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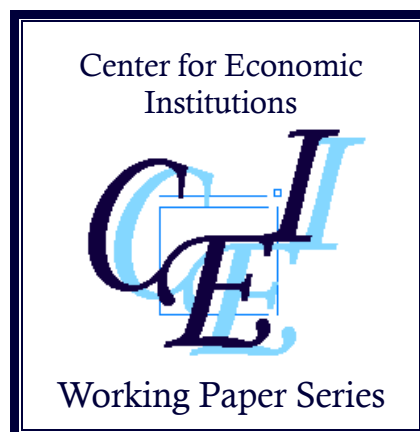
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Corporate Ownership and Managerial Turnover in China and Eastern Europe: A Comparative Meta-Analysis[†]

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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 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 a greater problem 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 top executives. However, this is not necessarily apparent from the perspective of comparative economics. In other words, knowledge and insights are quite limited about how the corporate governance systems of China and East European countries diverge.

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 corporate finance and organizational economics, the measurement of the turnover probability of a corporate management team and the empirical analysis of its determinants are important topics in the study of corporate governance (Shleifer and Vishny, 1997; Fee et al., 2018). This is because 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 observation of appropriate managerial turnover could be regarded as an important sign indicating the soundness of corporate governance (HomRoy, 2015).

In fact, many researchers have long been investigating and analyzing the frequency of managerial turnover and the factors behind it. Even today, active research is being conducted to study 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 analysis of listed companies in Japan; and Srivastav et al. (2017), which studied major banks in 46 countries all over the world.

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 paid much greater

attention to the effect of corporate ownership structure on managerial turnover as compared to the studies of developed economies. The aim of the present study is to grasp the relationship between corporate owners and top managers during the period of economic transition by synthesizing and comparing the evidence reported in previous studies, and then identify the similarities and differences between companies in China and those in Eastern Europe. Therefore, we employ an advanced meta-analytic technique that involves meta-synthesis, meta-regression analysis, and testing for publication selection bias (Stanley and Doucouliagos, 2012), thereby demonstrating "review-generated evidence" (Nakagawa et al., 2017) regarding a research topic that is difficult to address with standard empirical analysis.

The results of the meta-analysis of a total of 736 estimates extracted from 31 previous studies strongly suggest the presence of asymmetric circumstances between China and Eastern Europe; namely, in Eastern Europe, private outside investors and large shareholders exert a positive influence on managerial discipline of the companies they invest in, and the government is also actively involved in the corporate governance of SOEs. In contrast, the Chinese government and the Communist Party of China (CPC) have such significant control over companies as corporate owners that private shareholders only have limited influence on top management.

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

2 Corporate Ownership and Managerial Turnover in China and Eastern Europe: Hypothesis Development

This section argues the enterprise reforms in China and Eastern Europe and reviews the related literature to establish a testable hypothesis of the relationship between corporate ownership and managerial turnover in these economies for meta-analysis. Subsections 2.1 and 2.2 discuss the present status and problems of the enterprise reforms in China and Eastern Europe, respectively. Subsection 2.3 provides our theoretical predictions regarding the effect of corporate ownership structure on managerial turnover.

2.1 China

The corporate ownership structure in modern China was formed during the process of gradual market reforms that started in 1984 and are still ongoing today to reorganize the state-run corporate system of the planned economy period.[1] It is characterized by a mixed-ownership system consisting mainly of SOEs and privately owned enterprises (POEs), including foreign joint ventures and multinational corporations. Formally, in China, the ownership of SOEs belongs to the state and the people. In reality, however, control over ownership and management of companies lies in the hands of the government and the Party. It goes without saying that the powerful and direct involvement of government agencies and party organizations in corporate management has contributed to shaping a distinct characteristic of the Chinese corporate governance system.

The reform of state-run enterprises (*Guoying Qiye*) is one of the major elements of China's marketization reform. Policies such as the decentralization of management discretions, the transfer of profits to firms (*Fangquan Rangli*), and the separation of government functions from company management (*Zhengqi Fengli*), which were implemented from 1984 to 1992, significantly expanded the management autonomy of state-run enterprises. At the same time, these policies restricted the involvement of party organizations in corporate management.[2] In this historical context, "state-run enterprises" were reclassified as "state-owned enterprises" (*Guoyou Qiye*). After the 1989 Tiananmen Square incident, however, the CPC again tightened its political reins, and party organizations began to exert a greater influence on SOEs. As symbolized by the political slogan "corporate managers are the center, whereas the party leader is the core," the power relationship between company managers and the CPC in terms of the governance of SOEs remains quite obscure even today.

The two-sided attitude of the CPC and the government toward enterprise reform is clearly reflected in the slogan "grasp the big, let go of the small (*Zhuada Fangxiao*)." In other words,

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[1] During the period from the founding of the country in 1949 until 1956, all companies in China either 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.

[2] 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.

although the privatization of small and medium-sized SOEs was strongly encouraged, the state maintained a tight grip over large SOEs that played a major role in Chinese industry and the economy. In fact, although many large SOEs became listed on the Shanghai or Shenzhen Stock Exchange after being reorganized as joint-stock companies, the majority of shares issued belong to the state, which enables the government and the CPC to exploit their power over these major companies as controlling shareholders (Xu and Wang, 1999). It is no exaggeration to say that the State-owned Assets Supervision and Administration Commission (SASAC) that manages state-owned stocks and monitors large SOEs and public corporations practically controls the management of most large corporations in China.

At the same time, China's development of a private sector advanced greatly, being achieved through deregulating private businesses, lifting the ban on foreign direct investment, and promoting globalization policies. 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 privately and foreign-owned enterprises increased drastically from 60,000 in 1985 to 206.6 million in 2016. The party dictatorship, however, has powerful influence over not only SOEs but also companies in the private sector, which is apparent from the following two circumstances that reflect the relationship between the state and firms:

First, all Chinese companies, regardless of the difference in ownership type, are under the management, supervision, and guidance of the internal firm party organization (Yan and Huang, 2017). It is needless to emphasize that internal firm party organizations have a strong voice in managing companies in the public sector. Moreover, even in the private sector, according to the constitution of the CPC, internal firm party organizations "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" (Art. 32, Para. 3). In other words, the system of political control over companies enforced by party organizations is fully functional in both the public and private sectors in China. Despite the policies implemented to separate government or CPC functions 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 Chinese companies. This is a direct manifestation of the strict control imposed on business activities by the Chinese government (Ma et al., 2012; Rong and Li, 2016).

Second, in addition to the scope of activities defined in the constitutions of the CPC as mentioned above, party organizations also strongly influence the appointment of corporate

managers (Brodsgaard, 2012). Business law and China's code of corporate governance stipulate that decisions about the appointment and dismissal of a company's top managers, including the CEO and chairman of the board, are to be made by the board of directors, with shareholders playing a certain role in the appointment of corporate managers. In reality, however, the majority of corporate managers of SOEs are appointed by upper level party organizations, and unless the appointed managers commit serious political blunders, they can remain in the position until the end of the appointed term. The government official promotion/selection system advocated by party organizations is the background of this situation. In China, it is customary for the central party organization to appoint promising elite party members working at state institutions to serve as top executives of large SOEs for a certain period of time, and then return to state institutions afterward. Neither is it uncommon for corporate managers of the ex-state small and medium-sized privatized companies to be headhunted by party organizations to serve as corporate managers of large SOEs. 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.

Based on the above observations, we have made the following assumptions about the effect of corporate ownership on managerial turnover in China:

First, as mentioned above, the appointment of corporate managers in SOEs lacks flexibility as compared to that in POEs. In other words, as compared to POEs, SOEs are expected to reduce the probability of managerial turnover. This assumption is consistent with the argument by Firth et al. (2006) that, because SOEs tend to value the achievement of political and social objectives over the seeking of profits, the correlation between the frequency of managerial turnover and corporate performance is lower in SOEs than in POEs.

Second, 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 managerial turnover probability. In China, however, 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.[3] Even in POEs, an internal firm party organization retains certain control. For these reasons, it is highly likely that the effect of corporate ownership by private outside investors on

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[3] 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.

managerial turnover is limited in China.

Third, the strong 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 that company. Thus, it is assumed that, in China, ownership by incumbent managers and employees is negatively correlated with managerial turnover frequency. One should bear in mind, however, that because there are considerable limitations to the insider ownership, just as with private investors, its effect on managerial turnover in China would also be limited to a certain extent.[4]

Fourth, 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. 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.[5] Therefore, we surmise that the effect of large shareholding on managerial turnover in China is theoretically unpredictable.

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. 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

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[4] 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.

[5] 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 the 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 transfer allowed for them. 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).

European countries modified the relevant laws and institutions to ensure that business activities and firm organizations are in line with market principles. 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 U.K. and USA went into effect in 1992. Since then, the code has been amended several times.[6] The 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 to be ranking high in easiness of doing business.[7] 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). 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,

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[6] The code became void in 2014, and the new code and new business corporation acts promptly went into effect.
[7] In fact, the World Bank Doing Business 2019 Report shows Russia to be ranking 35th among 190 economies in the world, leaving behind many of EU member states in Central and Eastern Europe (Iwasaki, 2018).

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, 2019). 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 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).

By taking into account the above circumstances in Eastern Europe, we propose the following hypotheses regarding the relationship between corporate ownership and managerial turnover in the region:

First, 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. Just as is the case with developed economies, these private shareholders value profits above all, demand better performance from the companies they invest in, and are likely to be the most influential figures in managerial turnover. At the forefront of this movement is believed to be strategic investors who participate in corporate management from abroad (Estrin et al., 2009; Iwasaki and Mizobata, 2018). This finding suggests that corporate ownership by private outside investors of all nationalities is closely and positively correlated with managerial turnover in East European companies.

Second, while private entities have come to have 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), which, when coupled with the collusive ties between the manager and rank-and-file employees, can work to significantly suppress the frequency of managerial dismissals. Researchers have pointed out that several factors have greatly enhanced the predominant position of insiders in East European companies, including the strong tendency of corporate managers to assume a hostile attitude toward outside shareholders, the 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.

Third, 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 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 that the government be accountable to taxpayers, making it difficult for the state to maintain or invest in inefficient public projects. 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 outside private entities. In addition, the frequent change in political leaders seen in East European countries has also been pointed out as an important factor contributing to a large management shakeup at major state companies.[8] These findings suggest that state ownership in Eastern Europe tends to increase managerial turnover at companies, which is opposite to the case in China.

Fourth, in Eastern Europe, the 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). This prediction is strongly supported by the meta-analysis of Iwasaki and Mizobata (2019), which detected a positive effect of ownership concentration on financial and operating performance of East European companies. The presence of large shareholders in Eastern Europe is, therefore, expected to exert a positive effect on managerial turnover at the companies they own.

2.3 Testable hypothesis for meta-analysis

Table 1 summarizes our hypotheses for China and Eastern Europe with regard to the

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[8] We would like to thank Evžen Kočenda for his comments on this point.

relationship between corporate ownership structure and managerial turnover based on the observations and arguments made in previous subsections. As shown in this table, we predict that state ownership in China, where unique circumstances exist due to the one-party dictatorship system, is expected to bring a negative impact on managerial turnover. On the other hand, domestic outside shareholders and foreign investors may have a positive effect on managerial dismissal, while company insiders should negatively affect it. However, taking account of the strong presence of the Chinese government and the CPC in corporate management, private corporate owners are likely to have only limited influence on managerial turnover. Furthermore, the effect of large shareholders on managerial turnover is theoretically unpredictable because the directions of the effect can vary substantially depending on whether the shareholders in question are the state or private investors.

In Eastern Europe, where large-scale enterprise privatization has enabled private entities to become the major owners of companies, private outside investors and large shareholders of all nationalities are expected to exercise their ownership in a way that increases the probability of managerial turnover at the companies they invest in. On the other hand, insider ownership may have a strong entrenchment effect that can impede managerial turnover. State ownership is likely to exert a positive effect on managerial turnover, just as private outside investors and large shareholders do, because accountability to the tax payers and political interest in the profitability of public projects are likely to take precedence over paternalism.

To empirically verify the above hypotheses, the following sections feature a comparative analysis of China and Eastern Europe utilizing advanced techniques of meta-analysis.

3 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.

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.[9] From these 31 selected papers, we extracted multiple estimates, if, and only if, we could recognize notable differences from the viewpoint of empirical methodology in at least one item of the target regions/countries/industries, data type and source, regression equation, estimation period, and estimator. Hereafter, K denotes the total number of collected estimates (k=1, 2, …, K).

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 homogeneity test, 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:

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

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 ($1 \leq w_k \leq 10$).[10] 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*).[11]

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[9] 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.

[10] For more details on the method of evaluating the quality level of the study, see the **Appendix**.

[11] Rosenthal's fail-safe N (*fsN*) denotes the number of studies with an average effect size equal to zero, which needs to be added in order to bring the combined probability level of all studies to the standard significance level (the 5% level in this paper) to determine the presence or absence of

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:

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

where y_k is the PCC or the t value of the k-th estimate; x_{kn} denotes a meta-independent variable that captures relevant characteristics of an empirical study and explains its systematic variation from other empirical results in the literature; β_n denotes the meta-regression coefficient to be estimated; and e_k is the meta-regression disturbance term. To check the statistical robustness of coefficient β_n, we perform an MRA using the following seven estimators: (1) the cluster-robust ordinary least squares (OLS) estimator, which clusters the collected estimates by study and computes robust standard errors; the cluster-robust weighted least squares (WLS) estimator, which uses either (2) the above-mentioned quality level of the study, (3) the number of observations, (4) the inverse of the standard error (1/*SE*), or (5) the inverse of the number of estimates reported per study (1/*EST*) as an analytical weight; (6) the cluster-robust unbalanced random-effects panel estimator; and (7) the cluster-robust fixed-effects estimator.

Testing for publication selection bias is a unique and important issue for meta-analysis. In this paper, we examine this problem by using the funnel plot and the 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

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effect. The larger value of *fsN* means the more reliable estimation of the combined t value. In theory, the fail-safe N may have a negative value.

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) call 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.[12]

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 (Iwasaki and Tokunaga, 2014,

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[12] 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.

2016; Tokunaga and Iwasaki, 2017).

4 Overview of Selected Studies for Meta-analysis

Table 2 lists the studies selected for meta-analysis in accordance with the literature selection procedure described in the previous section. 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 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.

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 rate as a dependent variable in their empirical analysis, whereas only seven studies utilize the turnover rate 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 the probability of 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 the previous section, 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 (2019), transition studies focus also on the effect of ownership concentration on corporate governance. Indeed, 18 of the 31 selected studies report estimates of the ownership effect of top shareholder(s) and

block shareholders on managerial turnover at the companies in question.[13]

As shown in the farthest right column in **Table 2**, we collected a total of 736 estimates from the above 31 selected studies. 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. The next sections present meta-synthesis and meta-regression analysis of these 736 collected estimates and then tests 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 3 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 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 4 displays the results of the meta-synthesis of the collected estimates. Column (a) in

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[13] 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 shareholder(s) and block shareholders.

this table presents the synthesis results of PCCs. In the studies of China, the homogeneity test rejects the null hypothesis across all six ownership variable types at the 1% significance level. 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-effect 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 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, the state, domestic outside shareholders, foreign investors, and large shareholders positively affect the 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 2.[14] In addition, according to the assessment criteria of PCCs in economics research by Doucouliagos (2011), ownership by the state and company insiders in Eastern Europe seems to have an economically meaningful impact on managerial turnover.[15] Meanwhile, in China, the state, foreign investors, insiders, and large shareholders all have a negative effect on managerial dismissals. Furthermore, the effect size of all six ownership variables is evaluated to be economically insignificant according to the Doucouliagos' standards. To sum up, while the corporate ownership structure is clearly correlated with the managerial turnover probability 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 (b) of **Table 4** 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

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[14] 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.

[15] 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.

value, $\overline{T_u}$, and that, 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 collected estimates by estimating the aforementioned Eq. (3). As described in Section 3, the PCCs or *t* values are introduced into the meta-regression model as the dependent variable. 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 variable, target industry, estimation period, data type, estimators, the use of various control variables that would significantly affect estimation results, degrees of freedom,[16] and the quality of studies. **Table 5** shows the names, definitions, and descriptive statistics of these meta-independent variables.

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. As 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 four of the seven 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 five meta-independent variables, which capture differences in ownership variable types, taking the state ownership variable as the default

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[16] 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.

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 all of the other four ownership variables. These results suggest that, while no statistically significant difference exists between the state and the 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 the 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.

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 4** 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 use of a lagged variable, the first year of estimation period, and the quality level to be statistically insignificant.

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 2, taking into account the test results of publication selection bias presented in the next section.

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), 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 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.[17] The results are presented in Column (a) 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

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[17] 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).

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 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 difference in studied economies and ownership variable types, many of the collected estimates appear to fall within the range of ±1.96 (this range is defined by the 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 the 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) of **Table 8**, the test result are presented for 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) 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 Section 3, 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.[18] 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

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[18] 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**.

In this paper, we performed an advanced 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 well correspond 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 turnover effect. Furthermore, it became evident that Chinese large shareholders exercise their ownership in a way that decreases the frequency of 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 judgement 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 hypotheses: It is confirmed that the state, domestic outside shareholders, foreign investors, and 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 a remarkable impact on the appointment and dismissal of top management. In addition, in line with our prediction, insider ownership proved to be negatively correlated with the frequency of 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. In other words, as the principal-agent 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 position, 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.

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 Section 2, we surmise that, forced by political need to be accountable regarding the state budget to voters 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 position 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 exerts only 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
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.

References

Abe, N. and I. Iwasaki (2009) Impact of Corporate Governance and Performance on Managerial Turnover, In: Dolgopyatova, T., I. Iwasaki and A. A. Yakovlev (eds.), *Organization and Development of Russian Business: A Firm-level Analysis*, Palgrave Macmillan: Basingstoke, pp. 122-147.

Abe, N. and I. Iwasaki (2010) Organisational Culture and Corporate Governance in Russia: A Study of Managerial Turnover, *Post-Communist Economies*, Vol. 22, No. 4, pp. 449-470.

Adachi, Yuko (2010) *Building Big Business in Russia: The Impact of Informal Corporate Governance Practices*, Routledge: London and New York.

Anderson, R. W., M. C. Bustamante, S. Guibaud, M. Zervos (2018) Agency, Firm Growth, and Managerial Turnover, *Journal of Finance*, Vol. 73, No. 1, pp. 419-464.

Andreff, W. (2003) Twenty Lessons from the Experience of Privatization in Transition Economies, Kalyuzhnova, Y. and W. Andreff (eds.), *Privatisation and Structural Change in Transition Economies*, Palgrave Macmillan: New York, pp. 29-59.

Åslund, A. (2007) *How Capitalism Was Built: The Transformation of Central and Eastern Europe, Russia, the Caucasus, and Central Asia*, Cambridge University Press: New York.

Buchwald, A. (2017) Competition, Outside Directors and Executive Turnover: Implications for Corporate Governance in the EU, *Managerial and Decision Economics*, Vol. 38, No. 3, pp. 365-381.

Brodsgaard, K. E. (2012) Politics and Business Group Formation in China: The Party in Control? *The China Quarterly*, No. 211, pp. 624-648.

Cao, X., X. Pan, M. Qianc and G. G. Tian (2017) Political Capital and CEO Entrenchment: Evidence from CEO Turnover in Chinese Non-SOEs, *Journal of Corporate Finance*, Vol. 42,

pp. 1-14.

Chang, E. C. and S. M. L. Wong (2009) Governance with Multiple Objectives: Evidence from Top Executive Turnover in China, *Journal of Corporate Finance*, Vol. 15, No. 2, pp. 230–244.

Chen, C. J. P., Z. Li, X. Su and Y. Yao (2012) Delegation and Sensitivity of CEO Turnover to Firm Performance within Business Groups: Evidence from China, *Journal of Accounting and Public Policy*, Vol. 31, No. 6, pp. 553-574.

Cheng, L. T. W. and T. Y. Leung (2016) Government Protection, Political Connection and Management Turnover in China, *International Review of Economics and Finance*, Vol. 45, pp. 160-176.

Cheng, P., J. L. Li and W. H. S. Tong (2008) What Triggers Top Management Turnovers in China? *Journal of Contemporary Accounting and Economics*, Vol. 4, No. 1, pp. 50-87.

Chi, W. and Y. Wang (2009) Ownership, Performance and Executive Turnover in China, *Journal of Asian Economics*, Vol. 20, No. 4, pp. 465–478.

Cohen, J. (1988) *Statistical Power Analysis in the Behavioral Sciences*, 2nd Edition, Lawrence Erlbaum Associates: Hillsdale.

Cvelbar, L. K., P. Domadenik and J. Prašnikar (2008) Performance, Ownership, and Management Turnover in Privatized Slovenian Companies, *Eastern European Economics*, Vol. 46, No. 4, pp. 75-89.

Djankov, S. and P. Murrell (2002) Enterprise Restructuring in Transition: A Quantitative Survey, *Journal of Economic Literature*, Vol. 40, No. 3, pp. 739-792.

Doucouliagos, H. (2011) How Large is Large? Preliminary and Relative Guidelines for Interpreting Partial Correlations in Economics, School Working Paper No. SWP 2011/5, School of Accounting, Economics and Finance, Faculty of Business and Law, Deakin University: Melbourne.

Eriksson, T. (2005) Managerial Pay and Executive Turnover in the Czech and Slovak Republics, *Economics of Transition*, Vol. 13, No. 4, pp. 659–677.

Estrin, S., J. Hanousek, E. Kočenda and J. Svejnar (2009) The Effects of Privatization and Ownership in Transition Economies, *Journal of Economic Literature*, Vol. 47, No. 3, pp. 699-728.

Fan, D. K. K., C-M. Lau, M. Young (2007) Is China's Corporate Governance Beginning to Come of Age? The Case of CEO Turnover, *Pacific-Basin Finance Journal*, Vol. 15, No. 2, pp. 105–120.

Fee, C. E., C. J. Hadlock, J. Huang and J. R. Pierce (2018) Robust Models of CEO Turnover: New Evidence on Relative Performance Evaluation, *Review of Corporate Finance Studies*, Vol. 7, No. 1, pp. 70-100.

Fidrmuc, J. P. and J. Fidrmuc (2007) Fire the Manager to Improve Performance? Managerial Turnover and Incentives after Privatization in the Czech Republic, *Economics of Transition*, Vol. 15, No. 3, pp. 505-533.

Filatotchev, I., M. Wright and M. Bleaney (1999) Privatization, Insider Control and Managerial Entrenchment in Russia, *Economics of Transition*, Vol. 7, No. 2, pp. 481-504.

Firth, M., P. M. Y. Fung and O. M. Rui (2006) Firm Performance, Governance Structure, and Top Management Turnover in a Transitional Economy, *Journal of Management Studies*, Vol. 43, No. 6, 1289-1330.

Firth, M., S. M. L. Wong and Y. Yang (2014) The Double-Edged Sword of CEO/Chairperson Duality in Corporatized State-Owned Firms: Evidence from Top Management Turnover in

China, *Journal of Management & Governance*, Vol. 18, No. 1, pp. 207-244.

Frydman, R., C. Gray, M. Hessel and A. Rapaczynski (2007) When Does Privatization Work? The Impact of Private Ownership on Corporate Performance in the Transition Economies, Berglöf, E. and R. Gérard (eds.), *The Economics of Transition: The Fifth Nobel Symposium in Economics*, Palgrave Macmillan: New York.

Frye, T. and I. Iwasaki (2011) Government Directors and Business-State Relations in Russia, *European Journal of Political Economy*, Vol. 27, No. 4, pp. 642-658.

Goltsman, M. (2000) Empirical Analysis of Managerial Turnover in Russian Firms, Working Paper No. BSP/00/035, New Economic School: Moscow.

He, L., T. S. Shaw and J. Fang (2017) Managerial Labor Market during Institutional Transition: A Study of CEO Compensation and Voluntary Turnover, *Corporate Governance: An International Review*, Vol. 25, No. 3, pp. 167-185.

He, Q., J. Huang, D. Li and L. Lu (2016) Banks as Corporate Monitors: Evidence from CEO Turnovers in China, Discussion Paper No. 19, Institute of Economies in Transition, Bank of Finland (BOFIT): Helsinki.

HomRoy, S. (2015) Are CEOs Replaced for Poor Performance? Effects of Takeovers and Governance on CEO Turnover, *Scottish Journal of Political Economy*, Vol. 62, No. 2, pp. 149-170.

Hu, F. H. and S. C. M. Leung (2012) Top Management Turnover, Firm Performance and Government Control: Evidence from China's Listed State-Owned Enterprises, *International Journal of Accounting*, Vol. 47, No. 2, pp. 235-262.

Iwasaki, I. (2007) Corporate Law and Governance Mechanism in Russia, In: Dallago, B. and I. Iwasaki (eds.), *Corporate Restructuring and Governance in Transition Economies*, Basingstoke: Palgrave Macmillan, pp. 213-249.

Iwasaki, I. (2014) Corporate Form, Institutional Complementarity, and Organizational Behavior: Open Versus Closed Joint-Stock Companies in Russia, In: Boubaker, S. and D. K. Nguyen (eds.), *Corporate Governance in Emerging Markets: CSR, Sustainability, Ethics and Governance*, Springer Verlag: Berlin, pp. 157-195.

Iwasaki, I. (2018) Corporate Governance System and Regional Heterogeneity: Evidence from East and West Russia, *International Journal of the Economics of Business*, Vol. 25, No. 3, pp. 391-420.

Iwasaki, I. and S. Mizobata (2018) Post-Privatization Ownership and Firm Performance: A Large Meta-Analysis of the Transition Literature, *Annals of Public and Cooperative Economics*, Vol. 89, No. 2, pp. 263-322.

Iwasaki, I. and S. Mizobata (2019) Ownership Concentration and Firm Performance in European Emerging Economies: A Meta-Analysis, *Emerging Markets Finance & Trade*, Vol. 55. (In press)

Iwasaki, I. and T. Suzuki (2016) Radicalism versus Gradualism: An Analytical Survey of the Transition Strategy Debate, *Journal of Economic Surveys*, Vol. 30, No. 4, pp. 807-834.

Iwasaki, I., and M. Tokunaga (2014) Macroeconomic Impacts of FDI in Transition Economies: A Meta-Analysis, *World Development*, Vol. 61, pp. 53–69.

Iwasaki, I., and M. Tokunaga (2016) Technology Transfer and Spillovers from FDI in Transition Economies: A Meta-Analysis, *Journal of Comparative Economics*, Vol. 44, No. 4, pp. 1086–1114.

Kako, T. and C. Long (2006a) Executive Turnover and Firm Performance in China, *American Economic Review*, Vol. 96, No. 2, pp. 363-367.

Kako, T. and C. Long (2006b) CEO Turnover, Firm Performance, and Enterprise Reform in China: Evidence from Micro Data, *Journal of Comparative Economics*, Vol. 34, No. 4, pp. 796-817.

Kapelyushnikov, R. and N. Demina (2005) Concentrated Ownership and Management Turnover: The Case of Russia, *Russian Economic Barometer*, Vol. 14, No. 1, pp. 10-21; Vol. 14, No. 2, pp. 29-36.

Karminsky, A. M., A. I. Rybalka and E. A. Shevchenko (2018) CEO Turnover in Russian Banks, *Russian Management Journal,* Vol. 16. No. 1, pp. 95-108.

Liu, P. and K. Imai (2005) Corporate Governance and Reform of Corporate Regulations in China, In Imaizumi, S. and M. Abe (eds.) *Corporate Governance and Reform of Corporate Regulations in Eastern Asia*. Institute of Developing Economies, Japan External Trade Organization (IDE-JETRO), pp. 119-160. (In Japanese)

Liu, F. and L. Zhang (2018) Executive Turnover in China's State-Owned Enterprises: Government-Oriented or Market-Oriented? *China Journal of Accounting Research*, Vol. 11, No. 2, pp. 129-149.

Ma, L., Y. Wang and X. Shen (2012) Research on Governance Effects of China's State-owned Companies' Party Organization: A Perspective Based on "Insiders Control", *China Industrial Economics*, Vol. 8. (In Chinese)

Mengistae, T. and L. C. Xu (2004) Agency Theory and Executive Compensation: The Case of Chinese State-Owned Enterprises, *Journal of Labor Economics*, Vol. 22, No. 3, pp. 615-637.

Miyajima, H., R. Ogawa and T. Saito (2018) Changes in Corporate Governance and Top Executive Turnover: The Evidence from Japan, *Journal of the Japanese and International Economies*, Vol. 47, pp. 17-31.

Moore, T. (2009) Soft Budget Constraints in EU Transition Economy Enterprises, *International Finance*, Vol. 12, No. 3, pp. 411-430.

Mueller, D. C. and E. Peev (2007) Corporate Governance and Investment in Central and Eastern Europe, *Journal of Comparative Economics*, Vol. 35, No. 2, pp. 414-437.

Muravyev, A. (2001) Turnover of Top Executives in Russian Companies, *Russian Economic Trends*, Vol. 10, No. 1, pp. 20-24.

Muravyev, A. (2003) Turnover of Senior Managers in Russian Privatised Firms, *Comparative Economic Studies*, Vol. 45, No. 2, pp. 148-172.

Muravyev, A., O. Talavera, O. Bilyk and B. Grechaniuk (2010) Is Corporate Governance Effective in Ukraine? A Crude Test Using Chief Executive Officer Turnover Data, *Eastern European Economics*, Vol. 48, No. 2, pp. 5-24.

Nakagawa, S., D. W. A. Noble, A. M. Senior and M. Lagisz (2017) Meta-Evaluation of Meta-Analysis: Ten Appraisal Questions for Biologists, *BMC Biology*, Vol. 15, No. 18.

National Bureau of Statistics of China (2017) *China Statistical Yearbook*, China Statistics Press.

Pi, L. and J. Lowe (2011) Can A Powerful CEO Avoid Involuntary Replacement? An Empirical Study from China, *Asia Pacific Journal of Management*, Vol. 28, No. 4, pp. 775–805.

Radjen, D. and N. Stanisic (2017) Financial Distress and Managerial Turnover: The Case of the Republic of Serbia, *Prague Economic Papers*, Vol. 26, No. 6, pp. 646-660.

Rizzotti, D., C. Frisenna and R. Mazzone (2017) The Impact of Family Owners' Monitoring on

CEO Turnover Decisions and the Role of Trust, *Journal of Management and Governance*, Vol. 21, No. 3, pp. 599-621.

Rong, G. and Y. Li (2016) Research on the Participation of Party Organizations in State-owned Capital Investment and Operation Corporations, *Theory Journal*, Vol. 3. (In Chinese)

Shen, W. and C. Lin (2009) Firm Profitability, State Ownership, and Top Management Turnover at the Listed Firms in China: A Behavioral Perspective, *Corporate Governance: An International Review*, Vol. 17, No. 4, pp. 443–456.

Shleifer, A. and R. W. Vishny (1986) Large Shareholders and Corporate Control, *Journal of Political Economy*, Vol. 94, No. 3, pp. 461–488.

Shleifer, A. and R. W. Vishny (1997) A Survey of Corporate Governance, *Journal of Finance*, Vol. 52, No. 2, pp. 737-783.

Srivastav, A., K. Keasey, S. Mollah and F. Vallascas (2017) CEO Turnover in Large Banks: Does Tail Risk Matter? *Journal of Accounting and Economics*, Vol. 64, No. 1, pp. 37-55.

Stanley, T. D. (2005) Beyond Publication Bias, *Journal of Economic Surveys*, Vol. 19, No. 3, pp. 309-345.

Stanley, T. D. and H. Doucouliagos (2012) *Meta-Regression Analysis in Economics and Business*, Routledge: London and New York.

Tokunaga, M., and I. Iwasaki (2017) The Determinants of Foreign Direct Investment in Transition Economies: A Meta-Analysis, The World Economy, Vol. 40, No. 12, pp. 2771-2831.

Ursel, N. D. and L. Zhong (2018) Why Do Firms Pay High Underwriting Fees? SEO Withdrawal, Underwriter Certification and CEO Turnover, *Journal of International Financial Markets, Institutions & Money*, Vol. 54, pp. 98-113.

Vagliasindi, M. and P. Vagliasindi (2003) Privatisation Methods and Enterprise Governance in Transition Economies, Kalyuzhnova, Y. and W. Andreff (eds.), *Privatisation and Structural Change in Transition Economies*, Palgrave Macmillan: New York, pp. 60-92.

Wu, Z. and X. Weng (2018) Managerial Turnover and Entrenchment, *Journal of Economics & Management Strategy* (Early View: https://doi.org/10.1111/jems.12248).

Xu, X. and Y. Wang (1999) Ownership Structure and Corporate Governance in Chinese Stock Companies, *China Economic Review*, Vol. 10, No. 1, pp.75–89.

Yan, X. and J. Huang (2017) Navigating Unknown Waters: The Chinese Communist Party's New Presence in the Private Sector, *The China Review*, Vol. 17, No. 2, pp. 37-63.

You, J. and G. Du (2012) Are Political Connections A Blessing or A Curse? Evidence from CEO turnover in China, *Corporate Governance: An International Review*, Vol. 20, No. 2, pp. 179–194.

Zhang, X. (2016) Income Smoothing, Idiosyncratic Risk and CEO Turnover, *Journal of Mathematical Finance*, Vol. 6. No. 1, pp. 1-13.

Table 1. Theoretical prediction of the impacts of corporate ownership on managerial turnover in China and Eastern Europe

	China	Eastern Europe
State ownership	Negative	Positive
Domestic outside ownership	Positive, but weak or insiginificant	Positive
Foreign ownership	Positive, but weak or insiginificant	Positive
Insider ownership	Negative, but weak or insiginificant	Nagative
Large shareholding	Unpredictable	Positive

Table 2. List of selected studies on the impact of corporate ownership on managerial turnover in China and Eastern Europe for meta-analysis

Author(s) (publication year)	Target country [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	Manufacturing	1998-1999	A, B	1, 2, 4, 6	72
Muravyev (2003)	RU	Mining and manufacturing	1999-2000	A	1, 2	16
Eriksson (2005)	CZ, SK	Various industries	1998-2000	A	1, 3, 5	8
Kapelyushnikov and Demina (2005)	RU	Mining and manufacturing	1995-2003	A, C	1, 2, 4	10
Firth et al. (2006)	CH	Various industries	1998-2002	C	1-3, 5	48
Kato and Long (2006a)	CH	Various industries	1998-2002	A	2, 5	4
Kato and Long (2006b)	CH	Various industries	1998-2002	A	2, 5	20
Fan et al. (2007)	CH	Various industries	1999-2003	A	1, 2, 4	9
Fidrmuc and Fidrmuc (2007)	CZ	Various industries	1996-1997	A	5, 6	8
Cheng et al. (2008)	CH	Various industries	2000-2003	A, B, C	1, 2, 5, 6	88
Cvelbar et al. (2008)	SI	Various industries	1998-2002	C	1, 2	9
Abe and Iwasaki (2009)	RU	Mining and manufacturing	2001-2004	A, B	3, 5	32
Chang and Wong (2009)	CH	Various industries	1995-2001	A	1, 5	8
Chi and Wang (2009)	CH	Various industries	1993-2005	A, C	1-5	64
Shen and Lin (2009)	CH	Various industries	1999-2002	A	1	12
Abe and Iwasaki (2010)	RU	Mining and manufacturing	2001-2004	A, B	3, 5	32
Muravyev et al. (2010)	UA	Various industries	2002-2006	A	4	10
Pi and Lowe (2011)	CH	Various industries	1997-2006	A	1, 4-6	45
Chen et al. (2012)	CH	Various industries	2002-2008	A	1, 4, 5	16
Hu and Leung (2012)	CH	Various industries	2001-2005	B	1, 5	27
You and Du (2012)	CH	Various industries	2005-2008	A	1	4
Firth et al. (2014)	CH	Various industries	2005-2008	A	1, 5	22
Iwasaki (2014)	RU	Mining and manufacturing	2001-2004	A	2, 4	7
Cheng and Leung (2016)	CH	Various industries	2001-2008	A, C	1	32
He et al. (2016)	CH	Various industries	2008-2013	A	1, 5	54
Zhang (2016)	CH	Various industries	2005-2011	A, C	2	6
Cao et al. (2017)	CH	Various industries	2002-2010	A	4	3
He et al. (2017)	CH	Various industries	2002-2011	A	1, 2, 4, 5	40
Radjen and Stanisic (2017)	SB	Various industries	2009-2015	B	2	2
Karminsky et al. (2018)	RU	Banking	2014-2016	A	4	1
Liu and Zhang (2018)	CH	Various industries	1999-2012	B	1, 5, 6	27

Notes:

[a] Country abbreviations: CH—China; CZ—Czech Republic; RU—Russia; SB—Serbia; SI—Slovenia; SK—Slovakia; UA—Ukraine

[b] Estimation period may differ depending on target countries.

[c] A: CEO turnover; B: Turnover of management team; C: Turnover of board 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

Source: Compiled by the authors

Table 3. Descriptive statistics of collected estimates and univariate comparison between Chinese and East European studies

(a) PCC

Ownership variable type	Chinese study						East European study					
	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 study						East European study					
	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

Notes:

[a] ***, **, and * denote that t test rejects null hypothesis of equality of means with East European study at the 1%, 5%, and 10% significance levels, respectively.

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

Source: Authors' calculation

Figure 1. Kernel density estimation of collected estimates by ownership variable type

(a) Chinese study: PCC
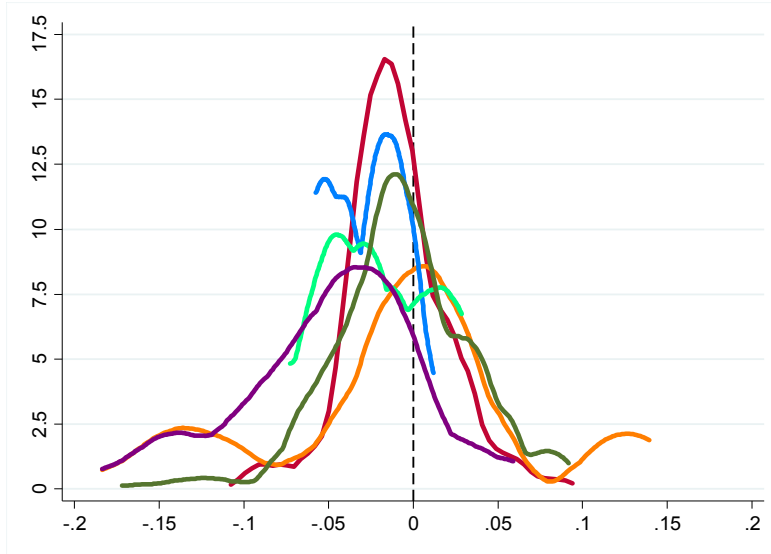
(b) East European study: PCC
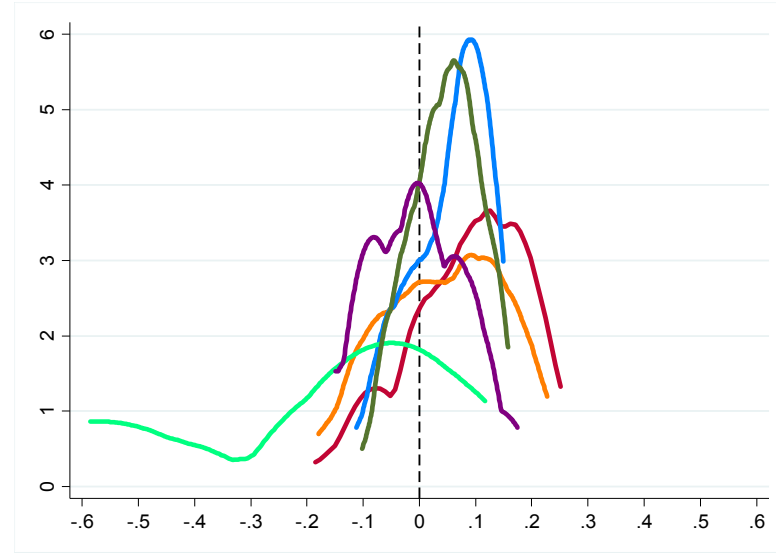
(c) Chinese study: *t* vaue

(e) East European study: *t* value

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

Note: Vertical axis is kernel density. Horizontal axis is a variable value.

Source: Authors' illustration

Table 4. Synthesis of estimates

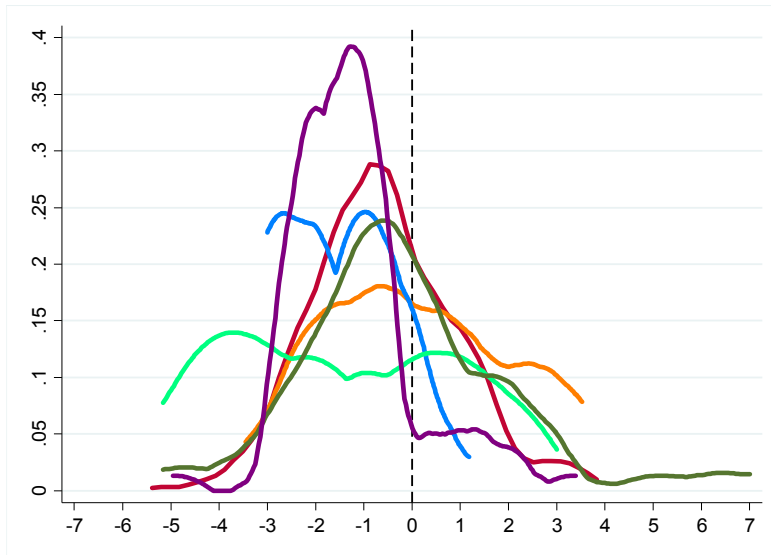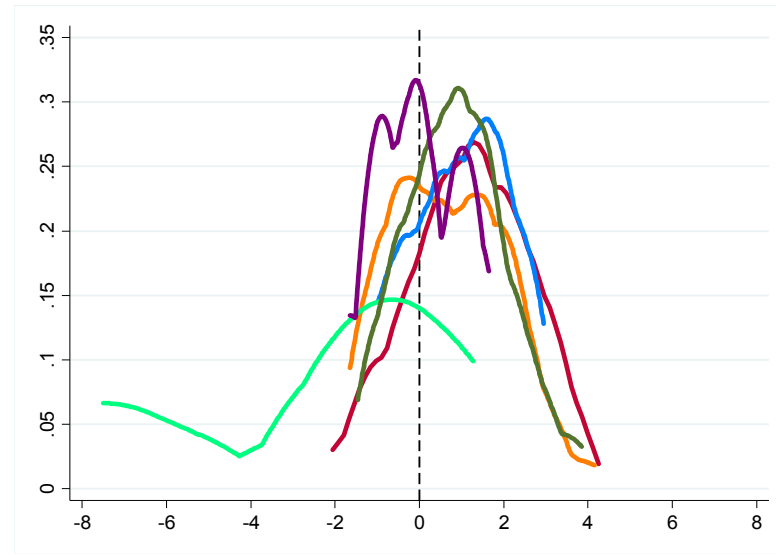| Ownership variable type	Number of estimates (K)	(a) Synthesis of PCCs			(b) Combination of t values		
		Fixed-effect model (z value)[a]	Random-effects model (z value)[a]	Test of homogeneity[b]	Unweighted combination (p value)	Weighted combination (p value)	Fail-safe N (*fsN*)
Chinese studies							
State ownership	248	-0.010 *** (-10.08)	-0.010 *** (-6.63)	514.247 *** (0.00)	-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)	0.862 (0.19)	0.141 (0.44)	-69
Foreign ownership	20	-0.022 *** (-6.32)	-0.028 *** (-4.98)	47.216 *** (0.00)	-7.485 *** (0.00)	-1.099 (0.14)	394
Insider ownership	37	-0.027 *** (-11.41)	-0.024 *** (-4.36)	187.086 *** (0.00)	-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)	-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)	-9.991 *** (0.00)	-2.210 ** (0.014)	2405
East European studies							
State ownership	35	0.099 *** (7.74)	0.095 *** (6.04)	48.199 * (0.06)	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)	4.381 *** (0.00)	1.385 * (0.08)	262
Foreign ownership	36	0.064 *** (6.57)	0.063 *** (6.17)	37.826 (0.34)	5.722 *** (0.00)	1.137 (0.13)	400
Insider ownership	35	-0.221 *** (-16.50)	-0.204 *** (-4.78)	330.423 *** (0.00)	-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)	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)	-0.059 (0.37)	-0.017 (0.49)	-22

Notes:

[a] Null hypothesis: The synthesized effect size is zero.

[b] Null hypothesis: Effect sizes are homogeneous.

***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.
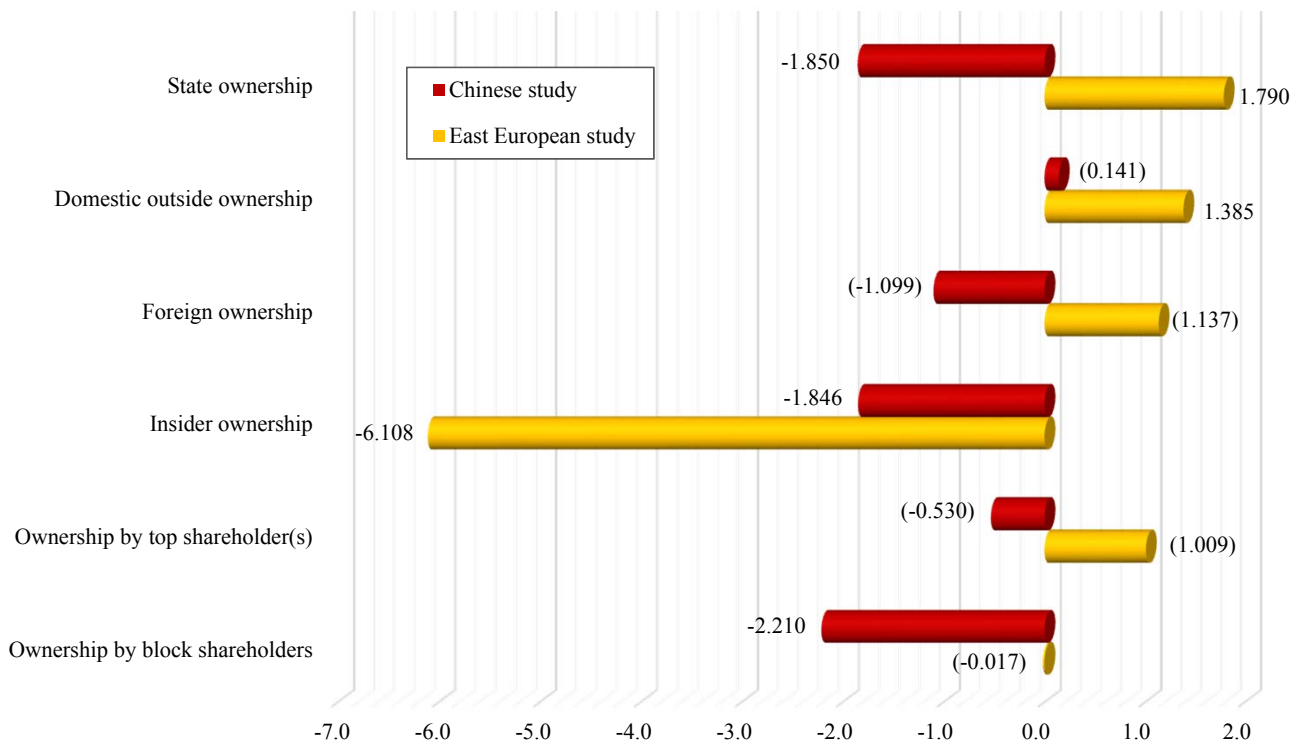
Source: Authors' estimations

Figure 2. Illustrated comparison of synthesis results

(a) Synthesized value of PCCs
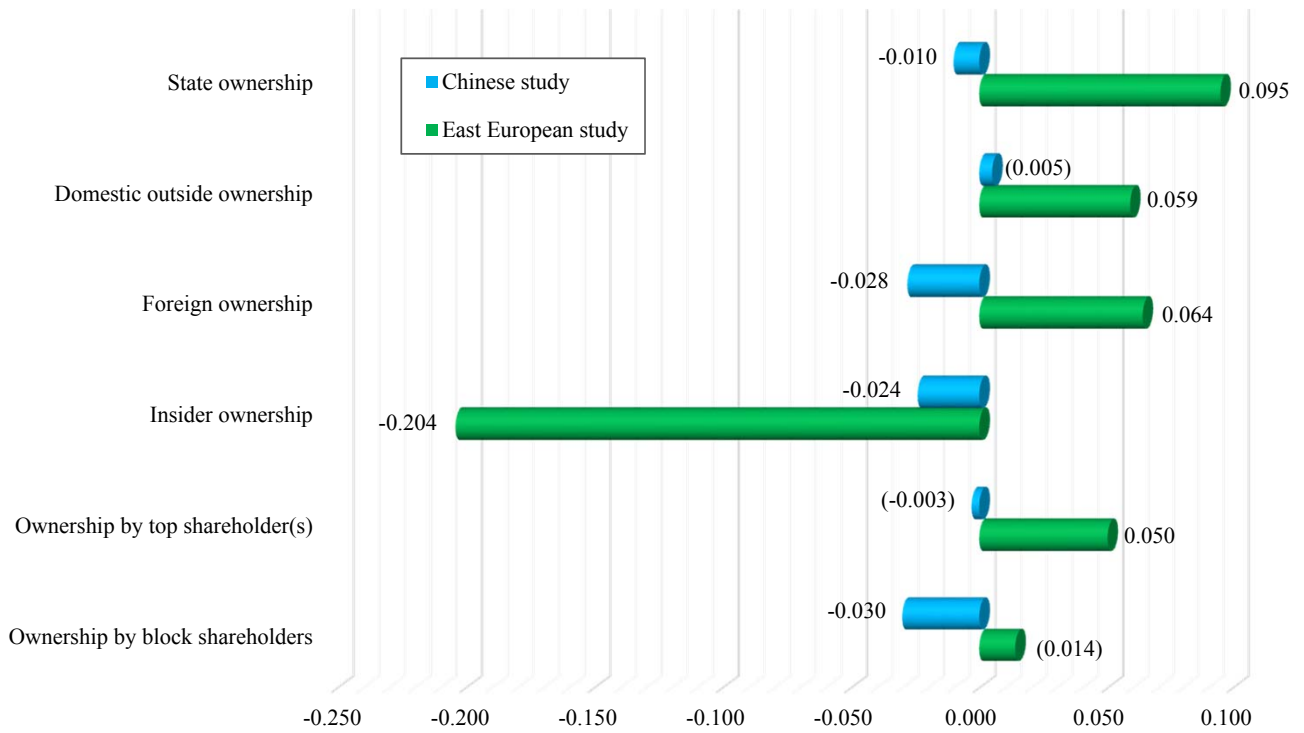
(b) Weighted combination of *t* values

Note: Synthesized values in parentheses are not statistically significantly different from zero.

Source: Authors' illustration based on Table 4

Table 5. Name, definition, and descriptive statistics of meta-independent variables

Variable name	Definition	Chinese study Mean	Chinese study Median	Chinese study S.D.	East European study Mean	East European study Median	East European study S.D.
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
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
Turnover of management team	1 = if turnover ratio of management team is used as the dependent variable, 0 = otherwise	0.117	0	0.322	0.454	0	0.499
Turnover of board directors	1 = if turnover ratio of board chairpersons and directors is used as the dependent variable, 0 = otherwise	0.208	0	0.406	0.068	0	0.252
Forced and involantary turnover	1 = if ratio of forced and involuntary turnover is used as the dependent variable, 0 = otherwise	0.543	1	0.499	0.034	0	0.181
Normal and voluntary turnover	1 = if ratio of normal and voluntary turnover is used as the dependent variable, 0 = otherwise	0.210	0	0.408	0.000	0	0.000
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
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
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
$\sqrt{}$ 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[a]	4.981	5	1.837	3.348	4	2.153

Note:
[a] See the Appendix for more details.
Source: Authors' calculations

Table 6. Meta-regression analysis of partial correlation coefficients

(a) Chinese study

Estimator (analytical weight in parentheses)	Cluster-robust OLS	Cluster-robust WLS [Quality level]	Cluster-robust WLS [N]	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]	[5]	[6][a]	[7][b]
Ownership variable type (state ownership)							
Domestic outside ownership	-0.0126	-0.0036	0.0098 *	-0.0069	-0.0030	-0.0126	-0.0017
	(0.024)	(0.024)	(0.005)	(0.016)	(0.023)	(0.024)	(0.023)
Foreign ownership	-0.0438 *	-0.0459 *	-0.0118	-0.0185 *	-0.0357	-0.0438 *	-0.0338
	(0.024)	(0.024)	(0.015)	(0.009)	(0.023)	(0.024)	(0.023)
Insider ownership	-0.0280 *	-0.0163	-0.0132	-0.0019	-0.0193	-0.0280 *	-0.0172
	(0.016)	(0.014)	(0.009)	(0.007)	(0.014)	(0.016)	(0.014)
Ownership by top shareholder(s)	-0.0113	-0.0138	0.0076	0.0097	-0.0073	-0.0113	-0.0073
	(0.013)	(0.014)	(0.006)	(0.008)	(0.013)	(0.013)	(0.013)
Ownership by block shareholders	-0.0346 ***	-0.0425 ***	-0.0037	-0.0058	-0.0230	-0.0346 ***	-0.0231
	(0.012)	(0.012)	(0.010)	(0.009)	(0.015)	(0.012)	(0.015)
Other characteristics of ownership variable							
Dummy variable (ownership share)	-0.0130	0.0046	-0.0122	-0.0129	-0.0217	-0.0130	-0.0221
	(0.014)	(0.011)	(0.011)	(0.015)	(0.018)	(0.014)	(0.019)
Lagged variable	-0.0421 **	-0.0369 *	-0.0588 ***	-0.0269	-0.0199	-0.0421 ***	
	(0.016)	(0.018)	(0.012)	(0.027)	(0.020)	(0.016)	
With an interaction term(s)	0.0300	0.0462 **	-0.0110	0.0133	0.0333	0.0300	
	(0.022)	(0.017)	(0.010)	(0.020)	(0.025)	(0.022)	
Managerial turnover variable type (CEO turnover)							
Turnover of management team	0.0228	-0.0138	0.0913 ***	0.0223	-0.0074 *	0.0228	-0.0122 *
	(0.028)	(0.018)	(0.023)	(0.014)	(0.004)	(0.028)	(0.006)
Turnover of board directors	-0.0108	-0.0128	0.0070	-0.0031	0.0054	-0.0108	0.0075
	(0.012)	(0.013)	(0.005)	(0.010)	(0.008)	(0.012)	(0.008)
Definition of managerial turnover (all kinds)							
Forced and involuntary turnover	0.0022	-0.0173	-0.0047	0.0077	0.0248 ***	0.0022	0.0269 ***
	(0.013)	(0.014)	(0.010)	(0.006)	(0.005)	(0.013)	(0.006)
Normal and voluntary turnover	-0.0061	-0.0338 **	-0.0003	0.0017	0.0206 ***	-0.0061	0.0230 ***
	(0.018)	(0.015)	(0.013)	(0.005)	(0.007)	(0.018)	(0.006)
Estimation period							
First year of estimation	0.0115 **	0.0031	0.0102 **	0.0227 ***	0.0064	0.0115 **	
	(0.005)	(0.003)	(0.004)	(0.006)	(0.004)	(0.005)	
Length of estimation	0.0032	0.0033	-0.0022	0.0038	0.0002	0.0032	
	(0.003)	(0.002)	(0.003)	(0.004)	(0.005)	(0.003)	
Data type (panel data)							
Cross-sectional data	0.0187	0.0166	0.0072	0.0242	0.0090	0.0187	
	(0.015)	(0.017)	(0.007)	(0.021)	(0.022)	(0.015)	
Estimator (non-probit/logit estimator)							
Probit/logit estimator	-0.0307	-0.0124	-0.0804 ***	-0.0699 ***	0.0020	-0.0307	
	(0.023)	(0.020)	(0.019)	(0.019)	(0.025)	(0.023)	
Control variable							
Industry fixed effects	-0.0228	0.0174	-0.0185	-0.0886 *	-0.0182	-0.0228	0.0004
	(0.029)	(0.022)	(0.016)	(0.047)	(0.022)	(0.029)	(0.004)
Time fixed effects	0.0313	-0.0010	0.0195	0.1034 **	0.0198	0.0313	
	(0.024)	(0.017)	(0.014)	(0.038)	(0.022)	(0.024)	
Degree of freedom and research quality							
√ Degree of freedom	0.0001	-0.0003	0.0001	-0.0004	0.0005 ***	0.0001	0.0005 **
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Quality level	0.0194 **		0.0256 ***	0.0392 ***	0.0125 *	0.0194 **	
	(0.008)		(0.008)	(0.008)	(0.007)	(0.008)	
Intercept	-23.0353 **	-6.1765	-20.4453 **	-45.5178 ***	-12.9172	-23.0353 **	-0.0380 *
	(9.291)	(5.635)	(7.726)	(12.625)	(8.167)	(9.291)	(0.020)
K	529	529	529	529	529	529	529
R^2	0.321	0.369	0.377	0.478	-	0.321	0.023

(b) East European study

Estimator (analytical weight in parentheses)	Cluster-robust OLS	Cluster-robust WLS [Quality level]	Cluster-robust WLS [N]	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	[8]	[9]	[10]	[11]	[12]	[13]c	[14]d
Ownership variable type (state ownership)							
Domestic outside ownership	-0.0087	0.0043	-0.0012	-0.0092	-0.0087	-0.0087	-0.0136
	(0.029)	(0.036)	(0.029)	(0.020)	(0.028)	(0.029)	(0.028)
Foreign ownership	-0.1973 **	-0.1491 **	-0.1630 **	-0.2494 **	-0.1973 **	-0.1973 **	-0.1592 **
	(0.086)	(0.057)	(0.065)	(0.111)	(0.081)	(0.086)	(0.065)
Insider ownership	-0.1177 ***	-0.1402 ***	-0.1306 ***	-0.1441 ***	-0.1177 ***	-0.1177 ***	-0.1085 ***
	(0.015)	(0.040)	(0.026)	(0.023)	(0.014)	(0.015)	(0.012)
Ownership by top shareholder(s)	-0.1070	-0.0960 *	-0.1560 ***	-0.0926	-0.1070 *	-0.1070 *	-0.0967
	(0.063)	(0.052)	(0.032)	(0.100)	(0.060)	(0.063)	(0.065)
Ownership by block shareholders	-0.1058 ***	-0.0677	-0.1103 ***	-0.0843 ***	-0.1058 ***	-0.1058 ***	-0.1016 ***
	(0.017)	(0.042)	(0.023)	(0.019)	(0.016)	(0.017)	(0.019)
Other characteristics of ownership variable							
Dummy variable (ownership share)	-0.0989	-0.0644	-0.0112	-0.1685 ***	-0.0989 *	-0.0989 *	-0.0673
	(0.060)	(0.051)	(0.058)	(0.010)	(0.057)	(0.060)	(0.074)
Lagged variable	-0.1556	-0.1568 **	-0.1617 **	-0.1625	-0.1556	-0.1556	
	(0.105)	(0.066)	(0.067)	(0.191)	(0.099)	(0.105)	
With an interaction term(s)	-0.0427 ***	-0.0362 **	-0.0432 ***	-0.0775 ***	-0.0427 ***	-0.0427 ***	-0.0381 ***
	(0.007)	(0.015)	(0.011)	(0.007)	(0.007)	(0.007)	(0.006)
Managerial turnover variable type (CEO turnover)							
Turnover of management team	-0.0167	0.0013	-0.0167 **	-0.0272 *	-0.0167	-0.0167	-0.0194
	(0.015)	(0.011)	(0.007)	(0.013)	(0.014)	(0.015)	(0.015)
Turnover of board directors	0.0180	0.0446	0.0180	0.0005	0.0180	0.0180	-0.0008
	(0.026)	(0.051)	(0.028)	(0.005)	(0.025)	(0.026)	(0.001)
Definition of managerial turnover (all kinds)							
Forced and involantary turnover	0.1036	0.0558	0.0547	0.1646 ***	0.1036 *	0.1036	
	(0.065)	(0.054)	(0.058)	(0.049)	(0.062)	(0.065)	
Target industry (mining and manufacturing industry)							
Various industries	0.2576 **	0.1733 **	0.2278 **	0.3241 **	0.2576 ***	0.2576 **	
	(0.104)	(0.079)	(0.076)	(0.137)	(0.099)	(0.104)	
Estimation period							
First year of estimation	-0.0249 **	-0.0196 **	-0.0256 ***	-0.0319 **	-0.0249 ***	-0.0249 ***	-0.0012
	(0.009)	(0.007)	(0.006)	(0.012)	(0.008)	(0.009)	(0.002)
Length of estimation	-0.0427 ***	-0.0324 ***	-0.0449 ***	-0.0476 ***	-0.0427 ***	-0.0427 ***	
	(0.004)	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	
Data type (panel data)							
Cross-sectional data	0.5546 ***	0.4801 ***	0.4896 ***	0.6079 ***	0.5546 ***	0.5546 ***	
	(0.085)	(0.074)	(0.072)	(0.104)	(0.081)	(0.085)	
Estimator (non-probit/logit estimator)							
Probit/logit estimator	-0.0628 ***	-0.0861 **	-0.0693 ***	-0.0447 *	-0.0628 ***	-0.0628 ***	-0.0549 ***
	(0.007)	(0.032)	(0.014)	(0.025)	(0.007)	(0.007)	(0.007)
Control variable							
Industry fixed effects	0.0765 ***	0.0819 ***	0.0958 ***	0.0403 *	0.0765 ***	0.0765 ***	
	(0.015)	(0.017)	(0.019)	(0.022)	(0.014)	(0.015)	
Time fixed effects	0.3828 ***	0.3293 ***	0.3596 ***	0.3708 **	0.3828 ***	0.3828 ***	
	(0.094)	(0.093)	(0.075)	(0.152)	(0.089)	(0.094)	
Degree of freedom and research quality							
√ Degree of freedom	0.0044 **	0.0050 ***	0.0035 **	0.0065 *	0.0044 ***	0.0044 ***	0.0071 ***
	(0.001)	(0.002)	(0.001)	(0.003)	(0.001)	(0.001)	(0.001)
Quality level	-0.0092 **		-0.0118 **	-0.0148 **	-0.0092 **	-0.0092 **	
	(0.004)		(0.004)	(0.006)	(0.004)	(0.004)	
Intercept	49.3493 **	38.8749 **	50.9310 ***	63.3300 **	49.3493 ***	49.3493 ***	2.4193
	(17.011)	(13.750)	(12.840)	(23.542)	(16.164)	(17.011)	(3.551)
K	207	207	207	207	207	207	207
R^2	0.816	0.875	0.807	0.980	-	0.816	0.047

Notes:
[a] Breusch–Pagan test: $\chi^2 = 0.00$, $p = 1.000$
[b] Hausman: $\chi^2 = 134.60$, $p = 0.000$
[c] Breusch–Pagan test: $\chi^2 = 0.00$, $p = 1.000$
[d] Hausman test: $\chi^2 = 10.29$, $p = 0.591$
Figures in parentheses beneath the regression coefficients are robust standard errors. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.
Source: Authors' estimations; See Table 5 for the definitions and descriptive statistics of meta-independent variables.

Table 7. Meta-regression analysis of t values

(a) Chinese study

Estimator (analytical weight in parentheses)	Cluster-robust OLS	Cluster-robust WLS [Quality level]	Cluster-robust WLS [N]	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]	[5]	[6] [a]	[7] [b]
Ownership variable type (state ownership)							
Domestic outside ownership	0.2421	0.6040	0.8218 **	0.3831	0.8820 *	0.2421	0.9747 *
	(0.647)	(0.624)	(0.377)	(0.680)	(0.532)	(0.647)	(0.546)
Foreign ownership	-1.5453	-1.5936	-0.3468	-0.9832 ***	-1.1402	-1.5453	-1.0565
	(0.990)	(0.960)	(0.741)	(0.210)	(0.914)	(0.990)	(0.937)
Insider ownership	-1.3424	-0.8370	-0.9965	0.2406	-0.9962	-1.3424 *	-0.9395
	(0.790)	(0.705)	(0.666)	(0.415)	(0.695)	(0.790)	(0.701)
Ownership by top shareholder(s)	-0.0185	-0.1153	0.8344 *	0.9569 **	0.1461	-0.0185	0.1228
	(0.546)	(0.530)	(0.436)	(0.350)	(0.548)	(0.546)	(0.581)
Ownership by block shareholders	-0.7505	-1.0449 **	0.4555	0.5309	-0.2025	-0.7505	-0.2203
	(0.477)	(0.431)	(0.636)	(0.439)	(0.502)	(0.477)	(0.508)
Other study conditions and intercept	Yes	Yes	Yes	Yes	Yes	Yes	Yes
K	529	529	529	529	529	529	529
R^2	0.322	0.310	0.447	0.571	-	0.322	0.049

(b) East European study

Estimator (analytical weight in parentheses)	Cluster-robust OLS	Cluster-robust WLS [Quality level]	Cluster-robust WLS [N]	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	[8]	[9]	[10]	[11]	[12]	[13] [c]	[14] [d]
Ownership variable type (state ownership)							
Domestic outside ownership	-0.0225	0.0448	0.0361	-0.1570	-0.0802	-0.0225	-0.1615
	(0.353)	(0.486)	(0.405)	(0.287)	(0.319)	(0.353)	(0.312)
Foreign ownership	-3.3807 **	-2.5375 **	-2.9176 **	-4.6794 *	-2.9250 ***	-3.3807 **	-2.4173 **
	(1.454)	(0.940)	(1.210)	(2.189)	(1.097)	(1.454)	(0.818)
Insider ownership	-1.5055 ***	-2.0992 **	-1.7978 ***	-1.9018 ***	-1.4001 ***	-1.5055 ***	-1.2588 ***
	(0.349)	(0.767)	(0.572)	(0.403)	(0.264)	(0.349)	(0.189)
Ownership by top shareholder(s)	-2.3052 **	-2.2340 ***	-2.8118 ***	-3.1428	-2.1784 ***	-2.3052 ***	-2.0501 **
	(0.841)	(0.624)	(0.446)	(1.926)	(0.780)	(0.841)	(0.818)
Ownership by block shareholders	-1.2737 ***	-0.9285 *	-1.3241 ***	-1.3636 ***	-1.2248 ***	-1.2737 ***	-1.1560 ***
	(0.164)	(0.451)	(0.271)	(0.363)	(0.162)	(0.164)	(0.208)
Other study conditions and intercept	Yes	Yes	Yes	Yes	Yes	Yes	Yes
K	207	207	207	207	207	207	207
R^2	0.831	0.872	0.813	0.977	-	0.831	0.040

Notes:

[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: $\chi^2 = 48.27$, $p = 0.000$

Figures in parentheses beneath the regression coefficients are robust standard errors. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Source: Authors' estimations; See Table 5 for the definitions and descriptive statistics of meta-independent variables.
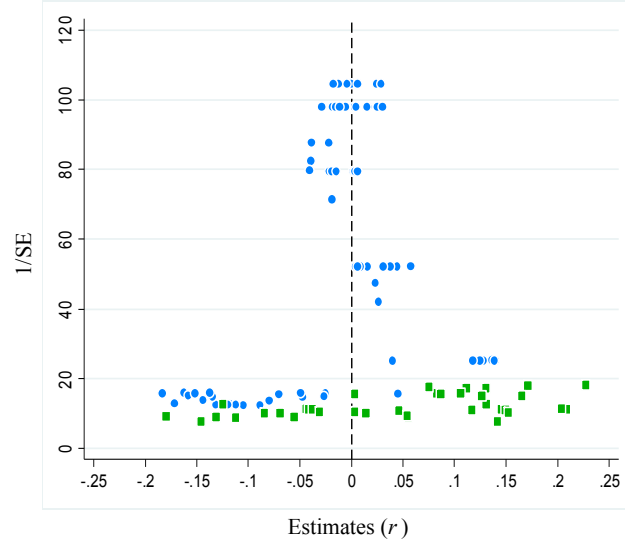
Figure 3. Funnel plot of partial correlation coefficients by ownership variable type
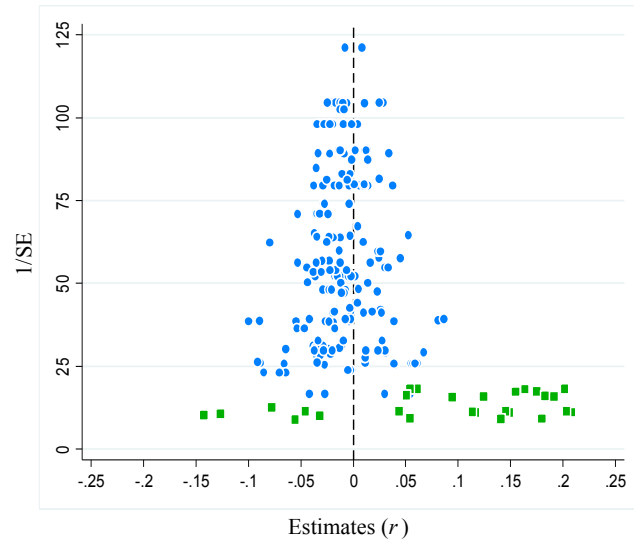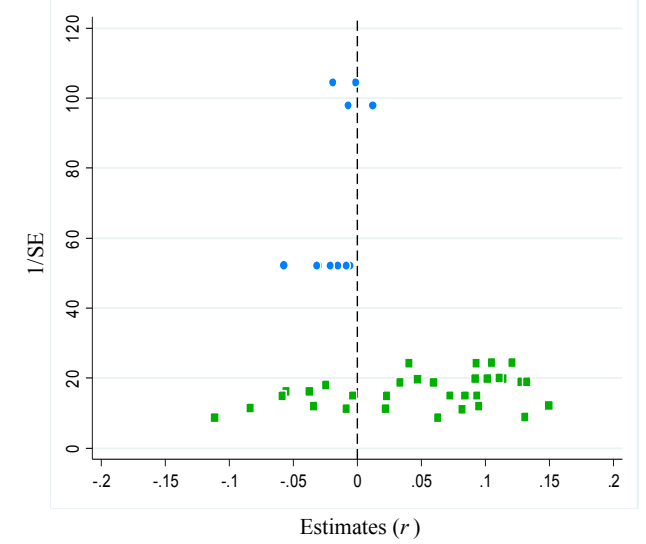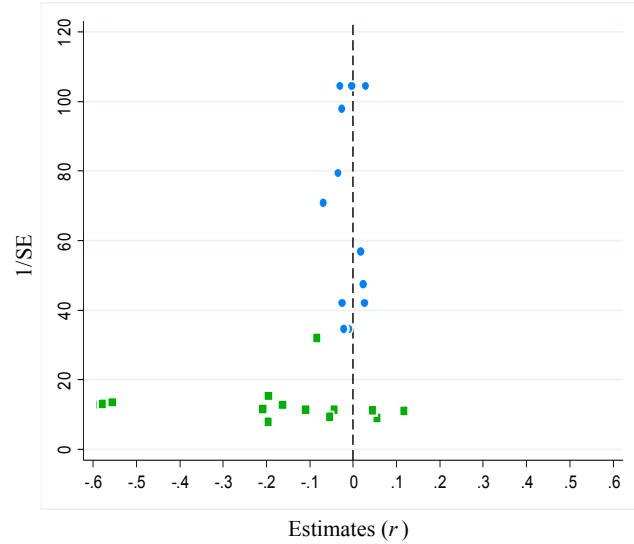
(a) State ownership
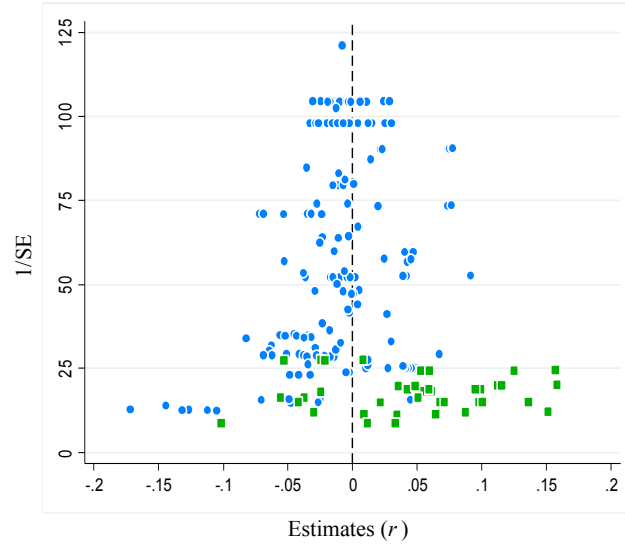
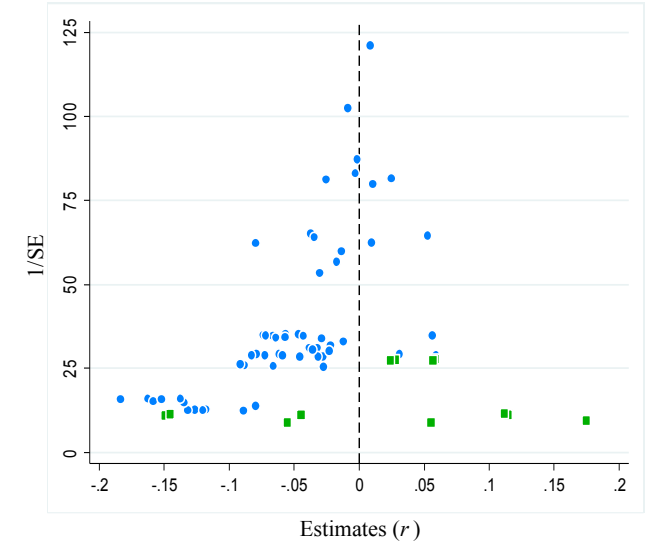(b) Domestic outside ownership

(c) Foreign ownership

(d) Insider ownership

(e) Ownership by top shareholder(s)

(f) Ownership by block shareholders

Note: ● and ■ indicate estimates colleted from Chinese and East European studies, respectively.

Source: Authors' illustration

Figure 4. Galbraith plot of *t* values by ownership variable type

(a) State ownership

(b) Domestic outside ownership

(c) Foreign ownership

(d) Insider ownership

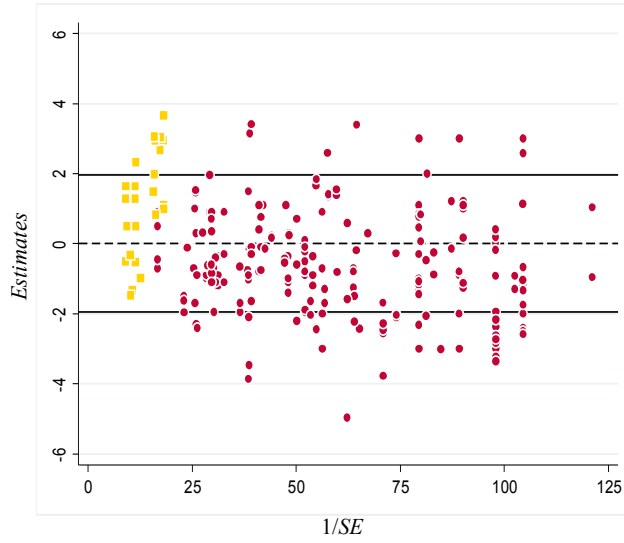(e) Ownership by top shareholder(s)

(f) Ownership by block shareholders

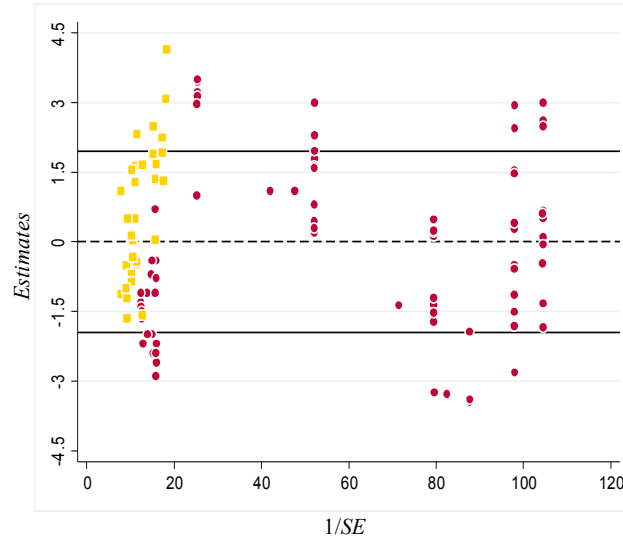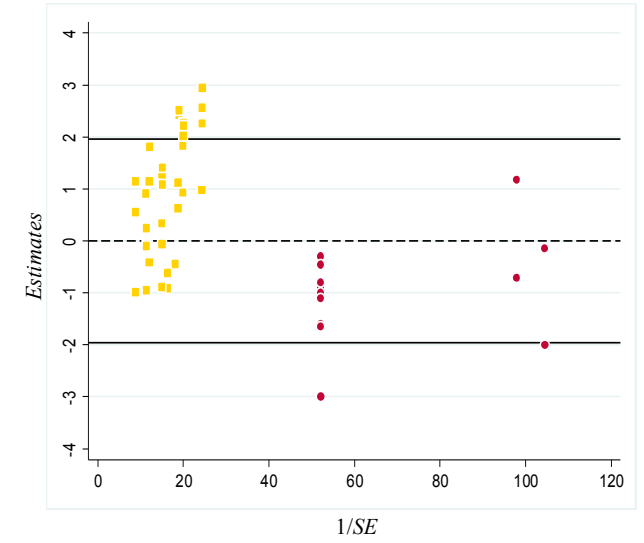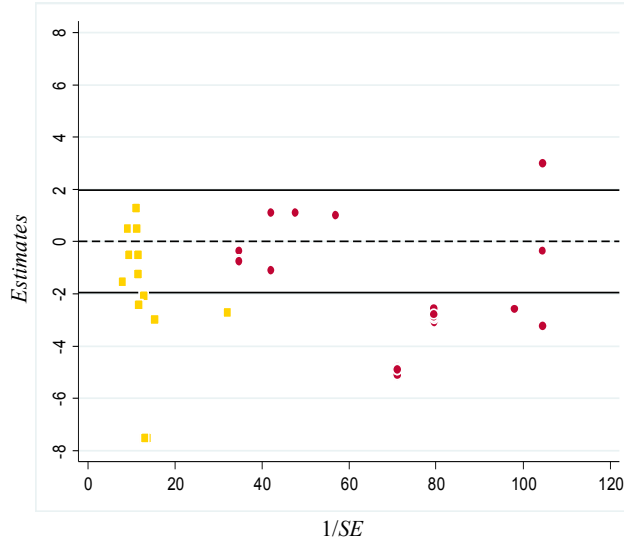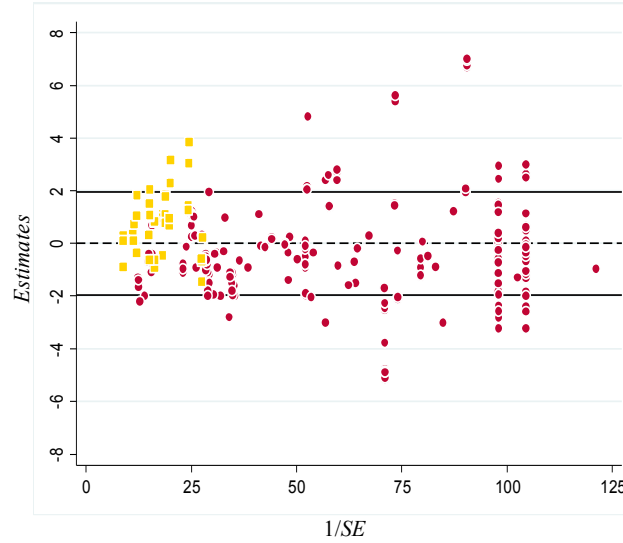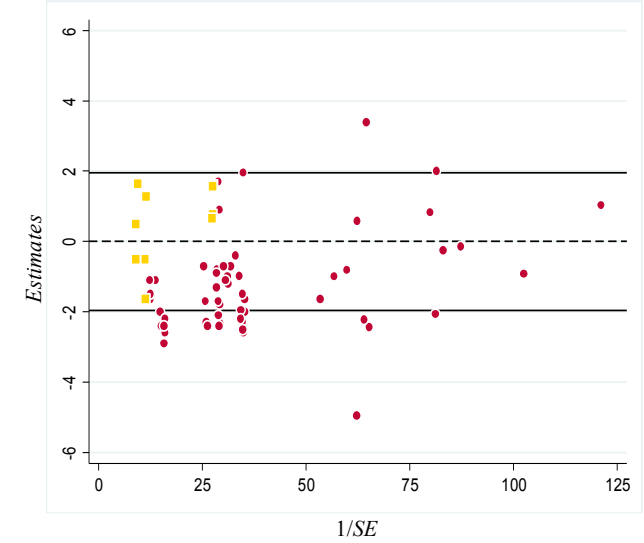Notes: ● and ■ indicate estimates colleted from Chinese and East European studies, respectively. Solid lines indicate the thresholds of two-sided critical values at the 5% significance level ±1.96.
Source: Authors' illustration

Table 8. Univariate test of publication selection bias

	(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 percent 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 percent most precise estimates (x)		
	Number of estimates		Goodness-of-fit test $(z)^{\text{a}}$	Number of estimates		Goodness-of-fit test $(z)^{\text{b}}$	Number of estimates		Goodness-of-fit test $(z)^{\text{c}}$	Number of estimates		Goodness-of-fit test $(z)^{\text{d}}$
	$PCC_k<0$	$PCC_k>0$		$PCC_k<x$	$PCC_k>x$		$\lvert t_k \rvert<1.96$	$\lvert t_k \rvert>1.96$		$\lvert(PCC_k-x)/SE_k\rvert<1.96$	$\lvert(PCC_k-x)/SE_k\rvert>1.96$	
Chinese studies												
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 *** (-3.668)	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)
East European studies												
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)

Notes:

[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 $\lvert$(the k-th estimate - the true effect)$/SE_k \rvert$ 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.

Source: Authors' estimations

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	-0.0838	-0.2284	-0.2815	-0.6454
	(0.214)	(0.258)	(0.332)	(0.352)	(0.403)
$1/SE$ (PET: $H_0: \gamma_1 = 0$)	-0.0086 **	-0.0086 *	-0.0051 *	-0.0038 *	0.0007
	(0.004)	(0.005)	(0.003)	(0.002)	(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 ***	0.7242 **	0.7925 **	0.7941 *	0.7352
	(0.127)	(0.249)	(0.405)	(0.416)	(0.509)
$1/SE$	0.0093 ***	0.0093 **	0.0088	0.0089	0.0091
	(0.002)	(0.004)	(0.007)	(0.007)	(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	-1.0793	-3.4340	-3.4340	-1.4554
	(4.455)	(5.965)	(7.624)	(7.131)	(6.399)
$1/SE$ ($H_0: \gamma_1 = 0$)	-0.0095 ***	-0.0095 ***	-0.0074 **	-0.0074 **	-0.0091 ***
	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)
K	248	248	248	248	248
R^2	0.165	0.165	-	-	-

Notes:

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

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

[a] Breusch-Pagan test: $\chi^2 = 30.06$, $p = 0.000$

[b] Hausman test: $\chi^2 = 0.03$, $p = 0.867$

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.

Source: Authors' estimations

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 **	-1.7158	-4.1284 ***	-4.2777 ***	-3.9032 **
	(0.758)	(1.540)	(0.799)	(0.632)	(0.913)
$1/SE$ (PET: H_0: $\gamma_1 = 0$)	0.2259 ***	0.2259	0.3577 ***	0.3675 ***	0.3971 ***
	(0.057)	(0.119)	(0.074)	(0.069)	(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	-0.5072	-1.4945	-1.6837 *	-2.7059 ***
	(0.579)	(1.064)	(0.919)	(0.877)	(0.590)
$1/SE$	0.1565 ***	0.1565	0.2144 **	0.2279 ***	0.3286 ***
	(0.049)	(0.100)	(0.090)	(0.087)	(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 **	-10.8658	-24.3290 ***	-24.3290 ***	-24.5352 ***
	(4.682)	(9.410)	(4.782)	(8.046)	(5.290)
$1/SE$ (H_0: $\gamma_1 = 0$)	0.1621 ***	0.1621 *	0.1930 ***	0.1930 ***	0.2120 ***
	(0.030)	(0.064)	(0.044)	(0.048)	(0.081)
K	35	35	35	35	35
R^2	0.610	0.610	-	-	-

Notes:

[a] Breusch-Pagan test: $\chi^2 = 11.71$, $p = 0.0003$

[b] Hausman test: $\chi^2 = 0.17$, $p = 0.678$

[a] Breusch-Pagan test: $\chi^2 = 3.27$, $p = 0.035$

[b] Hausman test: $\chi^2 = 1.79$, $p = 0.181$

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.

Source: Authors' estimations

Table 11. Summary of publication selection bias test

	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]
Chinese studies				
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
East European studies				
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)

Notes:

[a] The null hypothesis is rejected when more than three of five models show statistically significant estimates. Otherwise not rejected.

[b] 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.

Source: Authors' estimations

Table 12. Summary of results from meta-analysis

	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

Source: Authors' compilation referring to Table 4 and Table 11