

Board surname sharing and investment efficiency: Evidence from Chinese state-owned enterprises

Baibing Huang¹ | Endong Yang¹ | Yang Zhang^{1,2} 

¹Faculty of Business Administration, University of Macau, Macao, China

²Asia-Pacific Academy of Economics and Management, University of Macau, Macao, China

Correspondence

Yang Zhang, Faculty of Business Administration/Asia-Pacific Academy of Economics and Management, University of Macau, E22-4036, Avenida da Universidade, Taipa, Macao, China.

Email: yzhang@um.edu.mo

Funding information

Asia-Pacific Academy of Economics and Management, University of Macau, Grant/Award Number: APAEM/MEMO/0001/2022; University of Macau, Grant/Award Number: MYRG2020-00220-FBA

[Correction added on 16 August 2022, after first online publication: the authors affiliations have been corrected in this version.]

Abstract

Research Question/Issue: Using data on Chinese listed state-owned enterprises (SOEs), this study examines the impact of board surname sharing on firms' investment efficiency.

Research Findings/Insights: We find that surname sharing among a firm's board of directors is positively associated with its investment efficiency. The main result continues to hold when using alternative measures and accounting for endogeneity. Specifically, we show higher surname homogeneity mitigates agency costs and information asymmetry. Taken together, this evidence supports the view that board surname sharing is conducive to effective communications in the boardroom, thus enhancing board effectiveness and collective decision-making among board members.

Theoretical/Academic Implications: With the theory of social identity, the literature presents two opposing views on the impact of group identity on corporate behaviors. One view focuses on the cost of favoritism bias and coalition while the other view illustrates the benefits of group coordination and communication. We shed light on this debate by documenting that the group identity of surname sharing might increase corporate investment efficiency. To our knowledge, this is the first study providing evidence that social identity benefits board decision-making.

Practitioner/Policy Implications: Our findings have implications for formulating the “best practice” on executive selection and boosting board composition. In addition to structural factors and procedural rules, shareholders and policymakers may need to carefully consider creating the climate of a robust social system of the board to ensure a virtuous cycle of trust and outspokenness, especially when dealing with the problems of passive monitoring.

KEYWORDS

corporate governance, board of directors, investment efficiency, surname sharing

1 | INTRODUCTION

A firm's investment decisions and their outcomes determine the firm's future cash flows and profitability, thus having a profound influence on the firm's growth in the long term. Making optimal investment

decisions, as a result, is very often one of the most important responsibilities of the senior management team. A growing stream of literature has examined the determinants of investment efficiency and ascribes investment distortion to agency problems and information asymmetry (Biddle et al., 2009; Guariglia & Yang, 2016; Jiang

et al., 2018; Richardson, 2006; Stein, 2003). Under these two frictions, managers are likely to invest in self-serving projects, distort investment behaviors, and lead to excessive or less efficient investment (Liu et al., 2015; Rajkovic, 2020). To invest at the optimal level, an environment with information transparency and an effective monitoring mechanism are conducive to achieving investment efficiency (Chen et al., 2017). The board of directors has been one of the most extensively examined governance mechanisms in the corporate governance literature. We contribute to this line of research by providing new evidence for how board members' sharing of surnames influences a firm's investment efficiency.

Extant literature shows that board diversity is a double-edged sword affecting the board's functions and effectiveness, and ultimately, the decision-making to drive corporate performance (Adams & Ferreira, 2009; Farrell & Hersch, 2005; Harjoto et al., 2018). Board diversity enriches the professional backgrounds in the boardroom, providing a diverse pool for knowledge outputs and capabilities. In a diverse team, the information obtained is more comprehensive, improving the board's ability to engage in problem-solving (Gruenfeld et al., 1996; Harjoto et al., 2018; Wittenbaum & Stasser, 1996). However, board diversity may reduce trust, impede interpersonal coordination, and raise conflicts in the boardroom (Giannetti & Zhao, 2019). In this paper, we focus on surname sharing of board members as an aspect of surface-level attributes in board diversity. Surname sharing is a pervasive, easy-to-trace, and visible source of board diversity (Gompers et al., 2016), yet relevant empirical studies have been limited in the literature.

According to Davies (2011), people bearing the same surname have better mutual understanding and trust and would find it easier to act collectively to conform to shared values and norms. Boards with more directors sharing the same surname can strengthen directors' group identity and facilitate cooperation, improve resources and information-sharing, and reduce the cost of coordination in board decision-making (e.g., Gompers et al., 2016; McPherson et al., 2001). Also, sharing a surname improves affinity and fosters personal ties between otherwise unrelated directors, allowing them to feel less distant and communicate better with more generosity and goodwill (Chan, 1997; Charness & Gneezy, 2008). Consequently, it may be more effective for board members sharing the same surnames to discuss firms' objectives and strategies, while having fewer conflicts in the boardroom. Higher communication efficiency among the board members potentially induces more efficient decision-making and reactions in a fast-changing economic environment (Bernile et al., 2018; Gompers et al., 2016; Malenko, 2014), causing timelier and optimal financial decisions, especially for firms operating in a volatile industry (Tan et al., 2021). This points to a potential positive effect of board surname sharing on investment efficiency.

Alternatively, directors' sharing of surnames may lead to high levels of coalition and group favoritism bias, which can be detrimental to the board's monitoring process. Highly coalitional boards may be affected by the proliferation of personal exchanges (Feldman Barrett & Russell, 1998; Forbes & Milliken, 1999). Directors sharing the same surname may integrate themselves into a group

(e.g., Du, 2019), leading to group favoritism bias. Bias occurs when in-group membership is emphasized, while out-group members are treated differently (Tajfel & Turner, 1986). Surname-sharing board members may lose self-thinking when facing group decision-making; they are less likely to challenge other in-group directors who share the same surname and may downplay suggestions or alternative views from out-group directors. As a result, surname sharing among directors could impede productive discussion of different views and independent checks and balances in board decision-making (Tan et al., 2021), resulting in a less effective board. This argument predicts a negative relation between board surname sharing and investment efficiency. As such, the relation between surname sharing and firm investment efficiency is not obvious and therefore remains an empirical question.

In this paper, we investigate the impact of surname sharing among board members on investment efficiency for Chinese state-owned enterprises (SOEs). We focus on SOEs for several reasons. First, SOEs are playing an increasingly important role in both China and the global economy. Attributing to about 25% of the Chinese economy, the SOE sector has grown significantly in China's equity and bond markets, contributing to 40% of the market capitalization and accounting for the majority of total bond issuance.¹ Across the globe, 102 out of Fortune Global 500 corporations were SOEs in 2017 (Lin et al., 2020). Second, capital investment is one of the two primary tasks for SOEs in China (Jiang & Kim, 2020), yet SOEs often suffer from investment distortions (Cong et al., 2019; Liu & Siu, 2011). Third, unlike non-SOEs whose boards often contain family members with the same surnames, SOEs provide a cleaner sample without the confounding effects of relatives' ties in the boardroom,² as it is very unlikely for relatives to serve on the boards of SOEs.

Empirically, we collect surname information about directors from the corporate governance tables for all A-share listed SOEs in the CSMAR database. Then, we construct two variables to measure the degree of board surname sharing following prior literature (Tan et al., 2021): the Herfindahl index (*Surhhi*) and the inverse entropy index (*Surent*). Following Chen et al. (2021), Chen, Hope, et al. (2011), and McNichols and Stubben (2008), we develop a proxy of investment efficiency allowing for different implications for revenue increases versus revenue decreases and form a sample of 8400 firm-year observations over the period from 2003 to 2017.

We find that firms with greater surname homogeneity on the board are associated with higher investment efficiency. The positive impact is statistically and economically significant. Specifically, a one standard deviation increase of *Surhhi* (0.035) enhances investment efficiency by 0.0012, which is about 5% relative to the sample median. Similarly, a one standard deviation increase of *Surent* (0.246) improves investment efficiency by 0.0015, which is approximately 6.4% of the sample median. A set of sensitivity tests confirm the robustness of our main results by excluding the five most common surnames; by adopting an alternative measure of investment efficiency; by focusing on a subsample of nine-director boards; by explicitly controlling for the surname sharing of other senior executives; and by excluding utility companies.

Our results might be due to endogeneity problems such as unobserved factors that are omitted from the regression models but are correlated with both surname sharing and investment efficiency. To alleviate the endogeneity concerns, we employ several methods such as augmenting our baseline model with various diversity measures; using firm fixed effects; using two-stage least squares (2SLS) regressions with two instrumental variables; examining the effects before and after the policy “three majors and one large” (“*san zhong yi da*” in Chinese); and turning to an event study approach to look at board member turnovers, which coincide with a changing level of surname sharing in a difference-in-differences (DID) analysis. Collectively, the results point to a causal impact of board surname sharing on firms' investment efficiency.

To provide further support for our results, we investigate the potential channels through which board surname sharing enhances investment efficiency. Prior studies have shown that the firm's agency problem and information asymmetry are important reasons for inefficient investment decisions (e.g., Biddle et al., 2009; Richardson, 2006; Stein, 2003). We find that board surname sharing is associated with reduced agency costs of executives, mitigated information asymmetry between insiders and outsiders, and better financial reporting quality of the firm. The evidence corroborates our hypothesis that board surname sharing results in a more effective board. Additional cross-sectional tests indicate that the investment efficiency effect of board surname sharing is more pronounced when CEO is also the board chair, when there is a larger divergence between the control rights and the cash flow rights of the controlling shareholder, when there are more board members with a financial background, and when firms operate in more volatile industries. Taken together, the set of evidence supports the view that board surname sharing breaks the silence in the boardroom, facilitates effective communication, and boosts board effectiveness.

This study makes several contributions to the literature. First, it contributes to the literature on the determinants of corporate investment efficiency by identifying board surname sharing as an important factor in alleviating corporate investment distortions (e.g., Berkovitch & Kim, 1990; Chen et al., 2011; McNichols & Stubben, 2008). Second, this study adds to the literature on the economic consequences of board diversity by recognizing surname sharing as a board diversity dimension of congenital factors and explaining how this non-task-related dimension influences corporate behaviors.³

Third, this paper sheds new light on the merits of shared surnames among board members while extant studies have found mostly negative effects of surname sharing. For example, Ahmed (2010) finds that board of directors bonding together causes more misinformed decisions. Relatedly, surname sharing may hinder professional judgments, resulting in the board chair failing to limit the CEO's self-serving behaviors and criticizing the CEO only slightly due to empathy and favoritism (Zhang et al., 2020) and an external auditor failing to detect the misstatement of financial reports (Du, 2019). Our paper is closely related to Tan et al. (2021) that find board surname sharing impairs firm value through weakened corporate governance using a sample of both SOEs and non-SOEs in China. The seeming

inconsistency stems from the use of different sample firms and the choice of outcome variables.⁴

The remainder of the paper proceeds as follows. Section 2 introduces the background and develops the hypotheses. Section 3 describes the data and methodology. Section 4 presents the main results and robustness tests. Section 5 addresses the issue of endogeneity, investigates the potential channels, and reports cross-sectional tests. Section 6 concludes.

2 | BACKGROUND AND HYPOTHESIS DEVELOPMENT

2.1 | Background

2.1.1 | What is in a Chinese surname?

China provides a unique setting to examine the investment efficiency impact of surname sharing. According to Chinese historical records and the emergence of oracle-bone inscriptions, Chinese surnames can be traced back to Emperor Fuxi (Danesi, 2007). Surnames in China have been used as a proxy for genetic relatedness, and people with the same surname very often consider themselves to have a common ancestor (Waters, 1989).⁵ A Chinese individual's surname is usually his or her father's surname, which is passed on to the next generations, similar to a genetic locus on the Y chromosome (Manni et al., 2008). When a person inherits his or her father's surname, the individual shoulders the responsibility of honoring his or her ancestors (“*guang zong yao zu*” in Chinese).

Chinese rarely change their surnames, and in modern China, women keep their surnames even after getting married. Thus, the surname culture in China has taken deep root in an individual's mind, and there is no difference in surname identity between men and women. As China is a non-immigrant country, there are few surnames from other countries. It excludes the effect of other national cultures, which makes the surname identity more persuasive compared to other country contexts. Moreover, surnames in China are more concentrated and more individuals share the same surname, enabling us to have larger variations in director surname sharing than using data from other markets.⁶

The importance of surname and its influence on human behaviors have long been established in the psychology/social science literature.⁷ Surnames develop into an indispensable social tie to create group identification and have traditionally been regarded as a certain symbol to distinguish different clans; a shared surname is an important conduit by which people reduce social distance and enhance social identity (Charness & Gneezy, 2008). It is embedded in individual life to increase mutual identity and interpersonal contact as a basic social tie (Peng, 2004). Thus, individuals with the same surname believe in an ancestral relationship more, and interpersonal trust can be formed in a group of individuals with the same surnames. As family concepts and Confucian culture prevail in China, the relationship-based (or tie-based) context such as surname sharing is even more

recognized than the rule-based context (Hui & Graen, 1997; Li & Filer, 2007). The surname sharing helps reinforce the bond of a group member and forges solidarity, and increasingly more empirical evidence has emerged in literature, especially in China's context.

For instance, Li et al. (2021) find, when facing the choice of selecting partners in the supply chain, the firm located in regions with a stronger clan culture is more inclined to choose same-surname partners by relying on culture-enhanced informal contracts. On the corporate finance repercussion of surname sharing of executives, Xu et al. (2022) document that listed companies whose executives have the same surname as their suppliers' CEOs will get more trade credit than the listed companies that do not. Du (2019) finds that auditor-CEO surname sharing motivates signing auditors and the CEO to classify themselves as the same group and "in-group favoritism" elicits auditor-CEO collusion, impairs auditor independence, and eventually increases the risk of financial misstatement. Zhang et al. (2020) find that surname ties between the CEO and directors lead to biases in directors' evaluation and monitoring of the CEO's self-serving activities, thereby increasing agency costs. Tan et al. (2021) use surname sharing as a measure of social ties and find directors' surname sharing lowers firm value.

2.1.2 | The Board in China's SOEs

Boards of directors in Chinese SOEs exercise significant influence over enterprise policies and governance. A significant number of board members in an SOE are also members of the SOE's Communist Party committee and they can shape corporate behaviors through their agenda-setting power (Leutert, 2020). The SOE Party committee and the important board members have the authority to discuss "major" decisions or corporate policies.⁸ The board could also exercise authority through its powers to convene general shareholders' meetings, implement their resolutions, approve major investments and company budgets, decide on the information to be publicly disclosed to shareholders, and set up special committees to address strategic and audit matters. The Chinese law mandates that no less than one-third of listed companies' boards should be independent directors and SOEs typically have a lower proportion of independent directors than non-SOEs. The effectiveness of non-executive directors in Chinese SOEs still causes many concerns (Kakabadse et al., 2010), due to the concentrated ownership structure, unique business culture, and intervention of controlling shareholders.

China's SOEs are ultimately controlled by central or local governments, and as a result, the management of the firms including the board members are often appointed by the government with various administrative ranks (Xin et al., 2019). According to Lin (2013), a corporate manager of a given rank typically holds a position of equivalent rank in the Party system. Thus, in group decision-making in the boardroom, the hierarchy is inevitably based on power, status, or explicit or implicit characteristics of the two (Blader & Chen, 2012; Magee & Galinsky, 2008). Higher-ranking individuals in the political hierarchy usually control more resources, have stronger influences, and take lead in communications and discussions. Conversely, lower-ranking board

members in the hierarchy tend to conform to the decisions passively even though they disagree (Gould, 2002; Jetten et al., 2006). They are more likely to maintain defensive silence to withhold ideas, information, and opinions about organizational problems (Dyne et al., 2003), actively avoid confrontation, and passively execute obligations (Dyne et al., 2003; Farh et al., 2006; Schlenker & Weigold, 1989).

When major issues are discussed in public, individuals tend not to take the initiative to point out problems in organizational management and business process and respond with a simple echo when being consulted (Li & Sun, 2015). The political rank system in Chinese SOEs' boards adds another level of complexity to achieving effective communication. Keeping silence may lead to less effective board communication; problems may not be identified and solved in a timely manner, generating a negative impact on the board functions in such a passive environment.

2.2 | Hypothesis development

2.2.1 | Social identity theory and surname sharing

Social identity is a person's sense of whom he or she is based on his or her group membership(s). Tajfel (1982) points out that groups such as social class, family, and football team, to which people belong are an important source of pride and self-esteem. Groups give us a sense of social identity: a sense of belonging to the social world. As discussed above, surnames help people to categorize themselves into a group (e.g., Du, 2019).⁹ With a group identity, individuals recognize that they belong to a specific social group, bringing them emotional and value significance as a member of the group on a psychological basis. Individuals not only identify themselves as insiders of the group but also identify whether others are categorized in the same group. Based on social identity theory, corporate governance literature has explored group decision-making and presented two opposing views on the impact of group identity on corporate behaviors.

One view focuses on the benefits of group coordination and communication. According to social identity theory, an individual has biological attributes and social attributes at the same time. This view emphasizes the attribute of social men, which gives them the ability to promote coordination among themselves. Group coordination in a social group is a collaborative process in which decision-makers provide their resources and respond to others' thoughts as group members. When individuals integrate into a group and participate in collective management under shared interests, the strong group identity can facilitate cooperation, improve resource- and information-sharing, and reduce the cost of coordination (e.g., Akerlof & Kranton, 2000, 2005; Ashforth & Mael, 1989; Chen & Li, 2009; Goette et al., 2006; Towry, 2003).

Related, group identity generates a higher degree of trust and reciprocity and a stronger sense of friendship and loyalty. Gibbons (2004) finds that social ties allow socially connected individuals to better communicate. Gompers et al. (2016) document that social similarity in a shared group breeds connection, facilitates information

sharing, and creates an efficient decision-making process. As a sign and symbol of kinship, surname ties bring people together with a sense of belonging (Greif & Tabellini, 2017). People with the same surname are likely to have common ancestors and a shared surname plays an irreplaceable role in individual psychological categorization and identification of others, motivating them to categorize people into the same social groups, strengthening the cohesion of people, promoting information exchange, and facilitating resources sharing among group members (Du, 2019).

The other view highlights the cost of favoritism bias. When an individual integrates herself into a group and faces group decision-making, she is likely to lose self-thinking, and favor and conform to in-group thoughts, which eventually lead to biased decision-making. Group favoritism neglects or does not fully consider the cost of favored decisions and suggestions from specialists outside the group. Bias occurs when in-group membership is emphasized, while out-group members are treated differently (Tajfel & Turner, 1986). Extant studies on corporate governance document that group identity caused by homophilic relationships (e.g., education background ties, and hometown ties) affects the independence of decision-makers, generates loose monitoring for opportunistic behaviors of the agents, and results in the cost of “friendship” (e.g., Du, 2019; Hwang & Kim, 2009; Tan et al., 2021; Zhang et al., 2020).

2.2.2 | Board surname sharing and investment efficiency

According to the theory of investment, firms seek financing for positive net present value projects and make investments to the optimal level of equality between marginal benefits and marginal costs (Modigliani & Miller, 1958). In the real world, firms may make suboptimal investments, and investment inefficiency is recognized by over- or under-investment (Chen et al., 2017). Investment efficiency is affected by the performance of managers or decision-makers in attenuating the agency problems and in overcoming asymmetric information. In Chinese SOEs, capital investment is a primary task and severe investment distortions are documented, especially overinvestment (Cong et al., 2019; Liu & Siu, 2011). Corporate boards are workgroups with monitoring and advising functions in corporate policies such as investment strategies and oversights. We consider the whole board as a group and focus on how surname sharing among board members affects the overall board effectiveness because SOEs are under China's collective leadership system that features group decision-making (e.g., Liang et al., 2021; McGregor, 2010).

In a board room, board decisions depend on directors' efforts in communicating their information to others (Malenko, 2014). Based on social identity theory, surname sharing improves affinity, fosters personal ties between unrelated persons, and helps people build trust and communicate better with others to maintain mutual interests with more generosity and goodwill (Ashforth & Mael, 1989; Brewer, 1979; Tajfel, 1982). Accordingly, surname sharing among directors can increase their group identity and facilitate cooperation, improve

resources and information-sharing, and reduce the cost of coordination, thus leading to a more effective decision-making process (e.g., Gompers et al., 2016; McPherson et al., 2001). Whether participants act passively or actively in a group impacts the decision quality. Good coordination and communication of the board potentially induce more efficient decision-making and reactions in a fast-changing economic environment, causing timelier and better financial decisions.

Moreover, driven by a sense of belonging to a group, directors sharing a surname are inclined to act collectively to conform to shared norms, reduce conflicts, and help resolve divergent opinions, thus facilitating a more effective monitoring and advisory process (Van Peteghem et al., 2018). When social ties are in place based on innate characteristics of surname, board members may be more willing to voice their concerns and communicate more equally in top-down relationships. Thus, board members with shared surnames increase their citizenship behaviors, improve information flow, and make collective decisions in a timelier and more productive way. In Chinese SOEs where investment decisions are fundamentally important, board surname sharing allows members to better utilize their underlying cognitive resources to process complex information, to strengthen their roles as monitors and advisors, thus improving board efficacy and ultimately being conducive to efficient investment decisions.

On the other hand, favoritism bias brought by surname sharing may inhibit board effectiveness, influence the board members' monitoring, and raise the probability of bias in firm policies. Surname sharing may lead to a proliferation of personal exchanges loaded with positive affections and emotions (Feldman Barrett & Russell, 1998; Forbes & Milliken, 1999). When board members bond with each other due to surname ties and become friendly allies, they may be less likely to confront or challenge each other and underestimate the cost of favored decisions, which increases the likelihood of affinity bias in the board's decision-making and compromises board monitoring. Besides, the group formed by directors with the same surnames may treat other out-group members differently and downplay the suggestions and views from out-group members, impairing the board's function as a whole group. Consequently, board surname sharing could impede the productive discussion of different views and independent checks and balances in board decision-making (Tan et al., 2021). When board effectiveness is weakened, and managerial agency problems are exacerbated, there could be a detrimental effect of board surname sharing on firms' investment efficiency.

Therefore, it is ultimately an empirical question whether surname sharing among board members improves or impedes the firm's investment efficiency. In the case where the positive influence of improved coordination and communication in group decision-making outweighs the negative effect of favoritism bias among board members, board surname sharing improves board effectiveness as a critical governance mechanism and eventually leads to higher investment efficiency in Chinese SOEs. Therefore, we posit the hypothesis in the alternative form as below:

Hypothesis 1. *Board surname sharing is positively associated with the firm's investment efficiency.*

3 | DATA AND METHODOLOGY

3.1 | Sample

The initial sample includes all Chinese listed SOEs. Financial information, controller information, and board information are from the CSMAR database. All financial firms are excluded because of their different financial statement structures. Firms with special treatment (ST or *ST) are excluded because financial problems and restrictions may drive firm investment performance. Observations with missing values on the key variables in the baseline model are also excluded. As a result, the final sample includes 8400 firm-year observations over the period from 2003 to 2017 for baseline regressions, where the sample is determined by the availability of data and captures the period post a major SOE reform in 2003.¹⁰ All continuous variables are winsorized at the 1% and 99% percentiles to alleviate the effects of outliers. All variables are defined in Table A1.

3.2 | Surname-sharing measures

In this study, following Tan et al. (2021), we develop two proxies to measure board surname sharing: the surname Herfindahl index (*Surhhi*) and the inverse surname entropy index (*Surent*). The surname Herfindahl index (*Surhhi*) is the summation of the square of each surname's percentage among board members, computed as $\sum_1^n p_i^2$, where p_i is the percentage of board members with the same surname i . A higher *Surhhi* means a higher level of board surname sharing. Our second measure, the inverse surname entropy index (*Surent*), is computed as $-\sum_1^n p_i \ln(1/p_i)$, where p_i is the percentage of board members with the same surname i . A higher value also indicates a higher level of surname sharing among board members.

3.3 | Investment efficiency measure

The proxy for investment efficiency is computed as the absolute value of deviation from the expected investment level of each firm multiplied by negative one. Following Chen et al. (2021), Chen et al. (2011), and McNichols and Stubben (2008), the investment efficiency proxy is calculated as follows:

$$Investment_{i,t} = \alpha_0 + \alpha_1 NegRevGrowth_{i,t-1} + \alpha_2 RevGrowth_{i,t-1} + \alpha_3 NegRevGrowth_{i,t-1} \times RevGrowth_{i,t-1} + \varepsilon_{i,t}, \quad (1)$$

where *Investment* is the firm-year level investment and computed as the net capital expenditure scaled by lagged total assets; *NegRevGrowth* is a dummy variable that equals one for negative annual revenue growth, and zero otherwise; and *RevGrowth* is the annual revenue growth rate.

Investment efficiency is then measured using the residual from Equation 1. Positive residuals indicate over-investment. Conversely, negative residuals show under-investment. The absolute value of

residual measures the overall investment efficiency. To facilitate interpretation, we multiply the absolute value by negative one to obtain *Investment Efficiency* so that a higher value means greater efficiency.

3.4 | Empirical model

To test the effect of board surname sharing on corporate investment efficiency, we employ the following multiple regression model:

$$Investment\ Efficiency_{i,t} = \alpha + \beta SurSharing_{i,t} + \gamma Control + \varepsilon_{i,t}, \quad (2)$$

where *Investment Efficiency* is the investment efficiency defined in Section 3.3; *SurSharing* is either *Surhhi* or *Surent*, to measure the level of board director surname sharing defined in Section 3.2. *Controls* represent a set of firm-level control variables following previous research (Biddle et al., 2009; Lara et al., 2016). In particular, *Size* is the size of the firm and computed as the natural logarithm of total assets; *MTB* is the market to book ratio and computed as the market value of the total equity scaled by the book value of the total equity; *Leverage* is the financial gearing ratio and computed as the total liabilities scaled by total assets; *ROA* is the return on assets and computed as the net income scaled by total assets; *CFOsales* is computed as the net operation cashflows scaled by the total sales; *Tangibility* is computed as the net plant, property, and equipment (PPE) scaled by total assets; *Slack* is computed as the cash holding scaled by net PPE; and *Firm age* is the natural logarithm of one plus firm age where firm age is measured as the number of years since the firm was established. All these control variables are lagged by 1 year in the regression model.

In addition, we control for the potential effects of board characteristics other than shared surnames on corporate investment decisions (Harjoto et al., 2018). *Duality* is an indicator variable to capture whether the CEO and the board chair are the same person. *Boardsize* is the board size and computed as the total number of board directors. *Independence* is a board independence measure and computed as the total number of independent directors scaled by board size. To explicitly single out the effect of board surname sharing, we control for other factors of board similarity. Following Bernile et al. (2018), we constructed a comprehensive measure gauging board diversity accounting for gender diversity, age diversity, tenure diversity, diversity in directors' backgrounds, and concurrent positions holding. Industry, year, and province fixed effects are included to capture the industry-, year-, and province-specific effects. Detailed variable definitions can be found in Table A1.

4 | RESULTS

4.1 | Summary statistics

Table 1 reports the results of the summary statistics of the sample. The dependent variable is *Investment Efficiency*, whose mean and

TABLE 1 Summary statistics

Variables	N	Mean	SD	P1	P50	P99
<i>Investment Efficiency</i>	8400	−0.030	0.029	−0.144	−0.023	0.000
<i>Investment Efficiency (Biddle 2009)</i>	8400	−0.032	0.031	−0.152	−0.025	0.000
<i>Surhhi</i>	8400	0.124	0.035	0.067	0.117	0.224
<i>Surent</i>	8400	−2.172	0.246	−2.752	−2.197	−1.561
<i>Size</i>	8400	22.271	1.345	19.992	22.054	26.441
<i>MTB</i>	8400	1.482	1.214	0.187	1.119	6.580
<i>Leverage</i>	8400	0.491	0.184	0.083	0.502	0.848
<i>ROA</i>	8400	0.038	0.041	−0.090	0.032	0.177
<i>CFOsales</i>	8400	0.112	0.188	−0.524	0.082	0.780
<i>Tangibility</i>	8400	0.295	0.194	0.004	0.261	0.807
<i>Slack</i>	8400	2.057	5.851	0.025	0.567	46.433
<i>Firm age</i>	8400	2.603	0.404	1.609	2.639	3.367
<i>Duality</i>	8400	0.181	0.385	0	0	1
<i>Boardsize</i>	8400	9.591	2.020	6	9	15
<i>Independence</i>	8400	0.361	0.054	0.250	0.333	0.571
<i>Diversity</i>	8400	0.141	1.984	−3.983	0.028	5.040
<i>RelationHHI</i>	8400	1.269	0.183	0.864	1.278	1.728
<i>TaskHHI</i>	8400	2.159	0.329	1.494	2.148	3.000
<i>Female</i>	8400	0.100	0.101	0.000	0.091	0.400
<i>Std. age</i>	8400	7.407	2.127	3.022	7.281	12.751
<i>Std. tenure</i>	8400	2.161	1.174	0.000	2.089	5.232
<i>Concurrent</i>	8400	0.122	0.145	0.000	0.091	0.571
<i>Financial</i>	8400	0.173	0.173	0.000	0.111	0.714
<i>Surhhi_other</i>	8400	0.137	0.053	0.064	0.125	0.333
<i>Surent_other</i>	8400	−2.090	0.322	−2.799	−2.095	−1.242
<i>Isonymy</i>	8373	0.037	0.009	0.024	0.039	0.058
<i>Province hhi mean</i>	8400	0.123	0.005	0.108	0.123	0.137
<i>Province ent mean</i>	8400	−2.173	0.040	−2.320	−2.176	−2.082
<i>Cash holding</i>	8400	0.188	0.167	0.014	0.149	0.730
<i>Selling expense</i>	8400	0.052	0.060	0.000	0.034	0.327
<i>Forecast accuracy</i>	7361	−2.656	3.902	−19.683	−1.391	−0.071
<i>Analyst coverage</i>	8400	0.527	0.499	0	1	1
<i>Abs EM</i>	8400	0.075	0.107	0.001	0.051	0.379
<i>Unqualified opinion</i>	8321	0.988	0.111	0	1	1
<i>IC deficiency</i>	4470	0.007	0.085	0	0	0
<i>Divergence</i>	8400	0.290	0.454	0	0	1
<i>High volatility</i>	8400	0.418	0.493	0	0	1

Note: This table presents the summary statistics. All continuous variables are winsorized at the 1% and 99% percentiles to alleviate the effects of outliers. All variables are defined in Table A1.

median are −0.030 and −0.023, respectively. The main independent variables are *Surhhi* and *Surent*, with a mean of 0.124 and −2.172. This result also shows that board surname sharing is present in Chinese SOEs, as 0.124 is larger than 0.111, the value of *Surhhi* when all board members have different surnames for an average nine-director board.

For the control variables, on average, the firm size is 22.27, the market to book ratio is 1.482, the financial leverage is 49.1%, the return on assets is 3.80%, the operating cash flow is 11.20% of total sales, net PPE is 29.5% of total assets, cash is 2.06 of net PPE, and the average logarithm of one plus the firm age is 2.603, suggesting the average firm age is around 12.5 years. The board-level control

TABLE 2 Board surname sharing and investment efficiency

Dep. var.	Investment Efficiency	
	(1)	(2)
<i>Surhhi</i>	0.033** (0.015)	
<i>Surent</i>		0.006** (0.003)
<i>Size</i>	0.001** (0.001)	0.001** (0.001)
<i>MTB</i>	0.000 (0.001)	0.000 (0.001)
<i>Leverage</i>	0.002 (0.004)	0.002 (0.004)
<i>ROA</i>	-0.062*** (0.014)	-0.062*** (0.014)
<i>CFOsales</i>	-0.012*** (0.003)	-0.012*** (0.003)
<i>Tangibility</i>	-0.006* (0.004)	-0.006* (0.004)
<i>Slack</i>	-0.000 (0.000)	-0.000 (0.000)
<i>Firm age</i>	0.004** (0.002)	0.004** (0.002)
<i>Duality</i>	-0.004*** (0.001)	-0.004*** (0.001)
<i>Boardsize</i>	-0.000 (0.000)	0.000 (0.000)
<i>Independence</i>	0.008 (0.007)	0.008 (0.007)
<i>Diversity</i>	0.000 (0.000)	0.000 (0.000)
Constant	-0.069*** (0.013)	-0.053*** (0.013)
Industry FE	Yes	Yes
Year FE	Yes	Yes
Province FE	Yes	Yes
Observations	8400	8400
Adj. R ²	0.111	0.111

Note: This table presents the full sample OLS regression results on the effect of board surname sharing on corporate investment efficiency. The dependent variable is *Investment Efficiency*, computed as the absolute value of deviation from the expected investment level of each firm multiplied by negative one, following Chen et al. (2021), Chen et al. (2011), and McNichols and Stubben (2008). The main independent variable in column (1) is the surname Herfindahl index, *Surhhi*, and the main independent variable in column (2) is the inverse surname Entropy index, *Surent*. All variables are defined in Table A1. All continuous variables are winsorized at the 1% and 99% percentiles to alleviate the effects of outliers. Industry, year, and province fixed effects are included. Heteroscedasticity robust standard errors clustered by firm are reported in parentheses.

***Statistically significant at the 1% level.

**Statistically significant at the 5% level.

*Statistically significant at the 10% level.

variables show that, on average, there are nine directors on the board, and 18.1% of the sample's CEOs and chairmen are the same person.

4.2 | Main results and robustness tests

Table 2 reports the baseline regression results for the effects of board surname sharing on investment efficiency. Column (1) shows the regression result for *Surhhi*, and column (2) shows the regression result for *Surent*. The coefficients of *Surhhi* and *Surent* are 0.033 and 0.006, both significant at the 5% levels, suggesting that investment efficiency is improved with a higher level of board surname sharing. In terms of economic significance, a one standard deviation increase of *Surhhi* (0.035) enhances investment efficiency by 0.0012, which is about 5% relative to the sample median. Similarly, a one standard deviation increase of *Surent* (0.246) improves investment efficiency by 0.0015, which is approximately 6.4% of the sample median. The results are consistent with our hypothesis that board surname sharing improves firms' investment efficiency.

The signs of coefficients for the control variables meet our expectations. Specifically, the coefficient of *Size* is significantly positive, indicating that large firms perform better investment management. Better profitability and operation cashflows make the management team more confident about company development and may cause more inefficient investment decisions. Higher tangible assets are associated with lower investment efficiency. If the CEO and the chairman are the same person, personal opinions may cause more inefficient investment. Our diversity measure is positive but insignificant.

Results in Table 2 demonstrate the beneficial effect of board surname sharing on investment efficiency. A close study to ours is Tan et al. (2021), which documents a negative influence of surname sharing on firm values in a sample of both SOEs and non-SOEs. In unreported tests, we regress Tobin's Q on surname sharing for SOEs and non-SOEs separately and find that the negative value effect of surname sharing is primarily driven by non-SOEs, most of which are family firms with a much higher level of surname sharing than SOEs.

Next, we perform several robustness tests and present the results in Table 3. First, some surnames in China are more common than others and the five most common surnames are shared by more than 30% of the population.¹¹ According to social psychology theory, the role of surname in establishing a network and affinity hinges on its rarity (Jacobs, 1979). Directors with very common surnames are more accustomed to meeting people with the same name and the salience of sharing a surname is likely to be lower. In comparison, directors sharing a relatively rare surname are more likely to mutually connect. We hence posit the aforementioned phenomenon to be more pronounced for sharing of less common surnames.

Results are reported in Panel A of Table 3. For a clearer comparison, we focus on boards with either sharing of rare surnames or sharing of common surnames but not both. We define common surnames as the five most popular surnames (i.e., Wang, Li, Zhang, Liu, and

TABLE 3 Robustness tests

Panel A: Rare and common surnames							
Dep. var.	Investment Efficiency						
	(1)	(2)	(3)	(4)	(5)	(6)	
Rare share	0.011** (0.005)		0.011** (0.005)				
Common share		-0.003 (0.004)	0.000 (0.005)				
Drare share				0.001** (0.001)			0.001* (0.001)
Dcommon share					-0.001 (0.001)		-0.000 (0.001)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8064	8064	8064	8064	8064	8064	8064
Adj. R ²	0.121	0.120	0.121	0.121	0.121	0.121	0.122
Panel B: Alternative measure of investment efficiency							
Dep. var.	Investment Efficiency (Biddle 2009)						
	(1)	(2)					
Surhhi	0.026* (0.015)						
Surent		0.005* (0.003)					
Controls	Yes	Yes					
Industry FE	Yes	Yes					
Year FE	Yes	Yes					
Province FE	Yes	Yes					
Observations	8400	8400					
Adj. R ²	0.117	0.118					
Panel C: Firms with nine-member board							
Dep. var.	Investment Efficiency						
	(1)	(2)					
Surhhi	0.041** (0.018)						
Surent		0.006** (0.003)					
Controls	Yes	Yes					
Industry FE	Yes	Yes					
Year FE	Yes	Yes					
Province FE	Yes	Yes					
Observations	3948	3948					
Adj. R ²	0.123	0.123					
Panel D: Surname sharing of other executives							
Dep. var.	Investment Efficiency						
	(1)	(2)					
Surhhi	0.033** (0.015)						

(Continues)

TABLE 3 (Continued)

Panel D: Surname sharing of other executives		
Dep. var.	Investment Efficiency	
	(1)	(2)
<i>Surent</i>		0.006** (0.003)
<i>Surhhi_other</i>	0.007 (0.008)	
<i>Surent_other</i>		0.001 (0.001)
Controls	Yes	Yes
Industry FE	Yes	Yes
Year FE	Yes	Yes
Province FE	Yes	Yes
Observations	8400	8400
Adj. R^2	0.101	0.101
Panel E: Exclude utility firms		
Dep. var.	Investment Efficiency	
	(1)	(2)
<i>Surhhi</i>	0.039*** (0.015)	
<i>Surent</i>		0.007*** (0.003)
Controls	Yes	Yes
Industry FE	Yes	Yes
Year FE	Yes	Yes
Province FE	Yes	Yes
Observations	6991	6991
Adj. R^2	0.097	0.098

Note: This table presents results for robustness tests. The dependent variable is *Investment Efficiency* in all panels except in Panel B where we use an alternative measure of investment efficiency *Investment Efficiency* (Biddle 2009). *Surhhi* and *Surent* is the surname Herfindahl index and the inverse surname entropy index, respectively. Panel A shows the result of rare surnames and common surnames sharing. *Rare share* (*Common share*) is the surname Herfindahl index for sharing of rare (common) surnames among the board members. *Drare share* (*DCommon share*) is a dummy variable that equals one if there exists sharing of rare (common) surnames among the board members and zero otherwise. Panel B presents the results using the alternative investment efficiency measure following Biddle et al. (2009) model. *Investment Efficiency* (Biddle 2009) is the absolute value of the residual from the following equation multiplied by negative one. $Investment_{i,t} = \delta_0 + \delta_1 RevGrowth_{i,t-1} + \varepsilon_{i,t}$, where *Investment* is the firm-year level investment and computed as the net capital expenditure scaled by lagged total assets and *RevGrowth* is the annual revenue growth rate. Panel C reports the results using the subsample with nine-member boards. Panel D presents the results with an additional control variable capturing the surname sharing of executives other than directors. *Surhhi_other* (*Surent_other*) is other executives' surnames Herfindahl (inverse Entropy) index. Panel E shows the result of the subsample excluding utility firms. The same set of control variables as in Table 2 are included but the coefficients are not tabulated for brevity. All variables are defined in Table A1. All continuous variables are winsorized at the 1% and 99% percentiles to alleviate the effects of outliers. Industry, year, and province fixed effects are included. Heteroscedasticity robust standard errors clustered by firm are in parentheses.

***Statistically significant at the 1% level.

**Statistically significant at the 5% level.

*Statistically significant at the 10% level.

Chen) and classify the remaining surnames as rare surnames.¹² We thus construct two continuous HHI measures, *Rare share* and *Common share*, to capture the degree of sharing for rare surnames and common surnames, separately. Further, *Drare share* is a dummy variable that equals one if a board has at least two directors who share a rare surname and zero otherwise. *Dcommon share* is a dummy variable that equals one if there are common surnames being shared among board members and zero otherwise. Column (1) shows the coefficient of

Rare share is positive and significant at the 5% significance level, while column (2) shows the coefficient of *Common share* is negative and insignificant. When including both measures in column (3), the coefficient of *Rare share* continues to be positive and significant, suggesting the beneficial influence of surname sharing on investment efficiency is largely driven by the sharing of rare surnames. We find similar results when we use dummy variables to capture sharing of rare surnames and common surnames, as shown in columns (4)–(6). This is

consistent with our expectation that sharing of less common surnames among directors tends to forge stronger connections conducive to effective decision-making.

In addition to the measure of investment efficiency in our baseline model, we adopt an alternative measure of investment efficiency, which is the deviation from the expected investment level of each firm calculated by the Biddle et al. (2009) model. Our findings remain unchanged as shown in Panel B of Table 3. The coefficients of *Surhhi* and *Surent* are 0.026 and 0.005, both significant at the 10% level, suggesting that investment efficiency is improved with a higher level of board surname sharing. In terms of economic significance, a one standard deviation increase of *Surhhi* (0.035) enhances investment efficiency by 0.0009, which is about 3.6% relative to the sample median. Similarly, a one standard deviation increase of *Surent* (0.246) improves the investment efficiency by 0.0012, which is approximately 4.9% of the sample median. The results are consistent with our baseline model.

Third, board size is highly correlated with our measures of surname sharing, and specifically, smaller boards tend to have a relatively higher value of surname sharing in the sample by probability. To rule out the board size effect, we focus on a subsample of firms with nine-director boards because it is the most common composition in Chinese listed firms. We repeat the regressions in Table 2 for this subsample and report the results in Panel C of Table 3. There are 3948 observations for firms with nine-director boards in the subsample analysis, accounting for 47% of the full sample. We find that the significantly positive effect of surname sharing on investment efficiency still holds with a similar magnitude, indicating that the effect of board surname sharing is unlikely to be driven by board size.

Besides, our results may be driven by the surname sharing among senior executives rather than board members as the executives are managing the day-to-day operations. To mitigate such concern, we explicitly control for executives' surname sharing by including an additional variable capturing surname sharing among executives other than the board of directors. We construct the surname sharing proxies for non-director executives using the same method for the board of directors. Panel D of Table 3 shows the regression results. The coefficients for surname sharing proxies for non-director executives (i.e., *Surhhi_other* and *Surent_other*) are insignificant in both columns, while our board surname sharing measures are still significantly positive at the 5% level. This result supports our finding that board surname sharing plays a key role in affecting firms' investment efficiency.¹³

As SOEs in the utility industry generally have different structures in financial statements, we further test a subsample by excluding utility companies and report the results in Panel E of Table 3. Following Schlingemann and Stulz (2022), we define utility firms as firms in the sectors of transportation and public utilities (2-digit sic code 40–49). The number of observations is reduced to 6991. The estimated effect of surname sharing on investment efficiency is largely the same as our baseline model with *Surhhi* and *Surent* both being significant at the 1% significance level in explaining corporate investment efficiency.

5 | FURTHER ANALYSIS

5.1 | Endogeneity

While we have established a robust and positive relation between board surname sharing and firms' investment efficiency, our results may still suffer from endogeneity problems such as omitted variables. In this section, we provide several tests to address this concern by adding more control variables on diversity, testing firm fixed effects, adopting two-stage least squares (2SLS) regressions using two instrumental variables (IV), examining the effects before and after the policy “three majors and one large” (“*san zhong yi da*” in Chinese), and lastly turning to an event study approach in a difference-in-differences (DID) setting to look at board member turnovers coinciding with a changing level of surname sharing.

As the effect of our key construct of board surname commonality might be potentially confounded by various measures of board similarity, we augment our baseline model with various measures of board diversity to see if the results are robust to controlling for more diversity factors. We first disaggregate our diversity measure and explicitly control for each dimension of diversity in gender, age, tenure, financial background, and concurrent positions holding. Results presented in Panel A of Table 4 show our constructs of surname sharing, *Surhhi* and *Surent*, are positive and significant in explaining investment efficiency after controlling for various dimensions of board diversity. In columns (1)–(10), one diversity measure is added at one time. The positive and significant coefficients for board surname sharing measures suggest that our results are qualitatively unchanged. In columns (11)–(12), we include all of the diversity measures in one regression and continue to observe a robust and positive relation between board surname sharing and investment efficiency. Further, following Bernile et al. (2018), Harjoto et al. (2018), and McGrath et al. (1995), we group board diversity into two broad categories: relation-oriented dimension (i.e., gender, race, and age) and task-oriented dimension (i.e., tenure and expertise). *RelationHHI* is our measure of relation-oriented diversity attributes, defined as the sum of the Herfindahl indices of director gender and age. *TaskHHI* is our measure of task-oriented diversity attributes, defined as the sum of the Herfindahl indices of director tenure, director's concurrent status, and financial experience.¹⁴ Columns (13) and (14) show that surname sharing measures load positively and significantly in the investment efficiency equation after controlling for relation-oriented and task-oriented diversity attributes.

Next, we repeat the baseline regression by replacing province fixed effects with firm fixed effects to control for any unobservable time-invariant firm characteristics that may drive our results. The results are reported in Panel B of Table 4. Consistent with our baseline results, the coefficients of *Surhhi* and *Surent* are both positive and significant, and the magnitudes do not change much compared to the baseline model. This finding suggests that our results are not driven by potentially omitted time-invariant firm characteristics.

Further, we employ the IV strategy to estimate a 2SLS regression to deal with the possible existence of time-varying omitted variables

TABLE 4 Tests on endogeneity

Panel A: Control for additional board diversity measures														
Dep. var.	Investment Efficiency													
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Surhhi	0.034** (0.015)		0.033** (0.015)	0.033** (0.015)	0.033** (0.015)	0.032** (0.015)	0.032** (0.015)	0.035** (0.015)	0.035** (0.015)	0.035** (0.015)	0.035** (0.015)	0.035** (0.015)	0.034** (0.015)	0.034** (0.015)
Surent	0.006** (0.003)	0.006** (0.003)	0.006** (0.003)	0.006** (0.003)	0.006** (0.003)	0.006** (0.003)	0.006** (0.003)	0.007** (0.003)	0.007** (0.003)	0.007** (0.003)	0.007** (0.003)	0.007** (0.003)	0.007** (0.003)	0.007** (0.003)
Female	-0.006 (0.005)	-0.006 (0.005)									-0.007 (0.005)	-0.007 (0.005)		
Std. age			-0.000 (0.000)	-0.000 (0.000)							-0.000 (0.000)	-0.000 (0.000)		
Std. tenure					0.001*** (0.000)	0.001*** (0.000)					0.001*** (0.000)	0.001*** (0.000)		
Concurrent							0.005* (0.003)	0.005* (0.003)			0.004 (0.003)	0.004 (0.003)		
Financial									0.007** (0.003)	0.007** (0.003)	0.007** (0.003)	0.007** (0.003)		
RelationHHI													0.003 (0.002)	0.003 (0.002)
TaskHHI													-0.003** (0.001)	-0.003** (0.001)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry, year, province FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8400	8400	8400	8400	8400	8400	8400	8400	8400	8400	8400	8400	8400	8400
Adj. R ²	0.111	0.111	0.111	0.111	0.112	0.112	0.111	0.111	0.112	0.112	0.114	0.114	0.111	0.111

Panel B: Firm fixed effects	
Investment Efficiency	
Dep. var.	(1)
Surhhi	0.034* (0.018)
Surent	0.007** (0.003)
Controls	Yes
Firm FE	Yes
Year FE	Yes
Observations	8400
Adj. R ²	0.219

TABLE 4 (Continued)

Dep. var.	Panel C: Instrumental variables			
	1st Surghi (1)	2nd Investment Efficiency (2)	1st Surent (3)	2nd Investment Efficiency (4)
Isonymy	0.206** (0.084)		1.532*** (0.482)	
Province hhi mean	0.484*** (0.129)			
Province ent mean			0.277*** (0.098)	
Pred_Surghi		0.237** (0.117)		
Pred_Surent				0.038* (0.023)
Controls	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	8373	8373	8373	8373
KP F stat		13.267		10.666
Panel D: "Three majors and one large" policy				
Dep. var.	Investment Efficiency			
Surghi × After	(1)		(2)	
		-0.079** (0.037)		
Surent × After				-0.013** (0.005)
Surghi		0.084*** (0.032)		
Surent				0.016*** (0.005)
Controls		Yes		Yes
Industry FE		Yes		Yes
Year FE		Yes		Yes
Province FE		Yes		Yes
Observations		2140		2140
Adj. R ²		0.148		0.149

(Continues)

TABLE 4 (Continued)

Dep. var.	Panel E: Board turnover		
	Increase versus (Decrease and no change) (1)	Investment Efficiency Decrease versus (Increase and no change) (2)	Increase versus Decrease (3)
Surname sharing change group			
<i>Treat (increase) × Post</i>	0.007* (0.004)		
<i>Treat (decrease) × Post</i>		−0.007* (0.004)	
<i>Treat (increase) × Post</i>			0.010*** (0.004)
Controls	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	802	802	416
Adj. R ²	0.055	0.055	0.063

Note: This table presents regression results on endogeneity. The dependent variable is *Investment Efficiency*, computed as the absolute value of deviation from the expected investment level of each firm multiplied by negative one, following Chen et al. (2021), Chen et al. (2011), and McNichols and Stubben (2008) model. The main independent variables are the surname Herfindahl index, *Surhhi* and the inverse surname entropy index, *Surent*. Panel A shows the results including various measures of board diversity. *Female*, *Concurrent*, and *Financial* are the proportions of the female directors, the directors with concurrent board positions in other listed firms, and the directors with financial experiences. *Std. Age* and *Std. Tenure* are the standard deviations of directors' ages and tenures, respectively. *RelationHHI* and *TaskHHI* are two diversity indexes describing relation-oriented diversity and task-oriented diversity, respectively. Panel B presents the results with firm fixed effects. Panel C reports the results using the instrumental variables (IV) approach, where Kleibergen–Paap (KP) *F* statistics for weak IVs are reported. *Isonymy* is the average proximity of surnames in each province. *Province hhi mean (Province ent mean)* is the average of board surname sharing (*Surhhi* or *Surent*) for other firms operating in the province except for the firm concerned. Panel D shows the results of the subsample for 2 years before and 2 years after the "three majors and one large" policy in 2010, where *After* is a dummy variable that equals one for years after the policy was implemented. Panel E reports the results using board member turnovers. *Treat (increase)* is a dummy variable that equals one if the surname commonality increases following the board member turnover and zero otherwise. *Treat (decrease)* is 1 if the surname commonality decreases following the board member turnover and zero otherwise. Column (1) reports the estimation using firms experiencing increases in surname sharing after turnover and firms with decrease or no change in board surname commonality. Column (2) reports the estimation using firms experiencing decreases in surname sharing after turnover and firms with increases or no change in board surname commonality. Column (3) reports the estimation using firms experiencing either increases or decreases in surname sharing after turnover. The same set of control variables as in Table 2 are included but the coefficients are not tabulated for brevity. All variables are defined in Table A1. All continuous variables are winsorized at the 1% and 99% percentiles to alleviate the effects of outliers.

***Statistically significant at the 1% level.

**Statistically significant at the 5% level.

*Statistically significant at the 10% level.

that are correlated with both surname sharing and investment efficiency, and the possible reverse causality running from investment efficiency to director hire. In particular, we use two instruments following prior literature (e.g., Giannetti & Zhao, 2019; Knyazeva et al., 2013; Tan et al., 2021). The first instrument is *Isonymy*, the average isonymy for the province where the firm's headquarter is located. This variable captures the proximity of surnames in each province and is drawn from the study of Liu et al. (2012). Specifically, they get 7327 Chinese surnames data for 1.28 billion people in 30 provinces from China's identity information system. Then the isonymy within a county is defined as $Isonymy_county = \sum_1^S p_k^2$, where S is the number of surnames in the county and p_k is the relative frequency of surname k in the county computed as the population with surname k scaled by the entire population. The average isonymy value of the counties in each province is calculated and adopted as the first instrument. The second instrument is the average of board surname sharing for other firms operating in the province except for the firm concerned. We use these two IVs because directors are largely hired locally and a firm's headquarter is confirmed at the early age of its lifecycle (Giannetti & Zhao, 2019; Knyazeva et al., 2013; Tan et al., 2021). Therefore, the regional surname sharing plausibly influences the probability of the board surname sharing for local firms. In addition, such provincial information for the population or other boards is unlikely to affect the investment efficiency of the focal firm. We expect that the two instruments should be positively correlated with director surname sharing of the focal firms but should have no direct effects on their investment efficiency.

We perform a two-stage least squares estimation to address the reverse causality concern and report the results in Panel C of Table 4. Column (1) and column (3) report the first-stage results and show that both instruments are positively related to surname sharing of the firms concerned. Columns (2) and (4) show that the instrumented surname sharing measures are positive and statistically significant at 5% and 10% levels, respectively.¹⁵ We also report the values of Kleibergen–Paap F statistics, which are 13.267 and 10.666, suggesting that they are not weak instruments.¹⁶ Taken together, our IV analysis points to the positive causal impact of board surname sharing on firms' investment efficiency.

To further ensure the robustness of our results, we examine the effects of board surname sharing on investment efficiency before and after the “three majors and one large” policy. The Central Committee of the Communist Party of China (CPC) and State Council issued this policy on July 15, 2010, calling for the senior executives and directors to play a more active role in SOEs when it involves major decision-making, major personnel appointments, the adoption of major projects (“three majors”)—or if it touches on large capital operations of SOEs (“one large”).¹⁷ The guidelines stress the significance of collective decision-making and, for the first time, formalize that individuals from different levels have opportunities to participate in corporate operation and supervision. Senior executives and the board of directors are supposed to avoid over-concentration of decision power in one person or a small special interest group.

Under this policy, SOEs are required to institutionalize the rules and processes for making decisions and engage employees in general

discussion and expert consultancies. The phenomenon of keeping silence, obedience, and passive monitoring in SOEs is likely to be mitigated after the launch of this policy. In this case, the benefit of surname sharing as an informal institution that facilitates directors' communications and collective decision-making is expected to be weakened with the presence of a more formal institution. In other words, we should observe a stronger effect of board surname sharing before the “three majors and one large” policy. Panel D of Table 4 shows the results. We construct a 4-year balanced panel with observations including the 2 years before and 2 years after 2010. The observations in the year of policy change are excluded. *After* is a time dummy that equals one for the years after 2010 and zero otherwise. The estimated coefficient of *Surhhi* \times *After* is negative and significant at the 5% level, indicating that the efficiency-enhancing role of board surname sharing is weakened after the implementation of the policy, consistent with our expectations. Similar finding is found using the *Surent* measure of surname sharing.

Last, we turn to an event study approach to look at board member turnovers, which coincide with a changing level of surname sharing. In China, the term of a director's appointment (including independent directors) is stipulated by law and each term must not exceed 3 years. After each term of 3 years, existing directors can be re-elected or new directors may be appointed. It is unlikely that the appointments of directors for these important publicly-listed SOEs are based on their surnames. Following Chen and Keefe (2020) and Firth et al. (2016), we focus on board member turnovers that arguably provide some exogenous variations in the level of board surname sharing. Specifically, we construct three groups of firms surrounding board turnovers: increase in surname sharing, decrease in surname sharing, and no change in surname sharing; and then compare the firm's investment efficiency 1 year after the turnover to 1 year before the turnover year. We drop firms that experienced mergers and acquisitions (M&As), backdoor listing, changes in controlling shareholders, and changes in board size. Finally, we have 103 firms with an increase in surname sharing, 105 firms with a decrease in surname sharing, and 193 firms with unchanged surname sharing after turnovers.

We define a dummy variable *Treat (increase)* that equals one if the surname commonality increases following the board member turnover and zero otherwise. *Treat (decrease)* is one if the surname commonality decreases following the board member turnover and zero otherwise. *Post* is a time dummy to indicate the year after the turnover year. Panel E of Table 4 presents the results. Column (1) reports the estimation using firms experiencing an increase in surname sharing after turnovers and firms with a decrease or no change in board surname commonality. The coefficient of *Treat (increase)* \times *Post* is positive and significant, suggesting the investment efficiency for firms with increased surname sharing improves after the turnover. Column (2) reports the estimation using firms experiencing a decrease in surname sharing after turnover and firms with an increase or no change in board surname commonality. The coefficient of *Treat (decrease)* \times *Post* is negative and significant, suggesting the investment efficiency of firms is lowered post-turnover when the board surname sharing is lessened. Column (3) reports the estimation using firms experiencing

TABLE 5 Tests on potential channels

Panel A: Agency costs						
Dep. var.	(1)	(2)	(3)	(4)	(4)	
	Cash holding		Selling expense			
Surhhi	-0.218*** (0.084)		-0.071** (0.034)			
Surent		-0.042*** (0.014)		-0.012* (0.007)		
Controls	Yes	Yes	Yes	Yes	Yes	
Industry FE	Yes	Yes	Yes	Yes	Yes	
Year FE	Yes	Yes	Yes	Yes	Yes	
Province FE	Yes	Yes	Yes	Yes	Yes	
Observations	8400	8400	8400	8400	8400	
Adj. R ²	0.158	0.159	0.553	0.553	0.553	
Panel B: Information asymmetry						
Dep. var.	(1)	(2)	(3)	(4)	(4)	
	Forecast accuracy		Analyst coverage			
Surhhi	2.111* (1.273)		3.163** (1.277)			
Surent		0.386** (0.196)		0.541*** (0.180)		
Controls	Yes	Yes	Yes	Yes	Yes	
Industry FE	Yes	Yes	Yes	Yes	Yes	
Year FE	Yes	Yes	Yes	Yes	Yes	
Province FE	Yes	Yes	Yes	Yes	Yes	
Observations	7361	7361	8365	8365	8365	
Adj. R ² /Pesudo-R ²	0.358	0.358	0.293	0.293	0.293	
Panel C: Financial reporting quality						
Dep. var.	(1)	(2)	(3)	(4)	(5)	(6)
	Abs EM		Unqualified opinion		IC deficiency	
Surhhi	-0.045* (0.026)		7.297* (4.389)		-12.195** (5.703)	
Surent		-0.008* (0.004)		1.385* (0.746)		-1.861** (0.789)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes

TABLE 5 (Continued)

Dep. var.	Panel C: Financial reporting quality					
	Abs EM		Unqualified opinion		IC deficiency	
	(1)	(2)	(3)	(4)	(5)	(6)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	8400	8400	5432	5432	3248	3248
Adj. R ² /Pseudo-R ²	0.087	0.087	0.205	0.206	0.158	0.161

Note: This table presents regression results of potential channels. The main independent variables in each Panel are the surname Herfindahl index, *Surhhi*, and the inverse surname entropy index, *Surent*. Panel A presents the results on surname sharing on agency cost. *Cash holding* is computed as cash scaled by total assets. *Selling expense* is computed as selling expense scaled by sales. Panel B shows the results of the impacts of surname sharing on financial reporting quality. *Abs EM* is the absolute value of discretionary accruals according to the modified Jones model (Dechow et al., 1995). *Unqualified opinion* is a dummy variable that equals one if the auditor issues an audit report with unqualified opinion and zero otherwise. *IC deficiency* is a dummy variable that equals one if at least one vital internal control deficiency is reported in an internal control evaluation report and zero otherwise. OLS regressions are used in columns (1) and (2) and Logit regressions are adopted in columns (3)–(6). Panel C provides the results on surname sharing on information asymmetry. *Forecast accuracy* is the median of the absolute difference of the forecast EPS and the real EPS scaled by the stock price at the beginning of the year multiplied by negative 100. *Analyst coverage* is a dummy variable that equals one if the number of analysts who made forecasts about the firm is above median and zero otherwise. Control variables are included but not tabulated for brevity. All variables are defined in Table A1. All continuous variables are winsorized at the 1% and 99% percentiles to alleviate the effects of outliers. Industry, year, and province fixed effects are included. Heteroscedasticity robust standard errors clustered by firm are in parentheses.

***Statistically significant at the 1% level.

**Statistically significant at the 5% level.

*Statistically significant at the 10% level.

either an increase or a decrease in surname sharing after turnovers. The coefficient of *Treat (increase) × Post* is positive and statistically significant at the 1% level, implying that board turnover involving a larger homogeneity of board members' surnames is linked with significantly more efficient investment. The DID analysis confirms the causal relation between higher surname homogeneity and greater investment efficiency.

5.2 | Potential channels through which board surname sharing affects investment efficiency

In this section, we provide evidence on the possible channels through which board surname sharing enhances investment efficiency. Our main results support the hypothesis that surname sharing helps board members to build trust, facilitate information sharing, and communicate better, thus improving the board effectiveness. In the corporate governance literature, scholars have related agency problems and information asymmetry to inefficient investment decisions (e.g., Biddle et al., 2009; Guariglia & Yang, 2016; Jiang et al., 2018; Richardson, 2006; Stein, 2003). Stein (2003) points out that the most pervasive and important factors influencing the efficiency of corporate investment are those arising from agency problems and information asymmetries. To explore the underlying channels in which board surname sharing affects corporate investment efficiency, we examine if board surname sharing influences the degree of agency problems and information asymmetry for the firm to demonstrate the effectiveness of its board, given that we cannot directly observe the interactions among board members.

5.2.1 | Surname sharing and agency cost

The agency problems arise when managers of publicly traded firms pursue their private objectives and interests, which need not align with those of shareholders (Jensen & Meckling, 1976). For example, empire-building preferences cause managers to spend essentially all available funds on investment projects, potentially leading to the over-investment problem. Another variation of the classic manager-shareholder agency conflict that has implications for investment is the “quiet life”: managers are prone to excessive inertia, leading to under-investment if the decision concerns whether to enter a new line of business (Bertrand & Mullainathan, 2000).

Corporate governance literature has established that the board of directors is expected to perform a monitoring role and advise the senior management of a corporation to reduce the agency cost (Adams & Ferreira, 2007; Agrawal & Knoeber, 1996; Fama & Jensen, 1983; Grinstein & Tolkowsky, 2004; Jensen, 1993; Jensen & Meckling, 1976). Effective board monitoring is important to restrict managers from self-serving behaviors (Sun et al., 2012). Thus, if surname sharing enhances communication in the boardroom and improves board effectiveness, we should observe a reduced agency cost.

Agency problems may arise when firms hold a significant amount of cash at hand since executives may use cash for private benefits other than efficient investments (Sheu & Lee, 2012; Sun et al., 2012). Specifically, entrenched management with poor monitoring is more likely to build up cash holdings to pursue their interests (Dittmar et al., 2003). Furthermore, firms with agency problems driven by large cash holding may use cash inefficiently in making the investments (Biddle et al., 2009; Blanchard et al., 1994; Sheu & Lee, 2012). We thus use cash holding to capture the agency cost, which is measured as cash scaled by total assets (Sun et al., 2012). Another agency cost measure that we employ is the operating expense in selling scaled by total sales following Ang et al. (2000). To some extent, the ratio captures how effectively a firm's management controls operating costs such as excessive perquisite consumption and other direct agency costs.

Results are shown in Panel A of Table 5. The negative and significant coefficient of *Surhhi* on *Cash holding* indicates that board surname sharing lowers cash holding. Since executives with more cash at hand are more likely to have an opportunity for self-serving behavior that compromises optimal investment, this result suggests that board surname sharing reduces such agency problems. When using the expense ratio, the coefficient of *Surhhi* on *Selling expense* is also negative and statistically significant at the 5% level, showing that surname sharing helps reduce the sales cost. The use of *Surent* produces similar findings. In short, the results are supportive of a more effective board with higher surname sharing through mitigating agency problems.

5.2.2 | Surname sharing and information asymmetry

Information asymmetry is an important reason that firms cannot achieve the optimal level of investments (Chen et al., 2017). A manager is likely to know more about a project's true outlook, but at the same time may have incentives to misrepresent this information (Stein, 2003). Information asymmetry makes the process of allocating capital to investment projects more difficult while a transparent information environment helps the firm invest efficiently to an optimal level. Boards of directors have an important role in ensuring that investors' interests are protected. The board of directors as a critical corporate governance mechanism can enhance managerial monitoring, leading to improvements in the firm's information environment. When board surname sharing enhances board communications and board efficacy, board members can better fulfill their fiduciary duties toward shareholders, seek better and more information to aid their monitoring activities, and increase the transparency of the firm's information environment.

We conjecture that board surname sharing enhances board communications, thus strengthening its role as an effective corporate governance mechanism. As a result, investors and analysts are likely to be provided with high-quality information, which is relatively consistent, accurate, and less volatile, hence ameliorating information asymmetry. Next, we use two measures to proxy for information asymmetry: analyst forecast accuracy and analyst coverage. As information intermediaries, analysts play a key role in obtaining and processing both public

and private information (Chen et al., 2015) and the information is embedded in their earnings forecast. Higher forecast accuracy indicates a more transparent information environment and a low level of coverage indicates a more asymmetric information environment. We measure analyst forecast accuracy by the median of the absolute difference between forecast EPS and real EPS scaled by the stock price at the beginning of the year multiplied by negative one hundred (Duru & Reeb, 2002; Han et al., 2018; Walther & Willis, 2013). A larger value of the variable indicates a more accurate forecast.

Panel B of Table 5 reports the results. Columns (1) and (2) show that the surname sharing measures are positive and significant in explaining the forecast accuracy. Columns (3) and (4) show similar positive and significant effects in explaining analyst coverage. These findings suggest that board surname sharing helps improve communication and board effectiveness, ultimately increasing information transparency and attenuating information asymmetry between firm insiders and outside information users, that is, analysts.

To provide more direct evidence to buttress our argument that surname sharing improves the board effectiveness, we also examine an observable firm outcome: financial reporting quality. A better financial reporting quality may reflect that the board becomes more effective, which is also consistent with a reduction in a firm's information asymmetry. On financial reporting quality, we first look at earnings management by constructing the absolute value of discretionary accruals, *Abs EM*. In columns (1) and (2) of Panel C of Table 5, we show that a higher level of surname sharing is associated with a significantly lower level of earnings management, indicative of higher-quality financial reporting. Second, *Unqualified Opinion* is a dummy variable that equals one if the auditor issues a report with an unqualified opinion and zero otherwise. An unqualified opinion is an independent auditor's judgment that a company's financial statements are fairly and appropriately presented. Columns (3) and (4) show that *Surhhi* is positively and significantly related to the possibility of an auditor issuing an unqualified opinion, again supporting the conjecture that stronger surname ties contribute to higher financial reporting quality. Third, *IC Deficiency* is a dummy variable that equals one if at least one vital internal control deficiency is reported in the internal control evaluation report and zero otherwise. The negative and significant coefficients presented in columns (5) and (6) show that higher surname sharing among board members reduces the likelihood of internal control deficiency, again implying higher financial reporting quality. The evidence together supports the contention that surname sharing enables board members to play more active roles as monitors and advisors.

Overall, the results in Table 5 provide evidence that in Chinese SOEs, board surname sharing enhances investment efficiency through the potential channels of reducing agency problems and mitigating information asymmetry, suggesting to a more effective board.

5.3 | Cross-sectional heterogeneity

We next conduct several cross-sectional tests to confirm if the investment efficiency impact of board surname sharing varies in predictable

TABLE 6 Cross-sectional tests

Panel A: Corporate governance				
Dep. var.	Investment Efficiency			
	(1)	(2)	(3)	(4)
<i>Surhhi</i> × <i>Duality</i>	0.055* (0.031)			
<i>Surent</i> × <i>Duality</i>		0.009** (0.004)		
<i>Surhhi</i> × <i>Divergence</i>			0.046* (0.026)	
<i>Surent</i> × <i>Divergence</i>				0.006* (0.004)
<i>Surhhi</i>	0.023 (0.015)		0.022 (0.017)	
<i>Surent</i>		0.005* (0.003)		0.005* (0.003)
<i>Duality</i>	-0.011** (0.004)	0.015* (0.009)		
<i>Divergence</i>			-0.005 (0.003)	0.014* (0.008)
Controls	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Province FE	Yes	Yes	Yes	Yes
Observations	8400	8400	8400	8400
Adj. R ²	0.111	0.112	0.111	0.111
Panel B: Financial background of board members				
Dep. var.	Investment Efficiency			
	(1)	(2)		
<i>Surhhi</i> × <i>Financial</i>	0.119** (0.060)			
<i>Surent</i> × <i>Financial</i>				0.016* (0.009)
<i>Surhhi</i>	0.014 (0.017)			
<i>Surent</i>				0.004 (0.003)
<i>Financial</i>	-0.008 (0.009)			0.041** (0.018)
Controls	Yes			Yes
Industry FE	Yes			Yes
Year FE	Yes			Yes
Province FE	Yes			Yes
Observations	8400			8400
Adj. R ²	0.112			0.112
Panel C: Industry volatility				
Dep. var.	Investment Efficiency			
	(1)	(2)		
<i>Surhhi</i> × <i>High volatility</i>	0.038* (0.020)			

(Continues)

TABLE 6 (Continued)

Panel C: Industry volatility		
Dep. var.	Investment Efficiency	
	(1)	(2)
<i>Surent</i> × <i>High volatility</i>		0.005** (0.003)
<i>Surhhi</i>	0.014 (0.017)	
<i>Surent</i>		0.004 (0.003)
<i>High volatility</i>	−0.001 (0.003)	0.015*** (0.006)
Controls	Yes	Yes
Industry FE	Yes	Yes
Year FE	Yes	Yes
Province FE	Yes	Yes
Observations	8400	8400
Adj. R^2	0.112	0.112

Note: This table presents the regression results of additional tests. The dependent variable is *Investment Efficiency*, computed as the absolute value of deviation from the expected investment level of each firm multiplied by negative one, following Chen et al. (2021), Chen et al. (2011), and McNichols and Stubben (2008) model. The main independent variables are the surname Herfindahl index, *Surhhi*, and the inverse surname Entropy index, *Surent*. Panel A presents the results on the moderating role of corporate governance on the surname sharing-investment efficiency relation. *Duality* is a dummy variable that equals one if the CEO is also the board chair and zero otherwise. *Divergence* is a dummy variable that equals one if there is a divergence between the control rights and the cash flow rights of the controlling shareholder, and zero otherwise. Panel B reports the results on the moderating role of board members' financial background on the surname sharing-investment efficiency relation. *Financial* is the proportion of the directors with financial experiences. Panel C reports the results on the moderating role of industry volatility on the surname sharing-investment efficiency relation. *High volatility* is a dummy variable that equals one if the industry to which the firm belongs has above-the-median stock return volatility among all industries, and zero otherwise. Control variables are included but not tabulated for brevity. All variables are defined in Table A1. All continuous variables are winsorized at the 1% and 99% percentiles to alleviate the effects of outliers. Industry, year, and province fixed effects are included. Heteroscedasticity robust standard errors clustered by firm are in parentheses.

***Statistically significant at the 1% level.

**Statistically significant at the 5% level.

*Statistically significant at the 10% level.

manners. First, one may expect the effect of surname sharing on investment efficiency to depend on the strength of corporate governance. To test this, we check the moderating roles of CEO power and the divergence between controlling shareholder's control rights and cash flow rights in the relation between surname sharing and investment efficiency. *Duality* is a dummy variable that equals one when the CEO and the board chair are the same person and zero otherwise. Pyramid ownership structures are common in China and a large fraction of Chinese listed firms had a divergence between control rights and cash flow rights, which is a source of agency problems in Chinese firms (Jiang & Kim, 2020). We thus construct a dummy variable, *Divergence*, that equals one if there is a divergence between the control rights and the cash flow rights of the controlling shareholder, and zero otherwise.

According to Panel A of Table 6, the positive and significant coefficient of *Surhhi* × *Duality* shows that board surname sharing can play a significantly greater role in boosting investment efficiency when the CEO is more powerful. Using *Surhhi* measure, the effect of board

surname sharing on investment efficiency is higher by 0.055 when the CEO is also the board chair compared to the case when the two roles are separate. Similarly, columns (3) and (4) suggest the effect of board surname sharing is stronger when there is a larger divergence between the control rights and the cash flow rights of the controlling shareholder, indicative of weaker corporate governance.

Another dimension we examine is whether the directors have a financial background. We posit that the effect of surname sharing on investment efficiency should be stronger in boards consisting of more members with a financial background because their expertise could be better utilized by boards with a higher level of surname sharing potentially through better communications. We thus construct a variable *Financial*, which is the number of directors who hold a finance-related degree or have working experiences in accounting or financial industries, scaled by board size. We report the results in Panel B of Table 6. In column (1), the coefficient of *Surhhi* × *Financial* is positive and significantly different from zero, implying that boards with surname sharing exert a greater effect on investment efficiency when there is a

higher representation of financial experts in the boardroom. The significant and positive coefficient of the interaction term in column (2) also supports our argument.

Further, we look at firms that operate in volatile industries. Facing a fast-changing environment, firms tend to demand a higher decision-making efficiency and thus are likely to benefit more from affinity-related characteristics (e.g., surname sharing among directors in our case) (Bernile et al., 2018; Gompers et al., 2016; Hambrick et al., 1996). As a result, we expect a stronger effect of board surname sharing for firms operating in a more volatile industry, to the extent that board surname sharing helps reduce conflicts and facilitate fast decision-making. Specifically, following Choi (2020), we construct a dummy variable, *High volatility*, that equals one if the industry to which the firm belongs has above-the-median stock return volatility among all industries, and zero otherwise. The results are shown in Panel C of Table 6. The coefficients of the interaction terms between surname sharing measures and *High volatility* in both columns are positive and significant, indicating that firms in more volatile industries benefit more from board surname sharing in terms of investment efficiency.

6 | CONCLUSION

In this paper, we empirically investigate how surname sharing of board members affects the firm's investment efficiency for Chinese listed SOEs. With the "silence" culture in China's SOEs, individual directors are reluctant to express themselves, especially when facing higher authority, thus resulting in passively exercising their roles in corporate behaviors. We provide robust evidence that board surname sharing is associated with higher investment efficiency of the firm. Further analyses support the view that board directors' surname sharing improves communications and board coordination and thus enhances the overall board effectiveness, demonstrated by the firm's reduced agency costs, mitigated information asymmetry, and better financial reporting quality. We also find that the investment efficiency impact of board surname sharing is more pronounced when the CEO is also the board chair, in firms with a divergence between the control rights and the cash flow rights of the controlling shareholder, when there are more board members with a financial background, and when firms operate in more volatile industries.

This study contributes to the literature by documenting that board surname sharing is an important determinant of efficient investment decisions, hence shedding light on the understanding of surname-based social affinity. The results provide incremental empirical support for the benefits of group identity in decision-making, which warrants more attention. The finding also has important implications for formulating the "best practice" on executive selection, boosting board composition, and ultimately enhancing corporate investment efficiency. Conventional wisdom advocates good governance mostly through structural factors and procedural rules such as the composition of committees, regular meeting attendance, equity involvement, ethical guidelines, and independence. Oftentimes

though, these good governance regulatory recipes are not sufficient in producing the most involved, diligent, and value-adding boards; rather, the key is to ensure a robust, effective social system where team members develop mutual respect, trust, and candor (Sonnenfeld, 2002). To truly fulfill the board mission, shareholders and policymakers may need to carefully consider creating the climate of a robust social system of the board to ensure a virtuous cycle of trust and outspokenness, in addition to structural practices, especially when dealing with the problems of passive monitoring. Specifically, we highlight the benefits of surname sharing, which is a visible and easy-to-identify measure of social ties, in enhancing communications, trust, and coordination in the boardrooms and ultimately achieving effective board decision-making.

Admittedly the positive influence of surname sharing hinges on the focus of investment efficiency in China's SOEs, where the benefits in communication facilitation and information sharing arising from enhanced group trust outweigh the potential drawbacks of weakened monitoring due to favoritism and bias in management decisions. One needs to be wary when drawing implications to other dimensions of firm outcomes using different samples of other countries. Another caveat about our study is that we do not provide evidence at the board of directors' level on how surname sharing improves their communications, interactions, and decision-making due to the lack of available data and measures, although we present a set of results indicative of more effective boards with higher surname sharing, by examining the firm outcomes. While we treat the whole board as a social group and document a positive impact of surname sharing on the overall board effectiveness, it would also be fruitful for future research to investigate the rich dynamics of surname sharing among various types of directors, for example, executive versus independent directors, and among CEOs and other board members. Further exploration along these directions would provide a fresh agenda for future work.

ACKNOWLEDGEMENTS

The authors would like to thank Liandong Zhang, the Assigned Editor and three anonymous referees for their helpful comments. Endong Yang thanks for the financial support from a research grant from the University of Macau (MYRG2020-00220-FBA). Yang Zhang acknowledges the support from the Asia-Pacific Academy of Economics and Management, University of Macau (APAEM/MEMO/0001/2022). The usual disclaimer applies.

NOTES

¹ <https://www.lowyinstitute.org/the-interpretor/has-china-given-state-owned-enterprise-reform>

² We find that non-SOEs have a significantly higher level of surname sharing, in both of our measures, than SOEs in China, as expected. Moreover, we do not observe a significantly positive association between surname sharing and investment efficiency using the sample of non-SOEs, which are primarily family firms.

³ Researchers recently examined board diversity in terms of both congenital and acquired factors, such as gender (Carter et al., 2017), age (Goergen et al., 2015), race (Carter et al., 2003), tenure (Harjoto

- et al., 2015), education (Hoang et al., 2018), power (Pathan, 2009), and outside directorship (Kim & Lim, 2010).
- ⁴ We obtain similar results as in Tan et al. (2021) if we follow their approaches by adding non-SOEs to our sample and regressing firm value measures on surname sharing for the combined sample. Please refer to Section 4.2 for more details.
- ⁵ The same surname can mean common ancestor or/and place of origin (Bai & Kung, 2014). However, after several waves of population migrations in Chinese history, people with the same surname become scattered across various provinces, so the surname sharing effect is not equivalent to hometown relationship, another identity of social connectedness.
- ⁶ According to the 2020 National Name Report issued by the Ministry of Public Security of the People's Republic of China, the top 100 surnames account for 85.9% of the country's population: <https://app.mps.gov.cn/gdnps/pc/content.jsp?id=7478899> (in Chinese).
- ⁷ For instance, names have strong affective value and remain central to the establishment of a personal sense of belonging to a kin group (Davies, 2011). From the perspective of implicit egotism, people tend to develop a stronger interpersonal attraction to those whose surnames shared letters with their own surnames (Jones et al., 2004). Gamer (2005) finds that people with similar names reported greater liking for the person and expressed more willingness to comply with a request for help.
- ⁸ In unreported tests, we find that board surname sharing is negatively related to dissenting votes in the formal board meeting, which is similar to the findings in Tan et al. (2021). However, it does not invalidate our results. Board members in Chinese SOEs often have private conversations to exchange thoughts and discuss their opinions to align with others, especially regarding major and important issues, before they go to the formal meeting to make decisions. To the extent that a higher level of board surname sharing facilitates communications, board members could communicate more effectively and reach a consensus during private discussions or in SOE Party committee meetings before the formal board meetings, which leads to fewer dissenting votes in the formal board meeting.
- ⁹ For example, people may also rely on other characteristics such as race (Hewstone et al., 1991) and gender (Westphal & Stern, 2007) to form a group identity.
- ¹⁰ In 2003, the reform of Chinese SOEs entered into a new phase with the establishment of the State-owned Assets Supervision and Administration Commission (SASAC) of the State Council.
- ¹¹ <https://edition.cnn.com/2021/01/16/china/chinese-names-few-intl-hnk-dst/index.html>
- ¹² Our results also hold if we define the four or six most popular surnames as common surnames and the rest as rare surnames.
- ¹³ Following the suggestion of an anonymous referee, we further control for the surname sharing between directors and executives. We find (results untabulated) that the coefficient estimates of our main explanatory variables, *Surhhi* and *Surent*, are qualitatively unchanged.
- ¹⁴ Following Harjoto et al. (2018), we separate the directors into five age groups: below 40, 40–49, 50–59, 60–69, and above 69 and then calculate the Herfindahl index of age. We then separate the directors into six tenure groups: below 3 years, 4–6 years, 7–9 years, 10–12 years, 13–15 years, and above 15 years and calculate the Herfindahl index of tenure.
- ¹⁵ As there is no isonomy value for the Tibet Autonomous Region, the number of observations is reduced to 8373.
- ¹⁶ We also look at the Stock–Yogo *F* statistic values which are 70.9 and 58.5, respectively. They are both higher than the 10% maximal IV size critical value (19.93), suggesting that they are not weak instruments.
- ¹⁷ Examples include enterprise strategy, medium- and long-term development plans, annual budgets, major decisions concerning enterprise asset restructuring and capital management, major personnel affairs, and the creation or adjustment of internal departments (Rosen et al., 2018).

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ORCID

Yang Zhang  <https://orcid.org/0000-0002-7219-3409>

REFERENCES

- Adams, R. B., & Ferreira, D. (2007). A theory of friendly boards. *The Journal of Finance*, 62(1), 217–250. <https://doi.org/10.1111/j.1540-6261.2007.01206.x>
- Adams, R. B., & Ferreira, D. (2009). Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics*, 94(2), 291–309. <https://doi.org/10.1016/j.jfineco.2008.10.007>
- Agrawal, A., & Knoeber, C. R. (1996). Firm performance and mechanisms to control agency problems between managers and shareholders. *Journal of Financial and Quantitative Analysis*, 31(3), 377–397. <https://doi.org/10.2307/2331397>
- Ahmed, A. M. (2010). What is in a surname? The role of ethnicity in economic decision making. *Applied Economics*, 42(21), 2715–2723. <https://doi.org/10.1080/00036840801964609>
- Akerlof, G. A., & Kranton, R. E. (2000). Economics and identity. *The Quarterly Journal of Economics*, 115(3), 715–753. <https://doi.org/10.1162/00335300554881>
- Akerlof, G. A., & Kranton, R. E. (2005). Identity and the economics of organizations. *The Journal of Economic Perspectives*, 19(1), 9–32. <https://doi.org/10.1257/0895330053147930>
- Ang, J. S., Cole, R. A., & Lin, J. W. (2000). Agency costs and ownership structure. *The Journal of Finance*, 55(1), 81–106. <https://doi.org/10.1111/0022-1082.00201>
- Ashforth, B. E., & Mael, F. (1989). Social identity theory and the organization. *Academy of Management Review*, 14(1), 20–39. <https://doi.org/10.5465/amr.1989.4278999>
- Bai, Y., & Kung, K. S. 2014. *Does genetic distance have a barrier effect on technology diffusion? Evidence from historical China*. Working Paper.
- Berkovitch, E., & Kim, E. H. (1990). Financial contracting and leverage induced over- and under-investment incentives. *The Journal of Finance*, 45(3), 765–794. <https://doi.org/10.1111/j.1540-6261.1990.tb05105.x>
- Bernile, G., Bhagwat, V., & Yonker, S. (2018). Board diversity, firm risk, and corporate policies. *Journal of Financial Economics*, 127(3), 588–612. <https://doi.org/10.1016/j.jfineco.2017.12.009>
- Bertrand, M., & Mullainathan, S. (2000). Agents with and without principals. *American Economic Review*, 90(2), 203–208. <https://doi.org/10.1257/aer.90.2.203>
- Biddle, G. C., Hilary, G., & Verdi, R. S. (2009). How does financial reporting quality relate to investment efficiency? *Journal of Accounting and Economics*, 48(2–3), 112–131. <https://doi.org/10.1016/j.jacc.2009.09.001>
- Blader, S. L., & Chen, Y. R. (2012). Differentiating the effects of status and power: A justice perspective. *Journal of Personality and Social Psychology*, 102(5), 994–1014. <https://doi.org/10.1037/a0026651>
- Blanchard, O. J., Lopez-de-Silanes, F., & Shleifer, A. (1994). What do firms do with cash windfalls? *Journal of Financial Economics*, 36(3), 337–360. [https://doi.org/10.1016/0304-405X\(94\)90009-4](https://doi.org/10.1016/0304-405X(94)90009-4)

- Brewer, M. (1979). Ingroup bias in the minimal intergroup situation: A cognitive-motivational analysis. *Psychological Bulletin*, 86(2), 307–324. <https://doi.org/10.1037/0033-2909.86.2.307>
- Carter, D. A., Simkins, B. J., & Simpson, W. G. (2003). Corporate governance, board diversity, and firm value. *Financial Review*, 38(1), 33–53. <https://doi.org/10.1111/1540-6288.00034>
- Carter, M. E., Franco, F., & Gine, M. (2017). Executive gender pay gaps: The roles of female risk aversion and board representation. *Contemporary Accounting Research*, 34(2), 1232–1264. <https://doi.org/10.1111/1911-3846.12286>
- Chan, A. (1997). Corporate culture of a clan organization. *Management Decision*, 35(2), 94–99. <https://doi.org/10.1108/00251749710160232>
- Charness, G., & Gneezy, U. (2008). What's in a name? Anonymity and social distance in dictator and ultimatum games. *Journal of Economic Behavior & Organization*, 68(1), 29–35. <https://doi.org/10.1016/j.jebo.2008.03.001>
- Chen, F., Hope, O. K., Li, Q., & Wang, X. (2011). Financial reporting quality and investment efficiency of private firms in emerging markets. *The Accounting Review*, 86(4), 1255–1288. <https://doi.org/10.2308/accr-10040>
- Chen, J. J., Cheng, X., Gong, S. X., & Tan, Y. (2021). Project-level disclosure and investment efficiency: Evidence from China. *Journal of Accounting, Auditing & Finance*, 36(4), 854–880. <https://doi.org/10.1177/0148558X20912099>
- Chen, R., El Ghouli, S., Guedhami, O., & Wang, H. (2017). Do state and foreign ownership affect investment efficiency? Evidence from privatizations. *Journal of Corporate Finance*, 42, 408–421. <https://doi.org/10.1016/j.jcorpfin.2014.09.001>
- Chen, S., Sun, Z., Tang, S., & Wu, D. (2011). Government intervention and investment efficiency: Evidence from China. *Journal of Corporate Finance*, 17(2), 259–271. <https://doi.org/10.1016/j.jcorpfin.2010.08.004>
- Chen, T., Harford, J., & Lin, C. (2015). Do analysts matter for governance? Evidence from natural experiments. *Journal of Financial Economics*, 115(2), 383–410. <https://doi.org/10.1016/j.jfineco.2014.10.002>
- Chen, T., Xie, L., & Zhang, Y. (2017). How does analysts' forecast quality relate to corporate investment efficiency? *Journal of Corporate Finance*, 43, 217–240. <https://doi.org/10.1016/j.jcorpfin.2016.12.010>
- Chen, Y., & Li, S. X. (2009). Group identity and social preferences. *The American Economic Review*, 99(1), 431–457. <https://doi.org/10.1257/aer.99.1.431>
- Chen, Z., & Keefe, M. O. (2020). Rookie directors and firm performance: Evidence from China. *Journal of Corporate Finance*, 60, 101511. <https://doi.org/10.1016/j.jcorpfin.2019.101511>
- Choi, S. Y. (2020). Industry volatility and economic uncertainty due to the COVID-19 pandemic: Evidence from wavelet coherence analysis. *Finance Research Letters*, 37, 101783. <https://doi.org/10.1016/j.frl.2020.101783>
- Cong, L. W., Gao, H., Ponticelli, J., & Yang, X. (2019). Credit allocation under economic stimulus: Evidence from China. *The Review of Financial Studies*, 32(9), 3412–3460. <https://doi.org/10.1093/rfs/hhz008>
- Danesi, M. (2007). *The quest for meaning: A guide to semiotic theory and practice*. University of Toronto Press.
- Davies, H. (2011). Sharing surnames: Children, family and kinship. *Sociology*, 45(4), 554–569. <https://doi.org/10.1177/0038038511406600>
- Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995). Detecting earnings management. *The Accounting Review*, 70(2), 193–225. <https://www.jstor.org/stable/248303>
- Dittmar, A., Mahrt-Smith, J., & Servaes, H. (2003). International corporate governance and corporate cash holdings. *Journal of Financial and Quantitative Analysis*, 38(1), 111–133. <https://doi.org/10.2307/4126766>
- Du, X. (2019). What's in a surname? The effect of auditor-CEO surname sharing on financial misstatement. *Journal of Business Ethics*, 158(3), 849–874. <https://doi.org/10.1007/s10551-017-3762-5>
- Duru, A., & Reeb, D. M. (2002). International diversification and analysts' forecast accuracy and bias. *The Accounting Review*, 77(2), 415–433. <https://doi.org/10.2308/accr.2002.77.2.415>
- Dyne, L. V., Ang, S., & Botero, I. C. (2003). Conceptualizing employee silence and employee voice as multidimensional constructs. *Journal of Management Studies*, 40(6), 1359–1392. <https://doi.org/10.1111/1467-6486.00384>
- Fama, E. F., & Jensen, M. C. (1983). Agency problems and residual claims. *The Journal of Law and Economics*, 26(2), 327–349. <https://doi.org/10.1086/467038>
- Farh, J. L., Cheng, B. S., Chou, L. F., & Chu, X. P. (2006). Authority and benevolence: Employees' responses to paternalistic leadership in China. In A. S. Tsui, Y. Bian, & L. Cheng (Eds.), *China's domestic private firms: Multidisciplinary perspectives on management and performance* (pp. 230–260). Sharpe.
- Farrell, K. A., & Hersch, P. L. (2005). Additions to corporate boards: The effect of gender. *Journal of Corporate Finance*, 11(1–2), 85–106. <https://doi.org/10.1016/j.jcorpfin.2003.12.001>
- Feldman Barrett, L., & Russell, J. A. (1998). Independence and bipolarity in the structure of current affect. *Journal of Personality and Social Psychology*, 74(4), 967–984. <https://doi.org/10.1037/0022-3514.74.4.967>
- Firth, M., Wong, S., Xin, Q., & Yick, H. Y. (2016). Regulatory sanctions on independent directors and their consequences to the director labor market: Evidence from China. *Journal of Business Ethics*, 134(4), 693–708. <https://doi.org/10.1007/s10551-014-2391-5>
- Forbes, D. P., & Milliken, F. J. (1999). Cognition and corporate governance: Understanding boards of directors as strategic decision-making groups. *Academy of Management Review*, 24(3), 489–505. <https://doi.org/10.2307/259138>
- Gamer, R. (2005). What's in a name? Persuasion perhaps. *Journal of Consumer Psychology*, 15(2), 108–116. https://doi.org/10.1207/s15327663jcp1502_3
- Giannetti, M., & Zhao, M. (2019). Board ancestral diversity and firm-performance volatility. *Journal of Financial and Quantitative Analysis*, 54(3), 1117–1155. <https://doi.org/10.1017/S0022109018001035>
- Gibbons, D. E. (2004). Friendship and advice networks in the context of changing professional values. *Administrative Science Quarterly*, 49(2), 238–262. <https://doi.org/10.2307/4131473>
- Goergen, M., Limbach, P., & Scholz, M. (2015). Mind the gap: The age dissimilarity between the chair and the CEO. *Journal of Corporate Finance*, 35, 136–158. <https://doi.org/10.1016/j.jcorpfin.2015.08.011>
- Goette, L., Huffman, D., & Meier, S. (2006). The impact of group membership on cooperation and norm enforcement: Evidence using random assignment to real social groups. *The American Economic Review*, 96(2), 212–216. <https://doi.org/10.1257/000282806777211658>
- Gompers, P. A., Mukharlyamov, V., & Xuan, Y. (2016). The cost of friendship. *Journal of Financial Economics*, 119(3), 626–644. <https://doi.org/10.1016/j.jfineco.2016.01.013>
- Gould, R. V. (2002). The origins of status hierarchies: A formal theory and empirical test. *American Journal of Sociology*, 107(5), 1143–1178. <https://doi.org/10.1086/341744>
- Greif, A., & Tabellini, G. (2017). The clan and the corporation: Sustaining cooperation in China and Europe. *Journal of Comparative Economics*, 45(1), 1–35. <https://doi.org/10.1016/j.jce.2016.12.003>
- Grinstein, Y., & Tolkowsky, E. 2004. *The role of the board of directors in the capital budgeting process-evidence from S&P 500 firms*. Working Paper., DOI: <https://doi.org/10.2139/ssrn.625141>
- Gruenfeld, D. H., Mannix, E. A., Williams, K. Y., & Neale, M. A. (1996). Group composition and decision making: How member familiarity and information distribution affect process and performance. *Organizational Behavior and Human Decision Processes*, 67(1), 1–15. <https://doi.org/10.1006/obhd.1996.0061>
- Guariglia, A., & Yang, J. (2016). A balancing act: Managing financial constraints and agency costs to minimize investment inefficiency in the

- Chinese market. *Journal of Corporate Finance*, 36, 111–130. <https://doi.org/10.1016/j.jcorpfin.2015.10.006>
- Hambrick, D. C., Cho, T. S., & Chen, M. J. (1996). The influence of top management team heterogeneity on firms' competitive moves. *Administrative Science Quarterly*, 41(4), 659–684. <https://doi.org/10.2307/2393871>
- Han, B., Kong, D., & Liu, S. (2018). Do analysts gain an informational advantage by visiting listed companies? *Contemporary Accounting Research*, 35(4), 1843–1867. <https://doi.org/10.1111/1911-3846.12363>
- Harjoto, M., Laksmana, I., & Lee, R. (2015). Board diversity and corporate social responsibility. *Journal of Business Ethics*, 132(4), 641–660. <https://doi.org/10.1007/s10551-014-2343-0>
- Harjoto, M. A., Laksmana, I., & Yang, Y. W. (2018). Board diversity and corporate investment oversight. *Journal of Business Research*, 90, 40–47. <https://doi.org/10.1016/j.jbusres.2018.04.033>
- Hewstone, M., Hantzi, A., & Johnston, L. (1991). Social categorization and person memory: The pervasiveness of race as an organizing principle. *European Journal of Social Psychology*, 21(6), 517–528. <https://doi.org/10.1002/ejsp.2420210606>
- Hoang, T. C., Abeysekera, I., & Ma, S. (2018). Board diversity and corporate social disclosure: Evidence from Vietnam. *Journal of Business Ethics*, 151(3), 833–852. <https://doi.org/10.1007/s10551-016-3260-1>
- Hui, C., & Graen, G. (1997). Guanxi and professional leadership in contemporary Sino-American joint ventures in mainland China. *Leadership Quarterly*, 8, 451–465. [https://doi.org/10.1016/S1048-9843\(97\)90024-2](https://doi.org/10.1016/S1048-9843(97)90024-2)
- Hwang, B. H., & Kim, S. (2009). It pays to have friends. *Journal of Financial Economics*, 93(1), 138–158. <https://doi.org/10.1016/j.jfineco.2008.07.005>
- Jacobs, J. B. (1979). A preliminary model of particularistic ties in Chinese political alliances: Kan-ch'ing and Kuan-hsi in a rural Taiwanese township. *The China Quarterly*, 78, 237–273. <https://doi.org/10.1017/S0305741000040467>
- Jensen, M. C. (1993). The modern industrial revolution, exit, and the failure of internal control systems. *The Journal of Finance*, 48(3), 831–880. <https://doi.org/10.1111/j.1540-6261.1993.tb04022.x>
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305–360. [https://doi.org/10.1016/0304-405X\(76\)90026-X](https://doi.org/10.1016/0304-405X(76)90026-X)
- Jetten, J., Hornsey, M. J., & Adarves-Yorno, I. (2006). When group members admit to being conformist: The role of relative intragroup status in conformity self-reports. *Personality and Social Psychology Bulletin*, 32(2), 162–173. <https://doi.org/10.1177/0146167205279904>
- Jiang, F., Cai, W., Wang, X., & Zhu, B. (2018). Multiple large shareholders and corporate investment: Evidence from China. *Journal of Corporate Finance*, 50, 66–83. <https://doi.org/10.1016/j.jcorpfin.2018.02.001>
- Jiang, F., & Kim, K. A. (2020). Corporate governance in China: A survey. *Review of Finance*, 24(4), 733–772. <https://doi.org/10.1093/rof/rfaa012>
- Jones, J. T., Pelham, B. W., Carvallo, M., & Mirenberg, M. C. (2004). How do I love thee? Let me count the Js: Implicit egotism and interpersonal attraction. *Journal of Personality and Social Psychology*, 87(5), 665–683. <https://doi.org/10.1037/0022-3514.87.5.665>
- Kakabadse, N. K., Yang, H., & Sanders, R. (2010). The effectiveness of non-executive directors in Chinese state-owned enterprises. *Management Decision*, 48(7), 1063–1079. <https://doi.org/10.1108/00251741011068770>
- Kim, H., & Lim, C. (2010). Diversity, outside directors and firm valuation: Korean evidence. *Journal of Business Research*, 63(3), 284–291. <https://doi.org/10.1016/j.jbusres.2009.01.013>
- Knyazeva, A., Knyazeva, D., & Raheja, C. G. 2013. *The benefits of focus vs. heterogeneity: Dissimilar directors and coordination within corporate boards*. Working Paper, DOI: <https://doi.org/10.2139/ssrn.2083287>
- Lara, J. M. G., Osma, B. G., & Penalva, F. (2016). Accounting conservatism and firm investment efficiency. *Journal of Accounting and Economics*, 61(1), 221–238. <https://doi.org/10.1016/j.jacceco.2015.07.003>
- Leutert, W. (2020). State-Owned Enterprises in Contemporary China. In *The Routledge handbook of state-owned enterprises* (pp. 201–212). Routledge. <https://doi.org/10.4324/9781351042543-11>
- Li, H., Liu, H., & Zhao, H. (2021). Traditional culture echoes? The impact of clan culture upon partner surname sharing: Evidence from Chinese supply chains. *Industrial Marketing Management*, 99, 40–53. <https://doi.org/10.1016/j.indmarman.2021.09.008>
- Li, S., & Filer, L. (2007). The effects of the governance environment on the choice of investment mode and the strategic implications. *Journal of World Business*, 42(1), 80–98. <https://doi.org/10.1016/j.jwb.2006.11.006>
- Li, Y., & Sun, J. M. (2015). Traditional Chinese leadership and employee voice behavior: A cross-level examination. *The Leadership Quarterly*, 26(2), 172–189. <https://doi.org/10.1016/j.leafqua.2014.08.001>
- Liang, C., Liu, B., & Weng, Y. C. (2021). “One person's decision” or “collective voting”: Evidence of overconfident investing in Chinese listed companies. *The North American Journal of Economics and Finance*, 57, 101393. <https://doi.org/10.1016/j.najef.2021.101393>
- Lin, K. J., Lu, X., Zhang, J., & Zheng, Y. (2020). State-owned enterprises in China: A review of 40 years of research and practice. *China Journal of Accounting Research*, 13(1), 31–55. <https://doi.org/10.1016/j.cjar.2019.12.001>
- Lin, L. W. (2013). State ownership and corporate governance in China: An executive career approach. *Columbia Business Law Review*, 743–800. <https://doi.org/10.7916/cblr.v2013i3.2873>
- Liu, Q., & Siu, A. (2011). Institutions and corporate investment: Evidence from investment-implied return on capital in China. *Journal of Financial and Quantitative Analysis*, 46(6), 1831–1863. <https://doi.org/10.1017/S0022109011000494>
- Liu, Y., Chen, L., Yuan, Y., & Chen, J. (2012). A study of surnames in China through isonymy. *American Journal of Physical Anthropology*, 148(3), 341–350. <https://doi.org/10.1002/ajpa.22055>
- Liu, Y., Miletkov, M. K., Wei, Z., & Yang, T. (2015). Board independence and firm performance in China. *Journal of Corporate Finance*, 30, 223–244. <https://doi.org/10.1016/j.jcorpfin.2014.12.004>
- Magee, J. C., & Galinsky, A. D. (2008). The self-reinforcing nature of social hierarchy: Origins and consequences of power and status. In *In IACM 21st Annual Conference Paper*. <https://doi.org/10.2139/ssrn.1298493>
- Malenko, N. (2014). Communication and decision-making in corporate boards. *The Review of Financial Studies*, 27(5), 1486–1532. <https://doi.org/10.1093/rfs/hht075>
- Manni, F., Heeringa, W. J., Toupance, B., & Nerbonne, J. A. (2008). Do surname differences mirror dialect variation? *Human Biology*, 80(1), 41–64. [https://doi.org/10.3378/1534-6617\(2008\)80\[41:DSDMDV\]2.0.CO;2](https://doi.org/10.3378/1534-6617(2008)80[41:DSDMDV]2.0.CO;2)
- McGrath, J. E., Berdahl, J. L., & Arrow, H. (1995). Traits, expectations, culture, and clout: the dynamics of diversity in work groups. In S. E. Jackson & M. N. Ruderman (Eds.), *Diversity in work teams: Research paradigms for a changing workplace* (pp. 17–45). American Psychological Association. <https://doi.org/10.1037/10189-001>
- McGregor, R. (2010). *The party: The secret world of China's communist rulers*. Penguin UK.
- McNichols, M. F., & Stubben, S. R. (2008). Does earnings management affect firms' investment decisions? *The Accounting Review*, 83(6), 1571–1603. <https://doi.org/10.2308/accr.2008.83.6.1571>
- McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology*, 27(1), 415–444. <https://doi.org/10.1146/annurev.soc.27.1.415>
- Modigliani, F., & Miller, M. H. (1958). The cost of capital, corporation finance and the theory of investment. *The American Economic Review*, 48(3), 261–297. <https://www.jstor.org/stable/1809766>

- Pathan, S. (2009). Strong boards, CEO power and bank risk-taking. *Journal of Banking & Finance*, 33(7), 1340–1350. <https://doi.org/10.1016/j.jbankfin.2009.02.001>
- Peng, Y. (2004). Kinship networks and entrepreneurs in China's transitional economy. *American Journal of Sociology*, 109(5), 1045–1074. <https://doi.org/10.1086/382347>
- Rajkovic, T. (2020). Lead independent directors and investment efficiency. *Journal of Corporate Finance*, 64, 101690. <https://doi.org/10.1016/j.jcorpfin.2020.101690>
- Richardson, S. (2006). Over-investment of free cash flow. *Review of Accounting Studies*, 11(2–3), 159–189. <https://doi.org/10.1007/s11142-006-9012-1>
- Rosen, D., Leutert, W., & Guo, S. (2018). Missing Link: Corporate Governance in China's State Sector. In *An Asian Society Special Report Produced in Collaboration with Rhodium Group*.
- Schlenker, B. R., & Weigold, M. F. (1989). Self-identification and accountability. In R. A. Giacalone & P. Rosenfeld (Eds.), *Impression Management in the Organization* (pp. 21–43). Lawrence Erlbaum Associates, Inc.
- Schlingemann, F. P., & Stulz, R. M. (2022). Have exchange-listed firms become less important for the economy? *Journal of Financial Economics*, 143(2), 927–958. <https://doi.org/10.1016/j.jfineco.2021.08.009>
- Sheu, H. J., & Lee, S. Y. (2012). Excess cash holdings and investment: The moderating roles of financial constraints and managerial entrenchment. *Accounting & Finance*, 52, 287–310. <https://doi.org/10.1111/j.1467-629X.2012.00500.x>
- Sonnenfeld, J. A. (2002). What makes great boards great. *Harvard Business Review*, 80(9), 106–113. <https://hbr.org/2002/09/what-makes-great-boards-great>
- Stein, J. (2003). Agency, information and corporate investment. In G. M. Constantinides, M. Harris, & R. Stulz (Eds.), *Handbook of the economics of finance: 111–165*. North-Holland. [https://doi.org/10.1016/S1574-0102\(03\)01006-9](https://doi.org/10.1016/S1574-0102(03)01006-9)
- Sun, Q., Yung, K., & Rahman, H. (2012). Earnings quality and corporate cash holdings. *Accounting & Finance*, 52(2), 543–571. <https://doi.org/10.1111/j.1467-629X.2010.00394.x>
- Tajfel, H. (1982). *Social identity and intergroup relations* (Vol. 33) (pp. 1–39). Cambridge University Press. <https://doi.org/10.1146/annurev.ps.33.020182.000245>
- Tajfel, H., & Turner, J. C. (1986). The social identity theory of intergroup behaviour. In S. Worchel & W. Austin (Eds.), *Psychology of intergroup relations* (pp. 7–24). Nelson Hall.
- Tan, Y., Xiao, J., Zeng, C. C., & Zou, H. (2021). What's in a name? The valuation effect of directors' sharing of surnames. *Journal of Banking & Finance*, 122, 105991. <https://doi.org/10.1016/j.jbankfin.2020.105991>
- Towry, K. L. (2003). Control in a teamwork environment—The impact of social ties on the effectiveness of mutual monitoring contracts. *The Accounting Review*, 78(4), 1069–1095. <https://doi.org/10.2308/accr.2003.78.4.1069>
- Van Peteghem, M., Bruynseels, L., & Gaeremynck, A. (2018). Beyond diversity: A tale of faultlines and frictions in the board of directors. *The Accounting Review*, 93(2), 339–367. <https://doi.org/10.2308/accr-51818>
- Walther, B. R., & Willis, R. H. (2013). Do investor expectations affect sell-side analysts' forecast bias and forecast accuracy? *Review of Accounting Studies*, 18(1), 207–227. <https://doi.org/10.1007/s11142-012-9204-9>
- Waters, M. C. (1989). The everyday use of surname to determine ethnic ancestry. *Qualitative Sociology*, 12(3), 303–324. <https://doi.org/10.1007/BF00989288>
- Westphal, J. D., & Stern, I. (2007). Flattery will get you everywhere (especially if you are a male Caucasian): How ingratiation, boardroom behavior, and demographic minority status affect additional board appointments at US companies. *Academy of Management Journal*, 50(2), 267–288. <https://doi.org/10.5465/amj.2007.24634434>
- Wittenbaum, G., & Stasser, G. (1996). Management of information in small groups. In J. Nye & M. Brower (Eds.), *What's social about social cognition? Social cognition research in small groups* (pp. 3–28). Sage. <https://doi.org/10.4135/9781483327648.n1>
- Xin, Q., Bao, A., & Hu, F. (2019). West meets east: Understanding managerial incentives in Chinese SOEs. *China Journal of Accounting Research*, 12(2), 177–189. <https://doi.org/10.1016/j.cjar.2019.04.001>
- Xu, Q., Tan, C., Jiang, C., & Zhao, Q. (2022). Surname relationship and trade credit: Evidence from China. *Research in International Business and Finance*, 60, 101577. <https://doi.org/10.1016/j.ribaf.2021.101577>
- Zhang, L., Zhang, Z., Jia, M., & Ren, Y. (2020). A tiger with wings: CEO-board surname ties and agency costs. *Journal of Business Research*, 118, 271–285. <https://doi.org/10.1016/j.jbusres.2020.06.026>

AUTHOR BIOGRAPHIES

Baibing Huang is a PhD candidate at Faculty of Business Administration, University of Macau. Her research interests are corporate governance and corporate finance.

Endong Yang is an Assistant Professor of Finance at Faculty of Business Administration, University of Macau. He received his PhD in Finance from Nanyang Technological University (Singapore). His research interests include empirical corporate finance, corporate social responsibility, Chinese economy, stock liquidity, and institutional investors. He has published in leading journals such as *Management Science*, *Asia-Pacific Journal of Accounting & Economics*.

Yang Zhang is an Associate Professor of Business Economics at Faculty of Business Administration, University of Macau. She obtained her PhD in economics from Nanyang Technological University, Singapore. Her research interests include economic dynamics, energy economics, innovation, and corporate finance. Her publications have appeared in leading international journals such as *Journal of Product Innovation Management*, *Journal of Corporate Finance*, *Journal of Economic Dynamics and Control*, *Journal of Economic Behavior and Organization*, and *Energy Economics*. Dr Zhang was visiting scholar to University of Cambridge in 2013 and currently serves as Assistant Editor of *Singapore Economic Review*.

How to cite this article: Huang, B., Yang, E., & Zhang, Y. (2022). Board surname sharing and investment efficiency: Evidence from Chinese state-owned enterprises. *Corporate Governance: An International Review*, 1–28. <https://doi.org/10.1111/corg.12483>

APPENDIX A

TABLE A1 Variable definitions

Variables	Description	Data sources
<i>Investment Efficiency</i>	The deviation from the expected investment level of each firm, following Chen et al. (2021), Chen et al. (2011), and McNichols and Stubben (2008) model: $Investment_{i,t} = \alpha_0 + \alpha_1 NegRevGrowth_{i,t-1} + \alpha_2 RevGrowth_{i,t-1} + \alpha_3 NegRevGrowth_{i,t-1} \times RevGrowth_{i,t-1} + \varepsilon_{i,t}$ where <i>Investment</i> is the firm-year level investment and computed as the net capital expenditure scaled by lagged total assets; <i>NegRevGrowth</i> is a dummy variable that equals one for negative annual revenue growth, and zero otherwise; and <i>RevGrowth</i> is the annual revenue growth rate. <i>Investment Efficiency</i> is the absolute value of the residual multiplied by negative one.	CSMAR
<i>Investment Efficiency (Biddle 2009)</i>	The deviation from the expected investment level of each firm, following Biddle et al. (2009) model: $Investment_{i,t} = \delta_0 + \delta_1 RevGrowth_{i,t-1} + \varepsilon_{i,t}$ where <i>Investment</i> is the firm-year level investment and computed as the net capital expenditure scaled by lagged total assets and <i>RevGrowth</i> is the annual revenue growth rate. <i>Investment Efficiency (Biddle 2009)</i> is the absolute value of the residual multiplied by negative one.	CSMAR
<i>Surhhi</i>	The surname Herfindahl index, which is the summation of each surname percentage among board members, computed as $\sum_1^n p_i^2$, where p_i is the percentage of board members with the same surname i .	CSMAR
<i>Surent</i>	The inverse surname entropy index, which is computed as $-\sum_1^n p_i \ln(1/p_i)$, where p_i is the percentage of board members with the same surname i .	CSMAR
<i>Size</i>	The natural logarithm of the firm's total assets.	CSMAR
<i>MTB</i>	The market value of the total equity scaled by the book value of the total equity.	CSMAR
<i>Leverage</i>	Total liabilities scaled by total assets.	CSMAR
<i>ROA</i>	Net income scaled by total assets.	CSMAR
<i>CFOsales</i>	Net operation cashflows scaled by total sales.	CSMAR
<i>Tangibility</i>	Net plant, property, and equipment (PPE) scaled by total assets.	CSMAR
<i>Slack</i>	Cash holding scaled by net plant, property, and equipment (PPE).	CSMAR
<i>Firm age</i>	The natural logarithm of number of years since the firm was established plus 1.	CSMAR
<i>Duality</i>	A dummy variable that equals one if the CEO and the board chair are the same person, and zero otherwise.	CSMAR
<i>Boardsize</i>	The total number of directors in the board.	CSMAR
<i>Independence</i>	The total number of independent directors scaled by board size.	CSMAR
<i>Diversity</i>	Board diversity with five dimensions: gender, age, concurrent positions, tenure and financial experts. Following Bernile et al. (2018), the diversity index is: $Diversity = STDZ(Female) + STDZ(Std.Age) + STDZ(Concurrent) + STDZ(Std.Tenure) - STDZ(HHI.Financial)$ where <i>Female</i> is the percentage of female directors on the board; <i>Std.Age</i> is the standard deviation of the directors' ages; <i>Concurrent</i> is the number of directors with concurrent board positions in other listed firms scaled by board size; <i>Std.Tenure</i> is the standard deviation of the directors' tenures; <i>HHI.Financial</i> is the Herfindahl index of the number of directors having or not having financial background. Each diversity component is normalized by its mean and standard deviation.	CSMAR
<i>RelationHHI</i>	A board relation-oriented index, which is the sum of the Herfindahl indices of director gender (<i>GenderHHI</i>) and age (<i>AgeHHI</i>). <i>GenderHHI</i> is the Herfindahl index of board gender with two categories: females and males. <i>AgeHHI</i> is the Herfindahl index of board age with five groups. Following Harjoto et al. (2018), the five age groups are: below 40, 40–49, 50–59, 60–69, and above 69.	CSMAR

TABLE A1 (Continued)

Variables	Description	Data sources
<i>TaskHHI</i>	A board task-oriented index, which is the sum of the Herfindahl indices of director tenure (<i>TenureHHI</i>), concurrent status (<i>ConcurrentHHI</i>), and financial experience (<i>FinancialHHI</i>). <i>TenureHHI</i> is the Herfindahl index of board tenure with six groups. Following Harjoto et al. (2018), the six tenure groups are: below 3 years, 4–6 years, 7–9 years, 10–12 years, 13–15 years, and above 15 years. <i>ConcurrentHHI</i> is the Herfindahl index of board concurrent status with two groups: directors with concurrent board positions in other listed firms or not. <i>FinancialHHI</i> is the Herfindahl index of board financial experience with two groups: directors with financial experience or not. Financial experience is defined as either holding a finance-related degree or having working experiences in accounting or financial industries.	CSMAR
<i>Rare share</i>	The surname Herfindahl index for sharing of rare surnames among the board members. Rare surnames are surnames that are not classified as common surnames (i.e., surnames other than Wang, Li, Zhang, Liu, or Chen).	2010 survey by the Ministry of Public Security
<i>Common share</i>	The surname Herfindahl index for sharing of common surnames among the board members. Common surnames are defined as the five most popular surnames: Wang, Li, Zhang, Liu, and Chen.	2010 survey by the Ministry of Public Security
<i>Drare share</i>	A dummy variable that equals one if the board has at least two directors who share a rare surname and zero otherwise.	2010 survey by the Ministry of Public Security
<i>Dcommon share</i>	A dummy variable that equals one if the board has at least two directors who share a common surname and zero otherwise.	2010 survey by the Ministry of Public Security
<i>Surhhi_other</i>	The surname Herfindahl index for other senior executives, computed as $\sum_1^n p_i^2$, where p_i is the percentage of other senior executives with the same surname i .	CSMAR
<i>Surent_other</i>	The inverse surname entropy index for other senior executives, which is computed as $-\sum_1^n p_i \ln(1/p_i)$, where p_i is the percentage of other senior executives with the same surname i .	CSMAR
<i>Isonymy</i>	The average isonymy of the counties in each province where the firm headquarters. The isonymy within a county is $\sum_1^S p_k^2$, where S is the number of surnames in the county and p_k is the relative frequency of surname k in the county computed as the population with surname k scaled by the entire population.	Liu et al. (2012)
<i>Female</i>	The percentage of female directors on the board.	CSMAR
<i>Std. age</i>	The standard deviation of the directors' ages.	CSMAR
<i>Std. tenure</i>	The standard deviation of the directors' tenures.	CSMAR
<i>Concurrent</i>	The number of directors with concurrent board positions in other listed firms scaled by board size.	CSMAR
<i>Financial</i>	The number of directors who hold a finance-related degree, or have working experiences in accounting or financial industries, scaled by board size.	CSMAR
<i>Province hhi mean</i>	The mean value of <i>Surhhi</i> for other firms operating in the province except for the firm concerned.	CSMAR
<i>Province ent mean</i>	The mean value of <i>Surent</i> for other firms operating in the province except for the firm concerned.	CSMAR
<i>After</i>	A dummy variable that equals one for years after the “three majors and one large” policy was implemented and zero otherwise.	CSMAR

(Continues)

TABLE A1 (Continued)

Variables	Description	Data sources
<i>Treat (increase)</i>	A dummy variable that equals one if the surname sharing increases following the board turnover and zero otherwise.	CSMAR
<i>Treat (decrease)</i>	A dummy variable that equals one if the surname sharing decreases following the board turnover and zero otherwise.	CSMAR
<i>Post</i>	A dummy variable that equals one for the post board turnover year and zero otherwise.	CSMAR
<i>Cash Holding</i>	Cash scaled by total assets.	CSMAR
<i>Selling expense</i>	Selling expense scaled by total sales.	CSMAR
<i>Forecast accuracy</i>	The median of the absolute difference of forecast EPS and real EPS scaled by the stock price at the beginning of the year multiplied by negative one hundred.	CSMAR
<i>Analyst coverage</i>	A dummy variable that equals one if the number of analysts who made forecasts about the firm is above median and zero otherwise.	CSMAR
<i>Abs EM</i>	The absolute value of discretionary accruals according to the modified jones model (Dechow et al., 1995).	CSMAR
<i>Unqualified opinion</i>	A dummy variable that equals one if the auditor issues the audit report with unqualified opinion and zero otherwise.	CSMAR
<i>IC deficiency</i>	A dummy variable that equals one if at least one vital internal control deficiency is reported in internal control evaluation report and zero otherwise.	CSMAR
<i>Divergence</i>	A dummy variable that equals one if there is a divergence between the control rights and the cash flow rights of the controlling shareholder, and zero otherwise.	CSMAR
<i>High volatility</i>	A dummy variable that equals one if the industry to which the firm belongs has above-the-median stock return volatility among all industries, and zero otherwise. Industry volatility is the standard deviation of the average weekly returns for stocks within the same industry.	CSMAR