of estimation	-0.0227 *** (0.003)	-0.0045 (0.012)	-0.0136 *** (0.003)	-0.0136 *** (0.003)	
Data type (panel data)					
Cross-sectional data	0.5748 *** (0.054)	0.6079 *** (0.104)	0.6969 *** (0.070)	0.6969 *** (0.074)	
Estimator (non-probit/logit estimator)					
Probit/logit estimator	-0.0530 *** (0.006)	-0.0203 ** (0.007)	-0.0549 *** (0.006)	-0.0549 *** (0.007)	-0.0549 *** (0.007)
Control variable					
Industry fixed effects	0.0139 (0.011)	-0.1724 ** (0.062)	-0.0609 *** (0.018)	-0.0609 *** (0.020)	
Time fixed effects	-0.1480 *** (0.046)	-0.4136 * (0.230)	-0.2357 *** (0.054)	-0.2357 *** (0.058)	
Degree of freedom and research quality					
√ Degree of freedom	0.0067 *** (0.001)	0.0099 ** (0.004)	0.0071 *** (0.001)	0.0071 *** (0.001)	0.0071 *** (0.001)
Quality level		0.0230 ** (0.008)	0.0163 *** (0.002)	0.0163 *** (0.002)	
Intercept	3.2669 (3.611)	-5.0983 (15.274)	1.7492 (3.489)	1.7492 (3.702)	2.4193 (3.551)
Country level fixed-effects					
	Yes	Yes	Yes	Yes	Yes
	207	207	207	207	207
R^2	0.883	0.981	-	0.825	0.047

This table presents estimation results of Eq. (3), taking partial correlation coefficients of estimates extracted from selected studies listed in Table 2 as dependent variables. Panels A and B show the estimation results of Chinese and East European studies, respectively. See Table 4 for the definitions and descriptive statistics of meta-independent variables. Figures in parentheses beneath the regression coefficients are robust standard errors. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

^a Breusch–Pagan test: $\chi^2 = 0.00$, $p = 1.000$

^b Hausman test: $\chi^2 = 134.60$, $p = 0.000$

^c Breusch–Pagan test: $\chi^2 = 0.00$, $p = 1.000$

^d Hausman test: $\chi^2 = 0.00$, $p = 1.000$

Table 7.
Meta-regression analysis of *t* values

A. Chinese studies

Estimator (analytical weight in parentheses)	Cluster-robust WLS [Quality level]	Cluster-robust WLS [1/SE]	Multilevel mixed-effects RML	Cluster-robust random-effects panel GLS	Cluster-robust fixed-effects panel LSDV
Meta-independent variable (default)/model	[1]	[2]	[3]	[4] ^a	[5] ^b
Ownership variable type (state ownership)					
Domestic outside ownership	0.6040 (0.624)	0.3831 (0.680)	0.8820 * (0.532)	0.2421 (0.647)	0.9747 * (0.546)
Foreign ownership	-1.5936 (0.960)	-0.9832 *** (0.210)	-1.1402 (0.914)	-1.5453 (0.990)	-1.0565 (0.937)
Insider ownership	-0.8370 (0.705)	0.2406 (0.415)	-0.9962 (0.695)	-1.3424 * (0.790)	-0.9395 (0.701)
Ownership by top shareholder(s)	-0.1153 (0.530)	0.9569 ** (0.350)	0.1461 (0.548)	-0.0185 (0.546)	0.1228 (0.581)
Ownership by block shareholders	-1.0449 ** (0.431)	0.5309 (0.439)	-0.2025 (0.502)	-0.7505 (0.477)	-0.2203 (0.508)
Other study conditions and intercept	Yes	Yes	Yes	Yes	Yes
<i>K</i>	529	529	529	529	529
<i>R</i> ²	0.310	0.571	-	0.322	0.049

B. East European studies

Estimator (analytical weight in parentheses)	Cluster-robust WLS [Quality level]	Cluster-robust WLS [1/SE]	Multilevel mixed-effects RML	Cluster-robust random-effects panel GLS	Cluster-robust fixed-effects panel LSDV
Meta-independent variable (default)/model	[6]	[7]	[8]	[9] ^c	[10] ^d
Ownership variable type (state ownership)					
Domestic outside ownership	-0.0535 (0.470)	-0.1840 (0.283)	-0.1615 (0.303)	-0.1615 (0.321)	-0.1615 (0.312)
Foreign ownership	-2.0388 *** (0.542)	-2.5268 ** (0.962)	-2.4173 *** (0.794)	-2.4173 *** (0.842)	-2.4173 ** (0.818)
Insider ownership	-1.5355 ** (0.554)	-1.7751 *** (0.271)	-1.2588 *** (0.183)	-1.2588 *** (0.194)	-1.2588 *** (0.189)
Ownership by top shareholder(s)	-2.0231 ** (0.688)	-0.9740 (0.999)	-2.0501 *** (0.794)	-2.0501 ** (0.842)	-2.0501 ** (0.818)
Ownership by block shareholders	-0.7505 (0.529)	-0.9575 *** (0.280)	-1.1560 *** (0.202)	-1.1560 *** (0.214)	-1.1560 *** (0.208)
Other study conditions, country level fixed-effects, and intercept	Yes	Yes	Yes	Yes	Yes
<i>K</i>	207	207	207	207	207
<i>R</i> ²	0.895	0.979	-	0.860	0.040

This table presents estimation results of Eq. (3), taking the *t* values of estimates extracted from selected studies listed in Table 2 as dependent variables. Panels A and B show the estimation results of Chinese and East European studies, respectively. See Table 4 for the definitions and descriptive statistics of meta-independent variables. Meta-independent variables of study conditions other than those of ownership variable types and intercept are included in estimations but are not reported for the sake of brevity. Figures in parentheses beneath the regression coefficients are robust standard errors. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

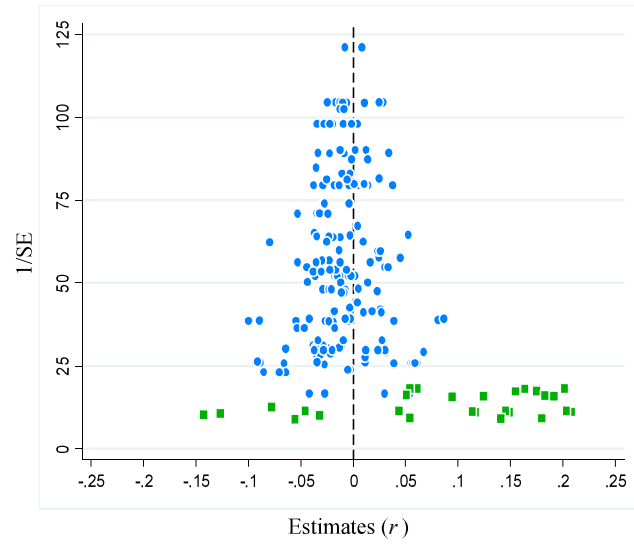
^a Breusch–Pagan test: $\chi^2 = 0.00$, $p = 1.000$

^b Hausman test: $\chi^2 = 178.46$, $p = 0.000$

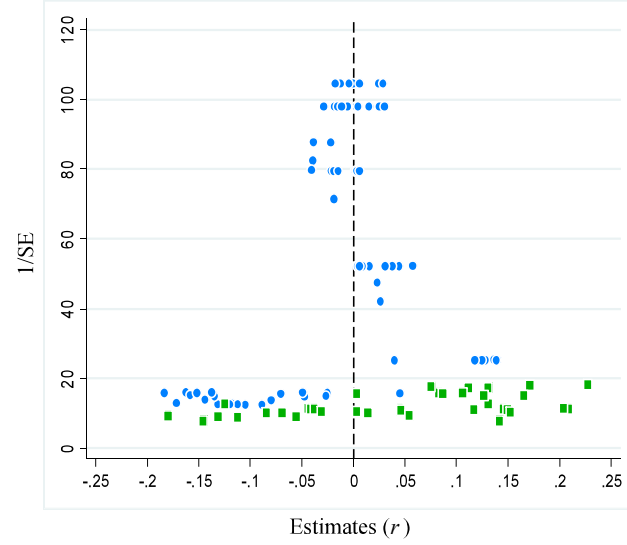
^c Breusch–Pagan test: $\chi^2 = 0.00$, $p = 1.000$

^d Hausman test: $\chi^2 = 0.00$, $p = 1.000$

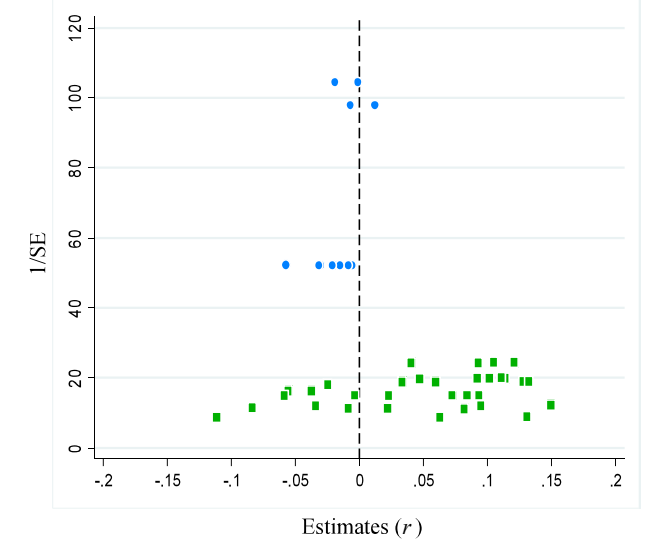
A. State ownership



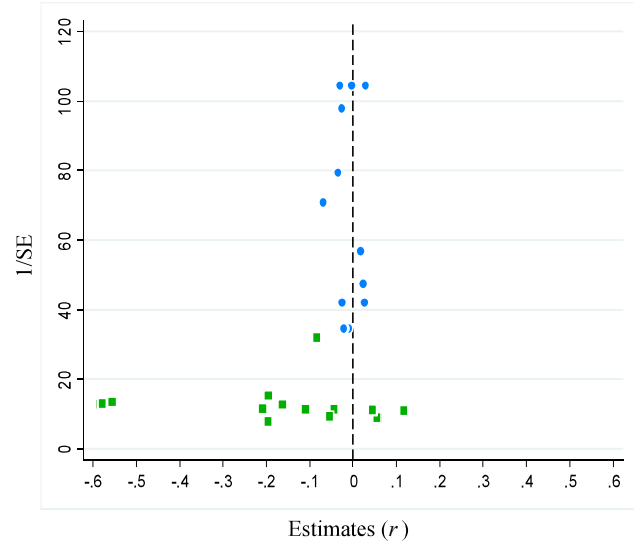
B. Domestic outside ownership



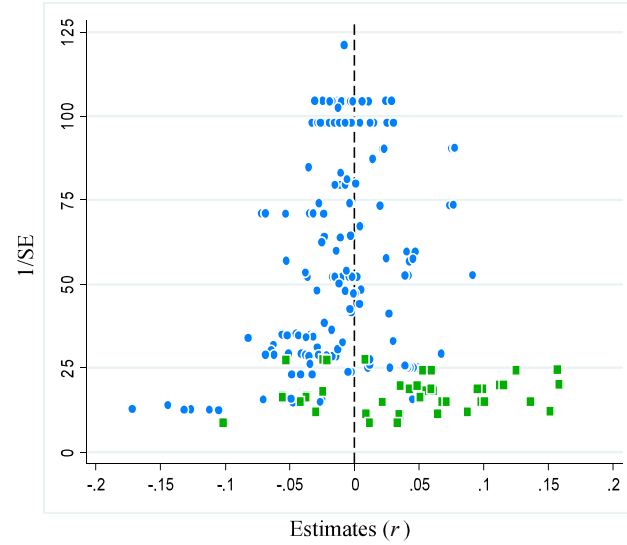
C. Foreign ownership



D. Insider ownership



E. Ownership by top shareholder(s)



F. Ownership by block shareholders

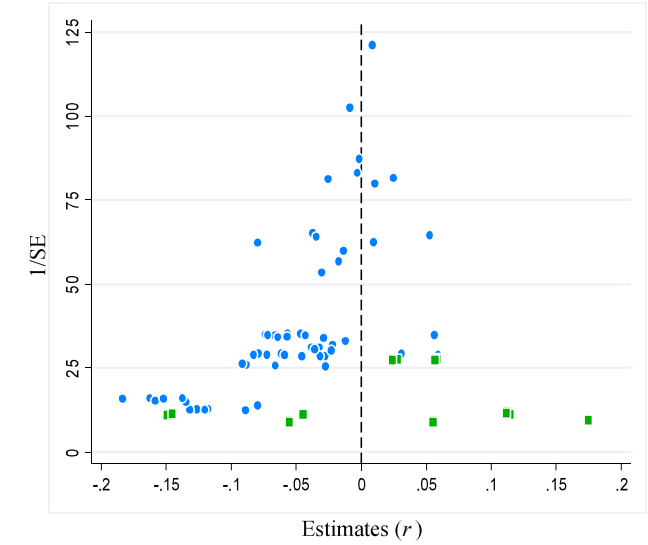
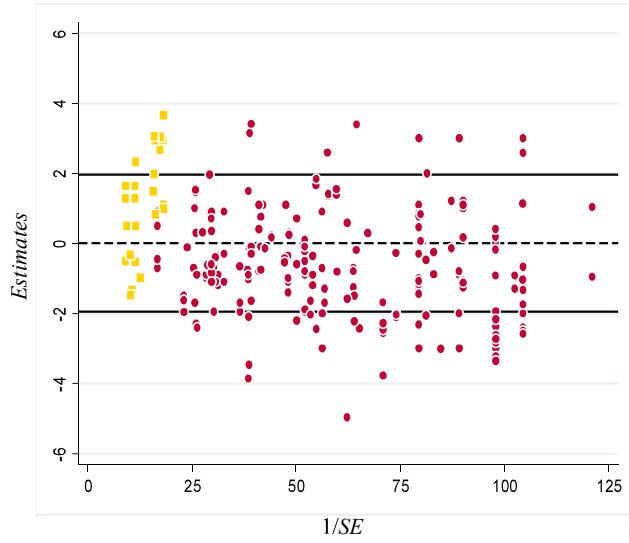


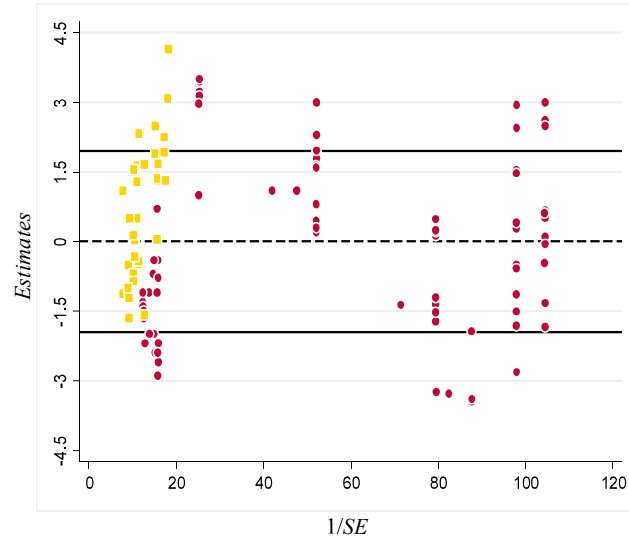
Fig. 3. Funnel plots

This figure contains funnel plots of partial correlation coefficients of estimates extracted from selected studies listed in Table 2 by ownership variable type to examine type I publication selection bias. In each panel, blue circles and green squares indicate estimates collected from Chinese and East European studies, respectively.

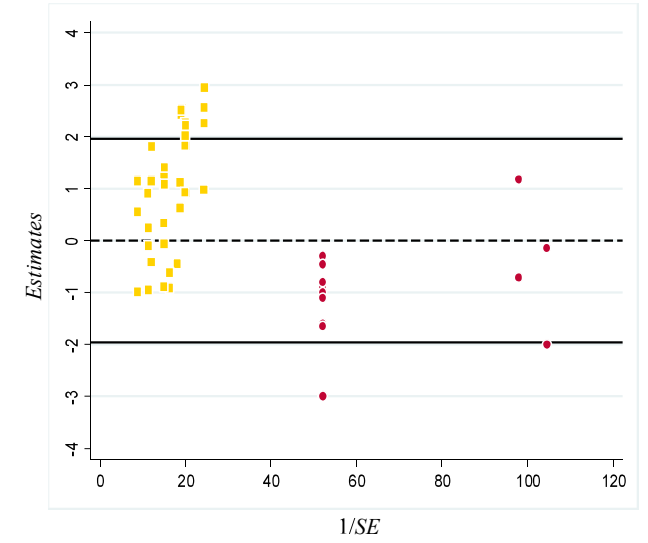
A. State ownership



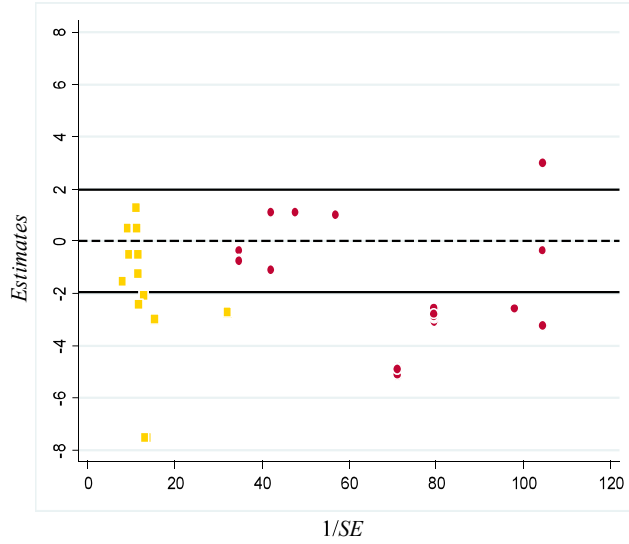
B. Domestic outside ownership



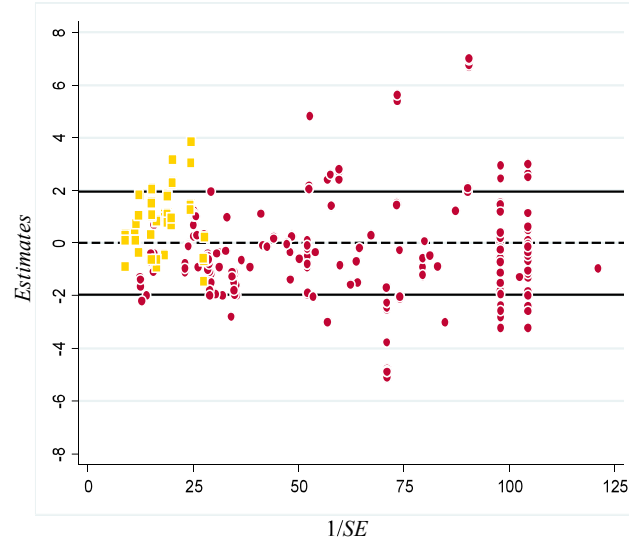
C. Foreign ownership



D. Insider ownership



E. Ownership by top shareholder(s)



F. Ownership by block shareholders

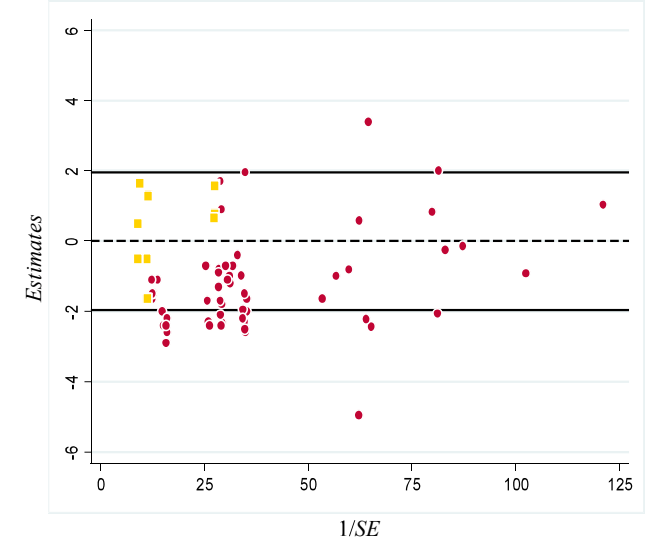


Fig. 4. Galbraith plots

This figure contains Galbraith plots of the t values of estimates extracted from selected studies listed in Table 2 by ownership variable type to examine type II publication selection bias. In each panel, ● and ■ indicate estimates collected from Chinese and East European studies, respectively. Solid lines indicate the thresholds of two-sided critical values at the 5% significance level ± 1.96 .

Table 8.
Univariate test of publication selection bias

A. Chinese studies

Ownership variable type	(a) Test of type I publication selection bias (funnel asymmetry test)						(b) Test of type II publication selection bias					
	Under the assumption that the true effect size is zero			Under the assumption that the true effect size is the mean value of the top 10% most precise estimates (x)			Under the assumption that the true effect size is zero			Under the assumption that the true effect size is the mean value of the top 10% most precise estimates (x)		
	Number of estimates		Goodness-of-fit test (z) ^a	Number of estimates		Goodness-of-fit test (z) ^b	Number of estimates		Goodness-of-fit test (z) ^c	Number of estimates		Goodness-of-fit test (z) ^d
	$PCC_k < 0$	$PCC_k > 0$		$PCC_k < x$	$PCC_k > x$		$ t_k < 1.96$	$ t_k > 1.96$		$ (PCC_k - x)/SE_k < 1.96$	$ (PCC_k - x)/SE_k > 1.96$	
State ownership	175	73	-6.4770 *** (0.000)	113	135	1.3970 (0.162)	189	59	13.5773 *** (0.000)	210	38	7.4588 *** (0.000)
Domestic outside ownership	44	51	0.7182 (0.473)	60	35	-2.5649 ** (0.0103)	61	34	13.7695 *** (0.000)	61	34	13.7695 *** (0.000)
Foreign ownership	19	1	-4.0249 *** (0.000)	15	5	-2.2361 ** (0.025)	11	9	8.2078 *** (0.000)	11	9	8.2078 *** (0.000)
Insider ownership	25	12	-2.1372 ** (0.033)	24	13	-1.8084 * (0.071)	16	21	14.4450 *** (0.000)	18	19	12.9365 *** (0.000)
Ownership by top shareholder(s)	157	93	-4.0477 *** (0.000)	154	96	-3.6682 *** (0.000)	164	86	21.3290 *** (0.000)	169	81	19.8780 *** (0.000)
Ownership by block shareholders	59	8	-6.2306 *** (0.000)	59	8	-6.2306 *** (0.000)	42	25	12.1359 *** (0.000)	43	24	11.5754 *** (0.000)

B. East European studies

Ownership variable type	(a) Test of type I publication selection bias (funnel asymmetry test)						(b) Test of type II publication selection bias					
	Under the assumption that the true effect size is zero			Under the assumption that the true effect size is the mean value of the top 10% most precise estimates (x)			Under the assumption that the true effect size is zero			Under the assumption that the true effect size is the mean value of the top 10% most precise estimates (x)		
	Number of estimates		Goodness-of-fit test (z) ^a	Number of estimates		Goodness-of-fit test (z) ^b	Number of estimates		Goodness-of-fit test (z) ^c	Number of estimates		Goodness-of-fit test (z) ^d
	$PCC_k < 0$	$PCC_k > 0$		$PCC_k < x$	$PCC_k > x$		$ t_k < 1.96$	$ t_k > 1.96$		$ (PCC_k - x)/SE_k < 1.96$	$ (PCC_k - x)/SE_k > 1.96$	
State ownership	7	28	3.5496 *** (0.000)	20	15	-0.8452 (0.398)	24	11	7.1740 *** (0.000)	32	3	0.9695 (0.332)
Domestic outside ownership	15	28	1.9825 ** (0.047)	34	9	-3.8125 *** (0.000)	36	7	3.3936 *** (0.001)	30	13	7.5919 *** (0.000)
Foreign ownership	10	26	2.6667 *** (0.008)	21	15	-1.0000 (0.317)	26	10	6.2707 *** (0.000)	30	6	3.2118 *** (0.001)
Insider ownership	28	7	-3.5496 *** (0.000)	10	25	2.5355 *** (0.011)	20	15	10.2763 *** (0.000)	2	33	24.2365 *** (0.000)
Ownership by top shareholder(s)	10	34	3.6181 *** (0.000)	14	30	2.4121 ** (0.016)	36	8	4.0119 *** (0.000)	37	7	3.3202 *** (0.001)
Ownership by block shareholders	12	10	-0.4264 (0.670)	14	8	-1.2792 (0.201)	22	0	-1.0761 (0.282)	18	4	2.8369 *** (0.005)

This table presents a univariate test of publication selection bias in estimates extracted from the selected studies listed in Table 2. Panels A and B show the results of Chinese and East European studies, respectively. In each panel, Column (a) performs a test of type I publication selection bias, while Column (b) conducts a test of type II publication selection bias. The tests were carried out under two assumptions: that the true effect is close to zero and that the mean of the top 10% most precise estimates is regarded as the approximate value of the true effect. The rejection of the null hypothesis by a goodness-of-fit test indicates the presence of publication selection bias in the estimates of the ownership variable type in question.

^a Null hypothesis: The ratio of the positive versus negative values is 50:50.

^b Null hypothesis: The ratio of estimates below x versus those over x is 50:50.

^c Null hypothesis: Share of estimates, the t value of which is within the range of ± 1.96 , is 95% in total estimates.

^d Null hypothesis: Share of estimates in which the statistics $|(the\ k\text{-th\ estimate} - the\ true\ effect)/SE_k|$ are within the range of ± 1.96 is 95% in total estimates.

Figures in parentheses are p values. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 9.
Meta-regression analysis of publication selection in Chinese studies

A. FAT-PET test (Equation: $t = \gamma_0 + \gamma_1(1/SE) + v$)

Estimator	OLS	Cluster-robust OLS	Multi-level mixed-effects RML	Cluster-robust random-effects panel GLS	Cluster-robust fixed-effects panel LSDV
Model	[1]	[2]	[3]	[4] ^a	[5] ^b
Intercept (FAT: $H_0: \gamma_0 = 0$)	-0.0838 (0.214)	-0.0838 (0.258)	-0.2284 (0.332)	-0.2815 (0.352)	-0.6454 (0.403)
1/SE (PET: $H_0: \gamma_1 = 0$)	-0.0086 ** (0.004)	-0.0086 * (0.005)	-0.0051 * (0.003)	-0.0038 * (0.002)	0.0007 (0.007)
K	248	248	248	248	248
R^2	0.023	0.023	-	0.023	0.023

B. Test of type II publication selection bias (Equation: $|t| = \gamma_0 + \gamma_1(1/SE) + v$)

Estimator	OLS	Cluster-robust OLS	Multi-level mixed-effects RML	Cluster-robust random-effects panel GLS	Cluster-robust fixed-effects panel LSDV
Model	[6]	[7]	[8]	[9] ^c	[10] ^d
Intercept ($H_0: \gamma_0 = 0$)	0.7242 *** (0.127)	0.7242 ** (0.249)	0.7925 ** (0.405)	0.7941 * (0.416)	0.7352 (0.509)
1/SE	0.0093 *** (0.002)	0.0093 ** (0.004)	0.0088 (0.007)	0.0089 (0.007)	0.0091 (0.008)
K	248	248	248	248	248
R^2	0.067	0.067	-	0.067	0.067

C. PEESE approach (Equation: $t = \gamma_0 SE + \gamma_1(1/SE) + v$)

Estimator	OLS	Cluster-robust OLS	Multi-level mixed-effects RML	Random-effects panel ML	Population-averaged panel GEE
Model	[11]	[12]	[13]	[14]	[15]
SE	-1.0793 (4.455)	-1.0793 (5.965)	-3.4340 (7.624)	-3.4340 (7.131)	-1.4554 (6.399)
1/SE ($H_0: \gamma_1 = 0$)	-0.0095 *** (0.002)	-0.0095 *** (0.003)	-0.0074 ** (0.003)	-0.0074 ** (0.003)	-0.0091 *** (0.003)
K	248	248	248	248	248
R^2	0.165	0.165	-	-	-

This table presents meta-regression analysis of publication selection bias in estimates extracted from Chinese studies listed in Table 2. Panels A, B, and C show the estimation results of equations (4), (5), and (6), respectively. Figures in parentheses beneath the regression coefficients are standard errors. Except for Model [14], robust standard errors are estimated. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. Subsection 4.2 describes details of the methodology of meta-regression analysis of publication selection adopted in this table.

^a Breusch-Pagan test: $\chi^2 = 1.38, p = 0.120$

^b Hausman test: $\chi^2 = 3.33, p = 0.068$

^c Breusch-Pagan test: $\chi^2 = 30.06, p = 0.000$

^d Hausman test: $\chi^2 = 0.03, p = 0.867$

Table 10.

Meta-regression analysis of publication selection in East European studies

A. FAT-PET test (Equation: $t = \gamma_0 + \gamma_1(1/SE) + v$)

Estimator	OLS	Cluster-robust OLS	Multi-level mixed-effects RML	Cluster-robust random-effects panel GLS	Cluster-robust fixed-effects panel LSDV
Model	[1]	[2]	[3]	[4] ^a	[5] ^b
Intercept (FAT: $H_0: \gamma_0 = 0$)	-1.7158 ** (0.758)	-1.7158 (1.540)	-4.1284 *** (0.799)	-4.2777 *** (0.632)	-3.9032 ** (0.913)
1/SE (PET: $H_0: \gamma_1 = 0$)	0.2259 *** (0.057)	0.2259 (0.119)	0.3577 *** (0.074)	0.3675 *** (0.069)	0.3971 *** (0.071)
K	35	35	35	35	35
R^2	0.298	0.298	-	0.298	0.298

B. Test of type II publication selection bias (Equation: $|t| = \gamma_0 + \gamma_1(1/SE) + v$)

Estimator	OLS	Cluster-robust OLS	Multi-level mixed-effects RML	Cluster-robust random-effects panel GLS	Cluster-robust fixed-effects panel LSDV
Model	[6]	[7]	[8]	[9] ^c	[10] ^d
Intercept ($H_0: \gamma_0 = 0$)	-0.5072 (0.579)	-0.5072 (1.064)	-1.4945 (0.919)	-1.6837 * (0.877)	-2.7059 *** (0.590)
1/SE	0.1565 *** (0.049)	0.1565 (0.100)	0.2144 ** (0.090)	0.2279 *** (0.087)	0.3286 *** (0.046)
K	35	35	35	35	35
R^2	0.258	0.258	-	0.258	0.258

C. PEESE approach (Equation: $t = \gamma_0 SE + \gamma_1(1/SE) + v$)

Estimator	OLS	Cluster-robust OLS	Multi-level mixed-effects RML	Random-effects panel ML	Population-averaged panel GEE
Model	[11]	[12]	[13]	[14]	[15]
SE	-10.8658 ** (4.682)	-10.8658 (9.410)	-24.3290 *** (4.782)	-24.3290 *** (8.046)	-24.5352 *** (5.290)
1/SE ($H_0: \gamma_1 = 0$)	0.1621 *** (0.030)	0.1621 * (0.064)	0.1930 *** (0.044)	0.1930 *** (0.048)	0.2120 *** (0.081)
K	35	35	35	35	35
R^2	0.610	0.610	-	-	-

This table presents meta-regression analysis of publication selection bias in estimates extracted from East European studies listed in Table 2. Panels A, B, and C show the estimation results of equations (4), (5), and (6), respectively. Figures in parentheses beneath the regression coefficients are standard errors. Except for Model [14], robust standard errors are estimated. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. Subsection 4.2 describes details of the methodology of meta-regression analysis of publication selection adopted in this table.

^a Breusch-Pagan test: $\chi^2 = 11.71, p = 0.0003$ ^b Hausman test: $\chi^2 = 0.17, p = 0.678$ ^c Breusch-Pagan test: $\chi^2 = 3.27, p = 0.035$ ^d Hausman test: $\chi^2 = 1.79, p = 0.181$

Table 11.
Summary of publication selection bias test

A. Chinese studies

Ownership variable type	Test results ^a			
	Type I publication selection bias funnel asymmetry test (FAT) ($H_0: \gamma_0 = 0$)	Type II publication selection bias test ($H_0: \gamma_0 = 0$)	Precision-effect test (PET) ($H_0: \gamma_1 = 0$)	Precision-effect estimate with standard error (PEESE) ($H_0: \gamma_1 = 0$) ^b
State ownership	Not rejected	Rejected	Rejected	Rejected (-0.0095/-0.0074)
Domestic outside ownership	Not rejected	Rejected	Not rejected	Not rejected
Foreign ownership	Rejected	Rejected	Rejected	Rejected (0.0074/0.0076)
Insider ownership	Not rejected	Not rejected	Not rejected	Not rejected
Ownership by top shareholder(s)	Not rejected	Not rejected	Not rejected	Not rejected
Ownership by block shareholders	Rejected	Rejected	Rejected	Not rejected

B. East European studies

Ownership variable type	Test results ^a			
	Type I publication selection bias funnel asymmetry test (FAT) ($H_0: \gamma_0 = 0$)	Type II publication selection bias test ($H_0: \gamma_0 = 0$)	Precision-effect test (PET) ($H_0: \gamma_1 = 0$)	Precision-effect estimate with standard error (PEESE) ($H_0: \gamma_1 = 0$) ^b
State ownership	Rejected	Not rejected	Rejected	Rejected (0.1621/0.2120)
Domestic outside ownership	Rejected	Rejected	Rejected	Rejected (0.1786/0.1808)
Foreign ownership	Rejected	Rejected	Rejected	Rejected (0.0969/0.0981)
Insider ownership	Not rejected	Not rejected	Not rejected	Rejected (-0.3014/-0.1354)
Ownership by top shareholder(s)	Rejected	Not rejected	Rejected	Rejected (0.0511/0.0779)
Ownership by block shareholders	Rejected	Rejected	Rejected	Rejected (0.0440/0.0466)

This table summarizes the test results of publication selection bias in estimates of state ownership variables reported in Tables 9 and 10 as well as those of other types of ownership variables. Panels A and B show the results of Chinese and East European studies, respectively. In each panel, the test results denote that the null hypothesis is rejected when more than three of five models show statistically significant estimates; otherwise not rejected. Figures in parentheses are PSB-adjusted estimates. If two or more estimates are reported, the left and right figures denote the minimum and maximum estimates, respectively.

Table 12.

Summary of results from meta-analysis

Ownership type	China	Eastern Europe
State ownership	Negative and weak effect	Positive and medium effect
Domestic outside ownership	Positive but no genuine effect	Positive and medium effect
Foreign ownership	Positive and weak effect	Positive and small effect
Insider ownership	Negative but no genuine effect	Negative but no genuine effect
Large shareholding	Negative but no genuine effect	Positive and weak effect

This table summarizes results obtained from meta-analysis in this paper referring to Tables 5 and 11.

Table A1.

Meta-regression analysis of partial correlation coefficients without studies of board member turnover

A. Chinese studies

Estimator (analytical weight in parentheses)	Cluster-robust WLS [Quality level]	Cluster-robust WLS [1/SE]	Multilevel mixed-effects RML	Cluster-robust random-effects panel GLS	Cluster-robust fixed-effects panel LSDV
Meta-independent variable (default)/model	[1]	[2]	[3]	[4] ^a	[5] ^b
Ownership variable type (state ownership)					
Domestic outside ownership	-0.0112 (0.027)	-0.0237 (0.018)	-0.0109 (0.027)	-0.0212 (0.026)	-0.0088 (0.028)
Foreign ownership	-0.0100 (0.022)	-0.0022 (0.010)	0.0153 (0.010)	-0.0164 (0.027)	0.0188 (0.011)
Insider ownership	-0.0208 (0.015)	-0.0172 (0.012)	-0.0264 ** (0.012)	-0.0334 ** (0.015)	-0.0246 * (0.013)
Ownership by top shareholder(s)	-0.0150 (0.014)	0.0187 (0.011)	-0.0097 (0.012)	-0.0098 (0.012)	-0.0105 (0.012)
Ownership by block shareholders	-0.0486 *** (0.015)	-0.0021 (0.011)	-0.0284 * (0.016)	-0.0365 *** (0.014)	-0.0289 * (0.016)
Other study conditions and intercept	Yes	Yes	Yes	Yes	Yes
<i>K</i>	419	419	419	419	419
<i>R</i> ²	0.385	0.569	-	0.325	0.027

B. East European studies

Estimator (analytical weight in parentheses)	Cluster-robust WLS [Quality level]	Cluster-robust WLS [1/SE]	Multilevel mixed-effects RML	Cluster-robust random-effects panel GLS	Cluster-robust fixed-effects panel LSDV
Meta-independent variable (default)/model	[6]	[7]	[8]	[9] ^c	[10] ^d
Ownership variable type (state ownership)					
Domestic outside ownership	-0.0413 *** (0.012)	-0.0162 (0.018)	-0.0390 *** (0.012)	-0.0390 *** (0.013)	-0.0304 (0.018)
Foreign ownership	-0.0774 *** (0.010)	-0.0406 (0.024)	-0.0673 *** (0.015)	-0.0673 *** (0.016)	-0.1624 ** (0.068)
Insider ownership	-0.1460 *** (0.043)	-0.1586 *** (0.016)	-0.1207 *** (0.014)	-0.1207 *** (0.015)	-0.1164 *** (0.011)
Ownership by top shareholder(s)	-0.0711 (0.077)	0.1042 *** (0.031)	-0.0579 (0.097)	-0.0579 (0.102)	-0.1012 (0.068)
Ownership by block shareholders	-0.0605 (0.058)	-0.0631 (0.037)	-0.1061 *** (0.020)	-0.1061 *** (0.021)	-0.1094 *** (0.015)
Other study conditions, country level fixed-effects, and intercept	Yes	Yes	Yes	Yes	Yes
<i>K</i>	193	193	193	193	193
<i>R</i> ²	0.888	0.982	-	0.827	0.083

This table presents estimation results of Eq. (3), taking partial correlation coefficients of estimates extracted from selected studies listed in Table 2 except for studies of turnover of board chairman/directors as dependent variables. Panels A and B show the estimation results of Chinese and East European studies, respectively. See Table 4 for the definitions and descriptive statistics of meta-independent variables. Meta-independent variables of study conditions other than those of ownership variable types and intercept are included in estimations but are not reported for the sake of brevity. Figures in parentheses beneath the regression coefficients are robust standard errors. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

^a Breusch–Pagan test: $\chi^2 = 0.00, p = 1.000$ ^b Hausman test: $\chi^2 = 113.75, p = 0.000$ ^c Breusch–Pagan test: $\chi^2 = 0.00, p = 1.000$ ^d Hausman test: $\chi^2 = 10.23, p = 0.5096$

Table A2.Meta-regression analysis of t values without studies of board member turnover

A. Chinese studies

Estimator (analytical weight in parentheses)	Cluster-robust WLS [Quality level]	Cluster-robust WLS [1/SE]	Multilevel mixed-effects RML	Cluster-robust random-effects panel GLS	Cluster-robust fixed-effects panel LSDV
Meta-independent variable (default)/model	[1]	[2]	[3]	[4] ^a	[5] ^b
Ownership variable type (state ownership)					
Domestic outside ownership	0.2212 (0.639)	-0.5889 (0.466)	0.5339 (0.637)	-0.1581 (0.643)	0.6662 (0.684)
Foreign ownership	0.7442 (0.701)	0.8716 (0.510)	1.8093 *** (0.417)	0.4956 (0.910)	1.9991 *** (0.492)
Insider ownership	-1.1227 (0.716)	-0.6842 (0.573)	-1.4197 ** (0.566)	-1.6394 ** (0.743)	-1.4085 ** (0.554)
Ownership by top shareholder(s)	-0.1444 (0.480)	1.7975 *** (0.455)	-0.0689 (0.547)	0.0047 (0.529)	-0.1528 (0.597)
Ownership by block shareholders	-1.2613 ** (0.453)	-1.2073 ** (0.496)	-0.4841 (0.498)	-0.8663 * (0.487)	-0.5410 (0.504)
Other study conditions and intercept	Yes	Yes	Yes	Yes	Yes
K	419	419	419	419	419
R^2	0.346	0.739	-	0.360	0.068

B. East European studies

Estimator (analytical weight in parentheses)	Cluster-robust WLS [Quality level]	Cluster-robust WLS [1/SE]	Multilevel mixed-effects RML	Cluster-robust random-effects panel GLS	Cluster-robust fixed-effects panel LSDV
Meta-independent variable (default)/model	[6]	[7]	[8]	[9] ^c	[10] ^d
Ownership variable type (state ownership)					
Domestic outside ownership	-0.5922 ** (0.203)	-0.2643 (0.250)	-0.4582 *** (0.162)	-0.4582 *** (0.170)	-0.3401 (0.220)
Foreign ownership	-1.3659 *** (0.135)	-0.9146 ** (0.381)	-1.1609 *** (0.190)	-1.1609 *** (0.199)	-2.4516 ** (0.850)
Insider ownership	-1.8152 ** (0.655)	-2.0988 *** (0.271)	-1.3989 *** (0.241)	-1.3989 *** (0.253)	-1.3411 *** (0.209)
Ownership by top shareholder(s)	-1.7374 (0.963)	0.4269 (0.426)	-1.5092 (1.247)	-1.5092 (1.310)	-2.0978 ** (0.849)
Ownership by block shareholders	-0.6551 (0.714)	-0.8837 * (0.479)	-1.1934 *** (0.232)	-1.1934 *** (0.243)	-1.2380 *** (0.164)
Other study conditions, country level fixed-effects, and intercept	Yes	Yes	Yes	Yes	Yes
K	193	193	193	193	193
R^2	0.895	0.980	-	0.857	0.063

This table presents estimation results of Eq. (3), taking the t values of estimates extracted from selected studies listed in Table 2 except for studies of turnover of board chairman/directors as dependent variables. Panels A and B show the estimation results of Chinese and East European studies, respectively. See Table 4 for the definitions and descriptive statistics of meta-independent variables. Meta-independent variables of study conditions other than those of ownership variable types and intercept are included in estimations but are not reported for the sake of brevity. Figures in parentheses beneath the regression coefficients are robust standard errors. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

^a Breusch-Pagan test: $\chi^2 = 0.00, p = 1.000$ ^b Hausman test: $\chi^2 = 185.19, p = 0.000$ ^c Breusch-Pagan test: $\chi^2 = 0.00, p = 1.000$ ^d Hausman test: $\chi^2 = 13.75, p = 0.2471$

Table A3.

Meta-regression analysis: Pooled estimation with China's fixed effect

A. Dependent variable: partial correlation coefficient

Estimator (analytical weight in parentheses)	Cluster-robust WLS [Quality level]	Cluster-robust WLS [1/SE]	Multilevel mixed-effects RML	Cluster-robust random-effects panel GLS	Cluster-robust fixed-effects panel LSDV
Meta-independent variable (default)/model	[1]	[2]	[3]	[4] ^a	[5] ^b
Ownership variable type (state ownership)					
Domestic outside ownership	0.0008 (0.020)	0.0071 (0.012)	-0.0006 (0.019)	-0.0007 (0.019)	-0.0006 (0.019)
Foreign ownership	0.0075 (0.033)	0.0553 (0.046)	-0.0491 * (0.026)	-0.0464 * (0.026)	-0.0522 * (0.028)
Insider ownership	-0.1027 * (0.055)	-0.1506 *** (0.047)	-0.0546 *** (0.020)	-0.0565 *** (0.020)	-0.0526 ** (0.021)
Ownership by top shareholder(s)	0.0051 (0.016)	0.0471 ** (0.018)	-0.0208 (0.017)	-0.0195 (0.017)	-0.0223 (0.018)
Ownership by block shareholders	-0.0222 (0.021)	0.0262 (0.020)	-0.0467 ** (0.023)	-0.0458 ** (0.023)	-0.0476 ** (0.023)
Country level fixed-effects (Eastern Europe)					
China	0.0847 (0.061)	0.2159 *** (0.070)	0.0685 (0.080)	0.0668 (0.079)	
Other study conditions and intercept	Yes	Yes	Yes	Yes	Yes
<i>K</i>	736	736	736	736	736
<i>R</i> ²	0.390	0.890	-	0.398	0.004

B. Dependent variable: *t* value

Estimator (analytical weight in parentheses)	Cluster-robust WLS [Quality level]	Cluster-robust WLS [1/SE]	Multilevel mixed-effects RML	Cluster-robust random-effects panel GLS	Cluster-robust fixed-effects panel LSDV
Meta-independent variable (default)/model	[6]	[7]	[8]	[9] ^c	[10] ^d
Ownership variable type (state ownership)					
Domestic outside ownership	0.5746 (0.491)	0.3441 (0.532)	0.6759 (0.429)	0.6358 (0.428)	0.7047 (0.440)
Foreign ownership	-0.6930 (0.734)	0.1437 (0.699)	-1.3021 (0.825)	-1.1953 (0.785)	-1.3877 (0.890)
Insider ownership	-1.9685 ** (0.879)	-1.4603 * (0.797)	-0.9390 * (0.501)	-1.0354 ** (0.512)	-0.8653 (0.512)
Ownership by top shareholder(s)	0.0792 (0.443)	1.4346 *** (0.335)	0.0649 (0.489)	0.1226 (0.479)	0.0197 (0.514)
Ownership by block shareholders	-0.4892 (0.561)	0.7503 (0.530)	-0.3493 (0.439)	-0.3181 (0.452)	-0.3755 (0.442)
Country level fixed-effects (Eastern Europe)					
China	0.7647 (1.037)	2.9600 ** (1.189)	-0.4517 (1.237)	-0.4561 (1.193)	
Other study conditions and intercept	Yes	Yes	Yes	Yes	Yes
<i>K</i>	736	736	736	736	736
<i>R</i> ²	0.343	0.747	-	0.063	0.001

This table presents estimation results of Eq. (3) using all estimates extracted from selected studies listed in Table 2. Panels A and B show the estimation taking partial correlation coefficients and *t* values as the dependent variable, respectively. See Table 4 for the definitions and descriptive statistics of meta-independent variables. Meta-independent variables of study conditions other than those of ownership variable types and China's fixed effect and intercept are included in estimations but are not reported for the sake of brevity. Figures in parentheses beneath the regression coefficients are robust standard errors. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

^a Breusch-Pagan test: $\chi^2 = 189.31$, $p = 0.000$ ^b Hausman test: $\chi^2 = 2.03$, $p = 1.000$ ^c Breusch-Pagan test: $\chi^2 = 140.71$, $p = 0.000$ ^d Hausman test: $\chi^2 = 148.42$, $p = 0.000$

Table A4.
Meta-regression analysis: Pooled estimation with East European country-level fixed effects

A. Dependent variable: partial correlation coefficient					
Estimator (analytical weight in parentheses)	Cluster-robust WLS [Quality level]	Cluster-robust WLS [1/SE]	Multilevel mixed-effects RML	Cluster-robust random-effects panel GLS	Cluster-robust fixed-effects panel LSDV
Meta-independent variable (default)/model	[1]	[2]	[3]	[4] ^a	[5] ^b
Ownership variable type (state ownership)					
Domestic outside ownership	0.0022 (0.020)	0.0007 (0.013)	-0.0010 (0.018)	-0.0017 (0.018)	-0.0006 (0.019)
Foreign ownership	-0.0360* (0.018)	-0.0127** (0.005)	-0.0500** (0.024)	-0.0486** (0.023)	-0.0522* (0.028)
Insider ownership	-0.0368** (0.018)	-0.0608* (0.036)	-0.0547*** (0.020)	-0.0568*** (0.020)	-0.0526** (0.021)
Ownership by top shareholder(s)	-0.0169 (0.013)	0.0133** (0.006)	-0.0200 (0.016)	-0.0185 (0.015)	-0.0223 (0.018)
Ownership by block shareholders	-0.0414** (0.016)	-0.0048 (0.010)	-0.0453** (0.022)	-0.0437* (0.023)	-0.0476** (0.023)
Country level fixed-effects (China)					
Czech Republic	0.0014 (0.027)	-0.0263 (0.027)	-0.0016 (0.031)	0.0048 (0.032)	
Russia	0.0449 (0.034)	0.1248*** (0.032)	0.1427*** (0.035)	0.1336*** (0.036)	
Serbia	-0.1201** (0.045)	-0.0830 (0.073)	-0.0397 (0.050)	-0.0736 (0.055)	
Slovenia	0.0250 (0.049)	-0.1443*** (0.040)	0.0133 (0.058)	0.0144 (0.056)	
Slovakia	-0.0352 (0.052)	-0.1028** (0.049)	-0.1109** (0.049)	-0.0855* (0.048)	
Ukraine	-0.5629*** (0.028)	-0.4846*** (0.046)	-0.5278*** (0.023)	-0.5259*** (0.025)	
Other study conditions and intercept	Yes	Yes	Yes	Yes	Yes
<i>K</i>	736	736	736	736	736
<i>R</i> ²	0.704	0.945	-	0.637	0.004

B. Dependent variable: <i>t</i> value					
Estimator (analytical weight in parentheses)	Cluster-robust WLS [Quality level]	Cluster-robust WLS [1/SE]	Multilevel mixed-effects RML	Cluster-robust random-effects panel GLS	Cluster-robust fixed-effects panel LSDV
Meta-independent variable (default)/model	[6]	[7]	[8]	[9] ^c	[10] ^d
Ownership variable type (state ownership)					
Domestic outside ownership	0.6104 (0.512)	0.3073 (0.561)	0.6502 (0.425)	0.5769 (0.429)	0.7047 (0.440)
Foreign ownership	-1.1774 (0.710)	-0.7094*** (0.184)	-1.3832* (0.827)	-1.3854* (0.797)	-1.3877 (0.890)
Insider ownership	-1.0375 (0.625)	-0.4256 (0.689)	-0.9087* (0.504)	-0.9658* (0.513)	-0.8653 (0.512)
Ownership by top shareholder(s)	-0.1903 (0.472)	0.9837*** (0.349)	0.0378 (0.490)	0.0515 (0.485)	0.0197 (0.514)
Ownership by block shareholders	-0.8613* (0.471)	0.3291 (0.542)	-0.3648 (0.442)	-0.3676 (0.455)	-0.3755 (0.442)
Country level fixed-effects (China)					
Czech Republic	1.7901** (0.876)	-0.0394 (1.031)	1.6000 (1.238)	1.8604 (1.243)	
Russia	0.2833 (1.080)	1.6843* (0.926)	3.5973*** (1.172)	3.2241*** (1.150)	
Serbia	-2.2075* (1.235)	-1.1198 (2.140)	1.2173 (1.284)	0.3243 (1.394)	
Slovenia	-0.0670 (1.710)	-5.3694*** (1.197)	0.8097 (2.016)	0.7729 (1.952)	
Slovakia	0.0319 (1.504)	-3.8236* (2.066)	-0.9509 (1.298)	-0.3821 (1.333)	
Ukraine	-7.2653*** (0.967)	-6.1290*** (1.239)	-6.1866*** (0.939)	-6.3261*** (0.900)	
Other study conditions and intercept	Yes	Yes	Yes	Yes	Yes
<i>K</i>	736	736	736	736	736
<i>R</i> ²	0.458	0.777	-	0.289	0.001

This table presents estimation results of Eq. (3) using all estimates extracted from selected studies listed in Table 2. Panels A and B show the estimation taking partial correlation coefficients and *t* values as the dependent variable, respectively. See Table 4 for the definitions and descriptive statistics of meta-independent variables. Meta-independent variables of study conditions other than those of ownership variable types and country-level fixed effects and intercept are included in estimations but are not reported for the sake of brevity. Figures in parentheses beneath the regression coefficients are robust standard errors. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

^a Breusch-Pagan test: $\chi^2 = 45.34$, $p = 0.000$

^b Hausman test: $\chi^2 = 62.11$, $p = 0.000$

^c Breusch-Pagan test: $\chi^2 = 117.73$, $p = 0.000$

^d Hausman test: $\chi^2 = 561.55$, $p = 0.000$

Table A5.

Meta-regression analysis: Pooled estimation with China's fixed effect and its interaction terms with ownership variable types

A. Dependent variable: partial correlation coefficient

Estimator (analytical weight in parentheses)	Cluster-robust WLS [Quality level]	Cluster-robust WLS [1/SE]	Multilevel mixed-effects RML	Cluster-robust random-effects panel GLS	Cluster-robust fixed-effects panel LSDV
Meta-independent variable (default)/model	[1]	[2]	[3]	[4] ^a	[5] ^b
Ownership variable type (state ownership)					
Domestic outside ownership	-0.0534 (0.034)	-0.0203 (0.018)	-0.0160 (0.025)	-0.0369 * (0.021)	-0.0138 (0.027)
Foreign ownership	0.0156 (0.050)	0.3411 *** (0.098)	-0.1135 *** (0.037)	0.0659 (0.088)	-0.1406 *** (0.039)
Insider ownership	-0.3971 *** (0.110)	-0.2341 *** (0.073)	-0.1175 *** (0.017)	-0.2120 *** (0.079)	-0.1117 *** (0.015)
Ownership by top shareholder(s)	-0.0045 (0.045)	0.2777 ** (0.118)	-0.0937 ** (0.042)	0.0592 (0.088)	-0.1192 *** (0.039)
Ownership by block shareholders	-0.0471 (0.073)	-0.0468 (0.069)	-0.1039 *** (0.017)	-0.1054 *** (0.039)	-0.1055 *** (0.015)
Interaction terms with China fixed-effects					
State ownership x China	-0.0097 (0.008)	0.0003 (0.009)	-0.0027 (0.007)	-0.0096 (0.012)	-0.0021 (0.007)
Domestic outside ownership x China	0.0445 (0.040)	0.0176 (0.020)	0.0134 (0.033)	0.0237 (0.028)	0.0117 (0.035)
Foreign ownership x China	-0.0709 (0.056)	-0.3556 *** (0.097)	0.0774 * (0.043)	-0.1165 (0.092)	0.1053 ** (0.045)
Insider ownership x China	0.3742 *** (0.110)	0.2233 *** (0.075)	0.0984 *** (0.022)	0.1856 ** (0.079)	0.0926 *** (0.021)
Ownership by top shareholder(s) x China	-0.0063 (0.046)	-0.2640 ** (0.120)	0.0857 * (0.045)	-0.0599 (0.090)	0.1105 ** (0.043)
Ownership by block shareholders x China	0.0073 (0.074)	0.0408 (0.068)	0.0802 *** (0.023)	0.0856 ** (0.043)	0.0812 *** (0.021)
Country level fixed-effects (Eastern Europe)					
China	0.0241 (0.048)	0.2632 *** (0.081)	0.0070 (0.086)	0.0677 (0.082)	
Other study conditions and intercept					
	Yes	Yes	Yes	Yes	Yes
<i>K</i>	736	736	736	736	736
<i>R</i> ²	0.621	0.938	-	0.508	0.001

B. Dependent variable: *t* value

Estimator (analytical weight in parentheses)	Cluster-robust WLS [Quality level]	Cluster-robust WLS [1/SE]	Multilevel mixed-effects RML	Cluster-robust random-effects panel GLS	Cluster-robust fixed-effects panel LSDV
Meta-independent variable (default)/model	[6]	[7]	[8]	[9] ^c	[10] ^d
Ownership variable type (state ownership)					
Domestic outside ownership	-0.6180 (0.416)	-0.4249 (0.256)	-0.2012 (0.268)	-0.5451 * (0.300)	-0.1420 (0.306)
Foreign ownership	-0.2498 (0.593)	4.1859 *** (1.465)	-2.0827 ** (0.898)	0.5881 (1.337)	-2.8695 ** (1.074)
Insider ownership	-5.4685 *** (1.606)	-2.7019 *** (0.803)	-1.4079 *** (0.300)	-3.3280 ** (1.452)	-1.2067 *** (0.202)
Ownership by top shareholder(s)	-0.0691 (0.770)	2.7257 (2.021)	-0.7942 (1.125)	0.9343 (1.466)	-1.5071 (1.102)
Ownership by block shareholders	0.2777 (1.404)	-0.0356 (1.229)	-1.0252 *** (0.371)	-0.9854 (0.847)	-1.0652 *** (0.312)
Interaction terms with China fixed-effects					
State ownership x China	-0.0551 (0.298)	-0.0540 (0.305)	0.0998 (0.371)	-0.3712 (0.582)	0.1336 (0.363)
Domestic outside ownership x China	1.2263 * (0.643)	0.6972 (0.518)	1.2344 ** (0.521)	0.6041 (0.579)	1.2378 ** (0.558)
Foreign ownership x China	-1.4119 (1.049)	-5.1679 *** (1.421)	1.1069 (1.263)	-2.4462 (1.679)	1.9621 (1.356)
Insider ownership x China	4.4460 ** (1.749)	2.8662 *** (0.837)	0.5824 (0.729)	1.9847 (1.741)	0.3873 (0.711)
Ownership by top shareholder(s) x China	-0.0229 (0.856)	-1.6470 (2.047)	1.0244 (1.345)	-0.7639 (1.589)	1.7160 (1.330)
Ownership by block shareholders x China	-1.2079 (1.416)	0.4291 (1.275)	0.9057 (0.582)	0.3692 (0.898)	0.9314 (0.553)
Country level fixed-effects (Eastern Europe)					
China	0.1122 (0.733)	3.2369 ** (1.431)	-1.4972 (1.504)	0.3230 (1.377)	
Other study conditions and intercept					
	Yes	Yes	Yes	Yes	Yes
<i>K</i>	736	736	736	736	736
<i>R</i> ²	0.422	0.776	-	0.365	0.001

This table presents estimation results of Eq. (3) using all estimates extracted from selected studies listed in Table 2. Panels A and B show the estimation taking partial correlation coefficients and *t* values as the dependent variable, respectively. See Table 4 for the definitions and descriptive statistics of meta-independent variables. Meta-independent variables of study conditions other than those of ownership variable types, China's fixed effect, and their interacted variables and intercept are included in estimations but are not reported for the sake of brevity. Figures in parentheses beneath the regression coefficients are robust standard errors. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

^a Breusch-Pagan test: $\chi^2 = 83.21$, $p = 0.000$ ^b Hausman test: $\chi^2 = 56.82$, $p = 0.000$ ^c Breusch-Pagan test: $\chi^2 = 0.00$, $p = 1.000$ ^d Hausman test: $\chi^2 = 55.72$, $p = 0.000$