



Clan culture and tunneling: Empirical evidence from private listed companies in China[☆]

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ARTICLE INFO

Keywords:

Clan culture
Tunneling behavior
Dual collective punishment
Personal reputation mechanism
Individual moral standard

ABSTRACT

The tunneling of corporate assets by major shareholders represents a pervasive corporate governance challenge on a global scale. Clan culture stands as one of the long-standing and influential informal institutions in regions such as East Asia and Southeast Asia. This paper employs a sample of privately-owned listed companies in China to investigate the impact of clan culture on the tunneling behavior of major shareholders. The study reveals that clan culture can effectively curb the tunneling behavior of major shareholders, thereby alleviating the agency conflict between major shareholders and minority shareholders. Mechanism analysis indicates that clan culture constrains the tunneling behavior of major shareholders through two concurrent pathways: by reinforcing personal reputation mechanisms and by elevating individual moral standards. Further research uncovers that there exists a substitutive relationship between clan culture and external formal governance mechanisms such as legal frameworks, as well as with formal corporate governance mechanisms within the company like equity checks and balances. Specifically, in scenarios where formal governance mechanisms lag behind, clan culture demonstrates a more pronounced capacity to constrain the tunneling behavior of major shareholders. This paper offers novel insights into how informal institutions influence the tunneling behavior of major shareholders, providing valuable implications for emerging market countries with weak formal institutional frameworks in mitigating the agency conflict between major shareholders and minority shareholders.

1. Introduction

The traditional corporate governance theory originated in countries such as the United Kingdom and the United States, where equity is widely dispersed. Its primary function is to mitigate the agency problem between owners and management (Meckling & Jensen, 1976). However, cross-national research has revealed that in a vast number of countries and regions outside the UK and the US, the phenomenon of concentrated equity ownership is prevalent, with major shareholders often being families or the state (Claessens et al., 2002; La Porta et al., 1999). Concentrated equity ownership gives rise to two distinct effects. On one hand, major shareholders can effectively supervise the management or directly participate in corporate management, thereby alleviating the agency problem between owners and management (Chen and Hu, 2022; Shleifer and Vishny, 1986; Singh and Iii, 2003). On the other

[☆] This research was funded by the project of the National Social Science Fund of China, grant number 21BGL108.

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hand, major shareholders may also exploit their control rights to expropriate corporate assets through various means, such as tunneling via funds occupation, related-party transactions, and excessive cash dividend distributions (Claessens et al., 2002; Johnson et al., 2000). These actions can trigger agency conflicts between major shareholders and minority shareholders (Johnson et al., 2000). The tunneling activities of major shareholders not only directly infringe upon the interests of minority shareholders but also hinder the development of financial markets and long-term economic growth (Morck et al., 2005). Consequently, in countries and regions characterized by concentrated equity ownership, the core function of corporate governance has shifted. Instead of primarily focusing on curbing management's expropriation of owner interests, the emphasis now lies in restraining the tunneling behavior of major shareholders (Hou et al., 2017).

How to curb the tunneling behavior of major shareholders is a challenge widely recognized in the global field of corporate governance. When it comes to external corporate governance mechanisms, scholars have discovered that the legal framework and the efficiency of its enforcement are fundamental determinants of the level of protection for minority shareholders (Gopalan and Jayaraman, 2012; La Porta et al., 2002). Besides legal mechanisms, external auditing and media supervision also play pivotal roles in restraining the tunneling behavior of major shareholders (Li and Ye, 2016; Yao, 2022). Regarding internal corporate governance mechanisms, the equity balance among multiple major shareholders has been demonstrated to enhance the level of protection for minority shareholders. Meanwhile, foreign investors from countries with high information disclosure standards, interlocking shareholders, management shareholding, and independent directors are all effective in alleviating major shareholders' tunneling behavior (Li et al., 2023; Ye et al., 2007; Zhang et al., 2024; He et al., 2025).

New Institutional Economics categorizes institutions into formal institutions and informal institutions. The aforementioned research has primarily centered around formal institutions. However, informal institutions, such as cultural traditions, ethics and morals, religious beliefs, and customs, can also influence the tunneling behavior of major shareholders by regulating and guiding individual values and behaviors (Xiong et al., 2021). Research reveals that in emerging market countries characterized by weak investor legal protection, informal institutions such as reputation, relationships, and trust play a pivotal role in driving the development of the private sector by reducing transaction costs and enhancing cooperation expectations (Allen et al., 2005; Chen et al., 2020). Therefore, examining the impact of informal institutions on the tunneling behavior of major shareholders holds significant value for improving corporate governance and developing capital markets across a broad range of emerging market nations.

A clan refers to a social organization composed of individuals sharing a common ancestor, bound together by patrilineal kinship ties. Throughout history, such clans have been prevalent across diverse geographical regions worldwide and, to this day, retain significant influence in areas such as East and Southeast Asia. As one of the core informal institutions in traditional China, clan culture dominated grassroots society in pre-modern China (North, 1971), acted as a coordinator and defender of social order (Greif and Tabellini, 2010; Greif and Tabellini, 2017), and thus constitutes a hallmark of Chinese culture (Zhang et al., 2020). Compared with other informal institutions such as Confucian culture, clan culture exerts a more direct and significant impact on the business conduct of Chinese private enterprises (Liu et al., 2025; Wang et al., 2025). Specifically, clan culture can significantly alleviate firms' financial constraints (Pan et al., 2019a), encourage controlling shareholders to appoint family members as executives (Pan et al., 2019b), improve corporate innovation efficiency (Liu et al., 2024), facilitate the implementation of M&A strategies (Yuan et al., 2022), and restrain firms' greenwashing behavior (Fan & Sun, 2026). Meanwhile, clan culture also significantly hinders corporate digital transformation (Liu & Zhang, Chen, et al., 2025), fuels corporate rent-seeking activities (Dai et al., 2024), strengthens the closure of corporate alliance networks (Zhang et al., 2025), and restrains firms' cross-regional expansion (Wei & Peng, 2025). In regions with strong clan culture, the proportion of clan members among minority shareholders is relatively high (Pan et al., 2019a). Mitigating the agency conflict between controlling shareholders and minority shareholders has long been a central challenge in the field of modern corporate governance. Against this background, it is theoretically and practically imperative to investigate the impact of clan culture on the tunneling behavior of controlling shareholders.

Meanwhile, China also provides an ideal sample for studying clan culture and the tunneling behavior of major shareholders, and the reasons are grounded in the following three aspects. Firstly, equity concentration is a prevalent feature among private listed companies in China, where controlling shareholders typically hold over 30% of the shares (Jiang & Kim, 2015). Given the relatively weak legal protection for investors, the government's lax supervision over major shareholders, the insufficient independence of external auditing institutions, and the perfunctory nature of the independent director system (Chen et al., 2020), the tunneling behavior of major shareholders in private listed companies has been prevalent since the establishment of the securities market.

Secondly, from a cultural comparison perspective, European culture is predominantly characterized by city-state culture, whereas Chinese culture is primarily driven by clan culture (Greif & Tabellini, 2010). During the process of industrialization in Europe, clan-based structures have generally declined, with only limited continuity observed in a small number of regions (Xue et al., 2024). Owing to China's long-standing lack of a commercial legal tradition, throughout the extensive historical period prior to the promulgation of the *Commercial Code* in 1904, clans, as an informal institution, served as the principal force for coordinating, organizing, and propelling private commercial activities. Although clans experienced a period of dormancy and withdrew from social life in the 1950s, they witnessed a resurgence following the implementation of China's reform and opening-up policy in the 1980s. To this day, they continue to exert an influence on the behavioral choices and governance structures of private companies. This unique phenomenon that spans historical cycles renders China an invaluable and rare case for the study of clan culture.

Thirdly, the spatial distribution of clans in China exhibits a pronounced characteristic of being "stronger in the south and weaker in the north." Specifically, the southern and central regions are characterized by the most profound and long-standing accumulation of clan culture, whereas the northern and northeastern regions exhibit comparatively weaker clan cultural influences (Liu & Wang, 2007). Given the pronounced regional disparities in China's clan culture, coupled with the fact that formal institutions—encompassing laws, taxation, government supervision, and corporate governance standards—exhibit a high degree of

homogeneity across different regions of China (Amit et al., 2015; Dong et al., 2018), China thus constitutes a nearly ideal natural laboratory for investigating how clan culture influences the tunneling behavior of major shareholders.

Based on a sample of private listed companies in China, our study reveals that clan culture can effectively curb the tunneling behavior of major shareholders, thereby alleviating the agency conflict between major shareholders and minority shareholders. Mechanism analysis indicates that clan culture exerts its influence through two parallel pathways: by reinforcing the personal reputation mechanism and by elevating individual moral standards. Our research provides robust empirical evidence on the presence of a substitution effect between informal governance mechanisms and the company's external as well as internal formal governance mechanisms when it comes to restraining the tunneling behavior of major shareholders. Notably, clan culture exhibits a heightened efficacy in settings characterized by the relative weakness of formal governance mechanisms.

This paper enriches the existing literature in the following ways. First, it expands the scope of research on the impact of informal institutions on the tunneling behavior of major shareholders. While prior studies have examined the influence of religion and Confucian culture on such behavior (Du, 2014; Du, 2015), this paper incorporates clan culture—a highly influential informal institution in East and Southeast Asia (Greif & Tabellini, 2010)—into the analytical framework, thereby filling a critical missing link in the existing research. Compared with religious culture and Confucian culture, clan culture exhibits uniqueness in its impact on the tunneling behavior of controlling shareholders. Religious cultures (e.g., Buddhism and Taoism) and Confucian culture exert universal influences on a broad range of social groups, regulating individual behavior mainly through spiritual constraints and moral constraints (Du, 2014; Du, 2015), with relatively loose social ties among their adherents. In grassroots society of traditional China, neither religious culture nor Confucian culture was supported by systematic formal organizations or enforceable monitoring mechanisms, and thus could only impose soft constraints on individual conduct. In contrast, clan culture operates within the scope of acquaintance groups bound by patrilineal kinship (Guo et al., 2026). Through clan activities such as ancestor worship and genealogy compilation, strong connections are formed among clan members (Su et al., 2011; Wang et al., 2026). In traditional grassroots China, clan organizations not only impose moral constraints on clan members through genealogies and clan rules, but also effectively monitor and discipline their behaviors via systematic formal institutions such as clan elders and clan meetings, as well as collective punishment mechanisms based on personal reputation (Greif and Tabellini, 2010; Greif and Tabellini, 2017). Consequently, clan culture can form dual constraints on the tunneling behavior of controlling shareholders.

Second, this study enriches the literature on corporate governance of private firms in emerging market economies. Using China as a research setting characterized by weak formal governance mechanisms and widespread tunneling by controlling shareholders, we find that clan culture restrains the tunneling behavior of controlling shareholders in private firms through two channels: externally by strengthening the individual reputation mechanism, and internally by improving individual moral standards. In this way, clan culture effectively compensates for the deficiencies of formal governance mechanisms. Accordingly, in the core area of corporate governance concerning agency conflicts between controlling shareholders and minority shareholders, this paper provides empirical evidence that clan culture substitutes for formal internal and external governance mechanisms. Our findings offer policy implications for emerging market economies to improve their corporate governance systems and establish corporate governance mechanisms featuring the coordination of formal and informal institutions.

Third, this study enriches the research on the economic consequences of clan culture, extending the scope from the level of corporate operation to the level of corporate governance. Existing literature has examined the impact of clan culture on specific corporate behaviors such as financing, innovation efficiency, mergers and acquisitions, greenwashing, digital transformation, rent-seeking, alliance building, and cross-regional expansion (Fan and Sun, 2026; Liu et al., 2024; Pan et al., 2019a; Yuan et al., 2022; Dai et al., 2024; Zhang et al., 2025; Wei & Peng, 2025). In contrast, this paper focuses on the tunneling behavior of controlling shareholders and identifies the positive effect of clan culture on this prevalent corporate governance issue worldwide, thus providing guidance for future studies on exploring the modern corporate governance value of traditional culture.

The remaining sections of this paper are organized as follows: Section 2 reviews the evolutionary history and socioeconomic functions of clans. Section 3 elaborates on the hypotheses. Section 4 describes the data sources and the measurement methods for key indicators. Section 5 presents the empirical findings and examines the potential channels through which clan culture influences the tunneling behavior of major shareholders. Section 6 further investigates the interactive relationships between clan culture, as an informal institution, and both external and internal formal governance mechanisms of companies. The paper concludes with a discussion of the conclusions and implications.

2. Clan system and literature review

China's clan system, which can be traced back to the 11th century BCE, stands as one of the longest - enduring and most far - reaching informal institutions within Chinese civilization (Peng, 2010). Its core characteristic lies in the fact that it takes a common male progenitor in the genealogy as the apex, with all members determining their individual identities and statuses within the clan based on their patrilineal blood ties to this progenitor (Xiong et al., 2021). During the peak periods of some clans, the population living together in a clustered manner exceeded three thousand individuals (Wu et al., 2024). To effectively manage such a large group of people, in addition to appointing clan elders, large clans have evolved a complex hierarchical governance structure over the course of their development: (1) Branch-Lineages: These refer to the branches of a clan derived from specific male members, each managed by branch - lineage elders; (2) Extended Families: Under each branch-lineage, there are several extended families, presided over by household heads; (3) Nuclear Families: These constitute the fundamental units of extended families.

Prior to the end of the 10th century, the establishment of clans was a prerogative exclusive to the aristocracy, with clans primarily serving political functions. Subsequently, their focus shifted predominantly towards economic functions. As the population continued

to migrate southward, China's economic center completed its southward shift between the 12th and 13th centuries, with rice supplanting wheat as the principal staple crop. Compared to wheat, rice, as a paddy-field crop, not only involves more cultivation stages and demands higher technical proficiency but also necessitates the construction of intricate irrigation systems and the coordination of water-using times and volumes among different households. The cultivation of rice, particularly double-cropping rice, surpasses the capacity of nuclear families and even extended families. It necessitates the integration of human resources and capital within the clan to carry out organized agricultural production (Han and Luo, 2009; Huang et al., 2023). In the realms of ancestor worship, collaborative production, hydraulic engineering projects, public facility maintenance, and even external factional clashes, clan members engage in frequent interactions, enabling the efficient internal dissemination of information. This scenario is characteristic of a typical acquaintance-based society. Building on this foundation, clans employ a range of institutional arrangements, including electing clan elders, codifying clan regulations, and convening clan assemblies, to impose collective sanctions on members who violate these regulations (Huang et al., 2022; Lei et al., 2018). These measures effectively resolve two types of collective-action dilemmas. The first dilemma pertains to shirking and "free-riding" behaviors in the production and maintenance of public goods. The second involves opportunistic actions such as scrambling and "hold-up" behaviors during the allocation and utilization of public resources.

By the 16th century, the commoner class was also permitted to establish ancestral halls and compile genealogies, enabling clans to gradually evolve into the most significant and dynamic informal organizations in China. Their functions extended well beyond the economic realm, giving rise to a series of important social roles. Drawing on communal clan properties such as clan fields, clan houses, and graveyards, clans not only provided productive public facilities like irrigation systems, roads, and bridges but also undertook social functions including financial intermediation, educational subsidies, social assistance, and the mediation of various internal disputes within the clan. To a substantial extent, clans partially assumed the functions of market-oriented financial institutions such as banks, as well as those of grassroots administrative and judicial bodies (Chen et al., 2022; Greif and Tabellini, 2017). By the late 19th century, the influence of clans reached its zenith, with the development of a comprehensive and rigorous set of clan regulations. These regulations clearly delineated the ethical and moral codes that members were obligated to adhere to, such as "filial piety and fraternal duty," "hierarchical order by age and status," "benevolence," "integrity and good faith," and "mutual aid" (Zhang, 2020). Additionally, they specified in great detail the behavioral norms for members in various aspects, including marriage selection, family life, property inheritance, and offspring education (Peng, 2004). The clan leader, typically an elder of high prestige, presided over clan meetings to mete out punishments to members who violated clan regulations and bestow rewards upon those who adhered to them or made significant contributions. Outstanding deeds were recorded in the genealogy, serving as exemplars for future generations to revere and emulate. Through intergenerational socialization and cultural permeation, these clan regulations gradually became internalized as the core shared values among clan members (Wei & Peng, 2025). This process shaped individuals' cognitive frameworks and behavioral patterns, governing the entire life trajectory of clan members from birth to death.

Even if ordinary Chinese individuals do not convert to any religion or identify as adherents of Confucian culture, they are still influenced by clan culture to varying degrees. Consequently, clans have played a unique role in Chinese society that is unparalleled by any other informal institution. Although the clan system suffered severe disruptions in the mid-20th century, with clan meetings banned and communal clan properties such as ancestral halls and clan fields confiscated, clans demonstrated remarkable organizational resilience. Following the reform and opening-up period, they experienced a revival (Zhang, 2020). Particularly in regions like southern China, clan activities—including the reconstruction of ancestral halls, the updating of genealogies, and ancestor worship ceremonies—rapidly flourished once again. Although contemporary clans have relinquished their grassroots administrative and judicial functions, they have successfully transformed into informal organizations with new forms. To this day, clan culture continues to exert a pervasive influence across various facets of society, encompassing domains such as fertility decisions and elderly care models (Zhang, 2019), human capital accumulation (Liang & Ren, 2023), local public goods provision (Tsai, 2007), income distribution (Guo et al., 2014), banking sector development (Chen, Ma, et al., 2022), industrial specialization (Fan et al., 2023), and urbanization processes (Greif & Tabellini, 2010).

3. Theoretical hypotheses

The agency problem between major shareholders and minority shareholders in Chinese business organizations has historical roots that can be traced back to the partnership companies of clan-based merchants in the 15th century or even earlier. Partnership systems have a long-standing history in China, having largely taken shape during the Song Dynasty in the 10th century (Liu, 2002). Unlike in modern corporate systems where shareholders are liable only for the amount of their capital contributions, traditional partnership companies not only accepted capital investments but also frequently incorporated non-monetary factors such as production tools, land, and labor as forms of capital contribution. Moreover, they required all partners to bear unlimited liability for debt repayment.

In traditional China, commercial activities were highly reliant on informal relational networks such as kinship and geographical ties for their unfolding. The Huizhou merchant group, which flourished from the mid-15th century until the early 20th century and endured for over 500 years, stands as the most representative clan-based merchant group in Chinese history. The Huizhou merchants primarily adopted partnership systems to conduct their business operations. In the initial stages of entrepreneurship, partners were predominantly family members with close kinship ties, such as fathers and sons, brothers, and uncles and nephews. As the companies expanded, the partnership extended to include clan members with more distant kinship relations (Fu, 1956). The partnership system within clan-based merchant groups had evolved to distinguish between principal shareholders and general shareholders. Principal shareholders contributed relatively large amounts of capital, exercised actual control over, and were responsible for the day-to-day operations of the stores. Their roles were analogous to those of controlling shareholders in modern corporations who are directly involved in management. In contrast, general shareholders contributed smaller amounts of capital and occupied positions similar to

minority shareholders (Liu & Xie, 2005). Due to the asymmetric allocation of shareholder rights and capital, principal shareholders were both motivated and capable of infringing upon the interests of general shareholders. Consequently, historically, Chinese partnership companies faced agency problems between majority and minority shareholders at an early stage.

As traditional Chinese law offered weak protection for industry and commerce, investors faced substantial difficulties in finding reliable partners and raising large-scale capital to support large-scale commercial operations. In this context, clans, as an informal institution, provided an effective alternative (Allen et al., 2005; Greif and Tabellini, 2010; Tang et al., 2024).

First, moral constraint constitutes one of the core functions of clan culture (Greif & Tabellini, 2017). Norms such as “prioritizing righteousness over profit”, “upholding integrity”, and “abiding by laws and disciplines” usually constitute the core of clan rules. For instance, the principle of “prioritizing righteousness over profit” requires clan members to consider the collective interests of the clan first in profit distribution, placing the well-being of fellow clansmen above purely commercial considerations (Smith & Kouchaki, 2021). These norms are continuously promoted, interpreted, and practiced through clan activities including ancestor worship, genealogy compilation, production mutual assistance, and clan education, thereby achieving systematic moral education and behavioral guidance for clan members (Li et al., 2024). Clan members who comply with clan rules and make significant contributions are publicly commended, and their outstanding deeds are recorded in the genealogy, making them role models respected and emulated by later generations (Chen et al., 2025; Tang et al., 2024). Through generations of socialization and encouragement, these norms have gradually evolved into the “collective memory” of the clan, fundamentally shaping individuals’ core values and behavioral orientations (Wei & Peng, 2025). This improves the business ethics of clan-based merchant groups, effectively curbs the tunneling behavior of large shareholders in partnership enterprises (Zhao, 2023), and protects the interests of vulnerable minority shareholders.

Second, reputation constraint also constitutes one of the core functions of clan culture (Greif & Tabellini, 2010; Huang et al., 2022). Controlling shareholders of partnership firms who engage in tunneling behavior will face a “dual collective punishment” based on the reputation mechanism: collective boycott by the clan-based merchant community and collective sanction by the clan.

First, once the tunneling behavior of controlling shareholders at the expense of minority clansmen shareholders is detected, the information can be efficiently transmitted within the clan merchant network. The clan merchant community will cast doubt on their business reputation and professional ethics, and adopt a strategy of collective boycott in subsequent commercial activities, excluding them from cooperative networks (Fan et al., 2023). Since business relations are built on personal *guanxi* and social networks, and given the severe consequences of a collapsed business reputation, controlling shareholders of Chinese private firms regard the loss of personal reputation as their primary concern over business failure (Allen et al., 2005), valuing it far more than economic losses.

Second, tunneling by controlling shareholders in partnership enterprises will simultaneously trigger collective punishment from the clan. Information about such tunneling will quickly spread from the clan merchant community to the entire clan network. Not only will the perpetrator suffer personal reputational damage and face collective isolation and ostracism by clansmen (Greif and Tabellini, 2017; Liu et al., 2024), but the reputation of his entire family will also collapse, resulting in the exclusion of his family and descendants from the clan’s mutual-aid network. Serious tunneling is regarded as dishonoring the ancestors and humiliating the clan’s reputation, which may trigger intervention from the clan assembly—the highest decision-making body within the clan. Under the leadership of the clan chief and lineage heads, varying degrees of punishment, ranging from verbal reprimands to expulsion from the clan, can be imposed on the tunneling controlling shareholders in accordance with clan rules (Lei et al., 2018). Therefore, given the severe absence of formal commercial laws in traditional Chinese society, clans effectively acted as arbiters of commercial disputes, thereby exercising partial functions of grassroots judicial institutions (Greif & Tabellini, 2010; Li et al., 2024).

Historical records also provide evidence that clans protected the interests of minority shareholders in partnership enterprises. For example, to prevent tunneling by controlling shareholders, the Ye Clan of Cixi, Zhejiang, which ran the Ye Tongren Pharmacy in the seventeenth century, established Ten Shop Rules through the clan assembly. These rules explicitly stipulated that no shareholder, including controlling shareholders, could serve concurrently as manager; instead, professional managers from outside the clan must be appointed to operate the business. Furthermore, controlling shareholders’ borrowing from firms and malicious appropriation of share capital represent major forms of tunneling. Studies of account books from partnership firms run by Huizhou merchants in the nineteenth century show that shareholder loans from firms were far smaller than firm loans to shareholders, with the former totaling only about one-ninth of the latter (Sun & Yuan, 2022). Analyses of numerous partnership documents also reveal that some firms strictly adopted a “return profit system” (Wang, 2018), under which shareholders borrowing from the firm were charged a monthly interest rate of 0.8–1.5%. For comparison, the monthly interest rate for private lending in Huizhou, Anhui, during the same period was generally 1–2% (Liu, 2013), indicating similar cost levels. Some clan-based partnership firms even explicitly prohibited shareholders from appropriating firm assets in any form, with rules such as “paid-in capital shall not be withdrawn without authorization” and “funds raised shall not be used for private purposes” (Zhou, 2009). In the mid-to-late nineteenth century, to prevent conflicts among shareholders in advance, some clans empowered the clan assembly to decide key matters including personnel, finance, and business operations (Feng, 2016), transplanting mature clan governance practices into enterprise management.

Therefore, as a kinship-based social organization, clans rely on internal moral and reputation constraints to effectively curb opportunistic behaviors such as cheating in internal cooperation, with formal institutions playing only a minor role (Greif & Tabellini, 2010). Compared with mature market economies in the West, China still suffers from weaknesses in external formal institutions such as legal protection and government regulation for minority shareholders. Meanwhile, internal corporate governance mechanisms in private listed companies remain underdeveloped. Together, these factors result in narrow and ineffective channels for minority shareholders to defend their rights against various tunneling behaviors by controlling shareholders (Allen et al., 2005). Against this background, clan culture—as an informal institution—still has considerable potential to mitigate the corporate governance problem of controlling shareholder tunneling in contemporary China. Existing empirical studies show that cash holdings are significantly positively associated with controlling shareholder tunneling in Chinese private listed companies, and clan culture can significantly reduce

cash holdings (Liu et al., 2015; Xue et al., 2024). In addition, clan culture significantly constrains related-party transactions in private listed companies (Zhao, 2023), thereby alleviating agency conflicts between controlling and minority shareholders. It thus serves as an important supplementary mechanism where formal legal protection for minority shareholders remains insufficient.

In summary, as one of China's most important informal institutions, clans can alleviate agency conflicts between controlling and minority shareholders. Hypothesis 1 is therefore proposed :

H1 : Clan culture can curb the tunneling behavior of major shareholders and enhance the level of protection for minority shareholders' interests.

As an organization bound by patrilineal kinship, a clan allows for the swift and precise verification of each member's identity. Through long-term and continuous participation in a wide range of clan activities, such as ancestral worship ceremonies, genealogical compilation, production collaboration, weddings and funerals, folk celebrations, and even external feuds (Lei et al., 2018), clan members engage in frequent interactions and exchanges. Consequently, the level of information dissemination among them far exceeds that among non-clan members, enabling easy access to reliable and detailed information about a particular member's personal capabilities, career history, moral character, and credit records. Therefore, the clan represents the most quintessential acquaintance society in traditional China, serving as the primary source of social capital encompassing personal reputation, relationships, and trust. It is extremely challenging for ordinary individuals to acquire such social capital outside the clan.

Moral constraint constitutes one of the core functions of clan culture (Greif & Tabellini, 2017). Norms such as "prioritizing righteousness over profit", "upholding integrity", and "abiding by laws and disciplines" usually form the core content of clan rules. For instance, the principle of "prioritizing righteousness over profit" requires clan members to take the collective interests of the clan first in profit distribution, placing the well-being of fellow clansmen above purely commercial considerations (Smith & Kouchaki, 2021). These norms are continuously promoted, interpreted, and practiced through clan activities including ancestor worship, genealogy compilation, production mutual assistance, and clan education, thereby achieving systematic moral education and behavioral guidance for clan members (Li et al., 2024). Clan members who comply with clan rules and make significant contributions are publicly commended, and their outstanding deeds are recorded in the genealogy, making them role models respected and emulated by later generations (Chen et al., 2025; Tang et al., 2024). Through generations of education and encouragement, these norms have gradually evolved into the "collective memory" of the clan, fundamentally shaping individuals' core values and behavioral orientations (Wei & Peng, 2025). This improves the business ethics of clan-based merchant groups, effectively curbs the tunneling behavior of controlling shareholders in partnership enterprises (Zhao, 2023), and protects the interests of vulnerable minority shareholders.

Whether a major shareholder had a good personal reputation within the clan and whether there were any moral blemishes were key factors determining whether they could win the trust of potential partners, thereby raising funds and expanding their business scope within the clan. Therefore, personal reputation primarily served as a screening mechanism for clan members to identify high-quality partners, thereby mitigating *ex ante* adverse selection by major shareholders. Secondly, leveraging intricate relational networks and frequent interpersonal interactions, information dissemination within clans not only occurred rapidly but, more importantly, possessed distinctive characteristics—including heightened confidentiality, superior timeliness, and broader coverage—compared to information transmission outside the clan. These unique attributes enhanced the likelihood of detecting potential tunneling activities by major shareholders. Therefore, the probability of detecting tunneling behavior by major shareholders in clan-based partnerships was significantly higher than that in non-clan partnerships. Once such misconduct was exposed, the negative information would swiftly spread throughout the entire community of clan merchants and the broader clan network, resulting in severe damage to, or even the complete erosion of, the major shareholder's personal reputation within both the clan and the local community. The personal reputation mechanism within this acquaintance-based society laid a solid groundwork for the clan-merchant cohort and the clan as a whole to impose a "dual collective punishment," thereby effectively deterring the tunneling behavior of major shareholders.

As the 1950s dawned, although the well-organized traditional clan organizations gradually declined and faded away on the Chinese mainland, they did not vanish entirely; instead, a portion of clan activities went underground. After the 1980s, a multitude of new-form clan organizations, such as clan associations and clan-based chambers of commerce, began to emerge in large numbers. Research demonstrated that clan associations played a multifaceted role among clan members, facilitating emotional bonding, providing relief in times of crisis, and offering financial support for education (Pan et al., 2019a; Zhang et al., 2020). Merchants within the clan, who were local economic elites, commonly held pivotal positions such as chairpersons or board directors in these organizations (Xiang, 2022). Surname-based chambers of commerce were local organizations jointly established by business groups sharing the same surname. They played a notable role in helping members expand their relationship networks, integrate business elements, and identify business opportunities. In the southeast coastal regions of China, clan associations and surname-based chambers of commerce also mediated commercial disputes among clan members (Pan et al., 2019a), partially fulfilling the functions of local arbitration institutions. Therefore, in regions where clan culture prevails, the informal networks established by contemporary clan-based merchants are more tightly knit, fostering more frequent interpersonal interactions and more efficient information dissemination. As a result, this group continues to exhibit distinct characteristics of an acquaintance society or quasi-acquaintance society, wherein personal reputation mechanisms remain effective. This social structure provides the necessary conditions for both clan merchants and the clan itself to implement "dual collective punishment." Based on this reasoning, we propose the following research hypothesis (Hypothesis 2).

H2. Through the personal reputation mechanism inherent in acquaintance or quasi-acquaintance societies, clan culture serves to restrain the tunneling behavior of major shareholders.

Drawing upon evolutionary game theory, Aoki (2001) conceptualizes institutions as "shared beliefs" among individuals regarding the actual play of repeated games, which can be understood as the cognitive paradigm collectively adhered to by a group. Similarly,

Greif, (2006) interprets culture as a belief or cognitive system that provides individuals with stable expectations about the decision-making rules of other game participants. Given the bounded rationality of participants, it is impossible to obtain precise information about the decision-making rules of others. Nevertheless, repeated interactions in the game will evolve toward an equilibrium solution (i.e., a stable set of actions). When this outcome emerges consistently and persistently, participants can discern some salient features of others' decision-making rules—a process termed "information compression"—and, based on this, formulate their own decision-making rules, thereby significantly reducing individual decision-making costs. Guided by "information compression," all participants take actions that collectively determine the regeneration of the equilibrium solution. In turn, the regeneration of this equilibrium solution reinforces the "information compression" among all participants. Therefore, culture represents the "shared beliefs" of individuals regarding how repeated games are conducted, and at its core, it constitutes the "information compression" or "summary representation" of the equilibrium solution by all participants (Aoki, 2001).

Some clans have persisted across several dynasties, spanning hundreds of years with genealogical lineages extending over a dozen or even several dozen generations (Wu et al., 2024). Consequently, the strategic interactions among clan members closely approximate repeated games. In clan-partnership companies, major shareholders are unable to fully grasp the detailed decision-making rules of other players such as minority shareholders and clan elders. However, through observation, they find that major shareholders around them commonly and consistently choose "integrity" over time. As the game stably yields the equilibrium solution of "integrity and cooperation," an "information compression" regarding other players is formed and continuously reinforced: if major shareholders opt for honest behavior, minority shareholders will maintain the partnership; conversely, if they engage in tunneling behavior, they will face dual punishment from both the clan-based merchant group and the clan itself, incurring a series of irreparable losses. When the stable behavioral pattern of "integrity and cooperation" persists, the aforementioned "information compression" becomes progressively reinforced, evolving into a "shared belief" between major and minority shareholders. This cognitive framework gradually becomes institutionalized among all clan members, representing the very process through which clan culture forms and consolidates. Consequently, major shareholders' restraint from tunneling behavior does not stem from deliberate calculation, but rather emerges as an automatic cognitive schema and instinctive behavioral norm.

Formal rules can be altered overnight, whereas the transformation of informal rules such as customs and behavioral norms requires a protracted process (North, 2005). After the 1950s, tightly-structured institutions including clan property, clan elders, and clan assemblies were abolished, and activities such as building ancestral halls, worshiping ancestors, and compiling genealogies were prohibited. Simultaneously, the government nationalized the private sector through redemption policies, leading to the near-complete disappearance of the historically vibrant clan-based merchant groups. It was not until the early 1980s that clan-based merchant groups re-emerged alongside the implementation of the reform and opening-up policy. However, as the equilibrium solution arising from repeated games that have persisted for centuries or even longer, honest behavior has been internalized as a "shared belief" in the minds of successive generations of clan members, forming the most central component of clan culture. This cultural element continues to exert an influence on the tunneling behavior of major shareholders. Although China's formal institutional environment has undergone dramatic transformations over the past seven decades, the formation of new "shared beliefs" requires considerable time (Young, 1998). The original "shared beliefs" persist in individuals' cognition and continue to exert subtle yet profound influences on decision-making and behavior. This analysis leads us to propose Hypothesis 3.

H3 : . Clan culture curbs the tunneling behavior of major shareholders by elevating individuals' moral standards.

4. Research design

4.1. Sample selection and data sources

Compared with state-owned companies, private companies¹ are more susceptible to the influence of informal institutions (Xue et al., 2024). Therefore, this study selects private listed companies on the main boards of the Shanghai and Shenzhen Stock Exchanges in China from 2008 to 2020² and applies the following screening criteria: (1) Exclude samples marked as *ST, S, S*ST, SST; (2) Exclude samples from the financial industry; (3) Exclude enterprises whose registered city belongs to prefecture level cities that have been revoked or merged; (4) Exclude state owned samples; (5) Exclude samples with a large number of missing observations. Ultimately, 8919 samples from 195 cities are obtained. To mitigate the influence of outliers on the empirical results, all continuous variables are winsorized at the 1% and 99% percentiles. The company-level data are sourced from the CSMAR database, with missing values supplemented using the Wind database.

4.2. Model design and variable description

The baseline regression model in this paper is designed as follows:

¹ We select private enterprises based on the equity nature published in the CSMAR database. This database classifies enterprises into state-owned enterprises, private enterprises, foreign-funded enterprises, and other enterprises based on the identity of the actual controller.

² Starting from 2008 is due to the fact that significant changes were made to the Accounting Standards for Business Enterprises in 2008,. The termination year of 2020 is to exclude the impact of the COVID–19.

$$\text{Tunneling}_{i,t} = \beta_0 + \beta_1 \text{Clan}_i + \beta X + \varepsilon_{i,t} \quad (1)$$

4.2.1. Independent variables

Clan_i denotes the level of clan culture in the region where company i is registered.

Genealogies serve as the material medium through which traditional Chinese people document clan activities. As the saying goes, "A genealogy for a family is akin to a history for a nation." Genealogies record information such as the founding ancestor, the clan's location, the life stories of successive clan members, and the deeds of outstanding individuals. Alongside the construction of ancestral halls and ancestor worship ceremonies, compiling genealogies stands as one of the most significant activities within clan organizations. In line with a range of prior studies, this paper employs regional genealogy density as a measure to gauge the prevalence and vitality of clan culture (Chen et al., 2022; Ding et al., 2025; Greif & Tabellini, 2017; Zhang, 2020). This study employs two variables to measure the strength of clan culture: (1) Clan1_i , a binary indicator that equals 1 if a genealogical record exists in the company's city and 0 otherwise; and (2) Clan2_i , the natural logarithm of the number of genealogical records per 10,000 people (plus one) in the city. Chinese cities are classified into four administrative tiers: municipalities directly under the central government, sub-provincial cities, prefecture-level cities, and county-level cities. This study selects data from prefecture-level cities. It should be noted that in China, a "city" typically refers to a city region, encompassing both urban and rural areas (Huang et al., 2022). The genealogy data are sourced from The General Catalog of Chinese Genealogies, published by Shanghai Ancient Books Publishing House in 2009. This work represents the most comprehensive compilation of Chinese genealogies to date, containing over 5200 genealogies from 608 surnames, the majority of which were compiled during the Ming and Qing dynasties (1368–1911). The urban population data are obtained from the China City Statistical Yearbook.

4.2.2. Dependent variable

$\text{Tunneling}_{i,t}$ represents the tunneling behavior carried out by the controlling major shareholder of company i in year t . As previously discussed, this behavior primarily manifests as the major shareholder's encroachment on the interests of minority shareholders through channels such as capital occupation, related-party transactions, and cash dividend distributions. In line with prior research that utilizes the sum of "other receivables and prepayments" from corporate balance sheets as a measure of the extent of tunneling behavior by major shareholders (Li & Xu, 2020), this paper accordingly adopts the logarithmic value of the ratio of the combined total of other receivables and prepayments to operating revenue as the measurement indicator for the dependent variable.

4.2.3. Control variables

In this study, the control variables are selected at three different levels: (1) At the company level, the variables include: Company age (*Age*), determined by subtracting the date of establishment of the company from the statistical cut-off date to measure the duration of its existence; Company size (*Size*), measured as the logarithm of total assets; Capital intensity (*K/A*), defined as the ratio of capital expenditure to total assets; Proportion of independent directors (*Dbdb*), calculated as the ratio of the number of independent directors to the total number of directors; Profitability (*ROA*), measured by the return on total assets; Long-term solvency (*ALR*), measured by the ratio of debt to assets; Growth potential (*Income*), indicated by the growth rate of operating revenue; Separation rate of control rights and cash flow rights (*Separation*). (2) At the industry level, the study uses the Herfindahl-Hirschman Index (*HHI*) to control for the influence of industry concentration. This index is calculated as the sum of the squares of the market shares of individual companies based on their main business revenue within the industry. (3) At the regional level, the study introduces the Gross Domestic Product (*GDP*) of the city as a control variable to account for the impact of city size. Finally, the model additionally controls for temporal trends and industry-specific traits.

4.2.4. Descriptive statistics

Panel A of Table 2 displays the descriptive statistics for the key variables. Notably, the mean value of regional clan culture is 0.888,

Table 1
Variable definitions.

Variables	Definitions
Tunneling	$\text{Ln}((\text{Other receivables} + \text{Prepayments}) / \text{Operating revenue})$
Clan1	This is a dummy variable that takes the value of 1 when genealogies exist in the city where the company is located, and 0 otherwise.
Clan2	$\text{Ln}(\text{Number of genealogical records} / \text{Population size} + 1)$
Age	Company's duration of existence
Size	$\text{Ln}(\text{Total assets})$
K/A	Capital expenditure / Total assets
Dbdb	Number of independent directors / The total number of directors
ROA	Net profit / Total assets
ALR	Total liabilities / Total assets
Income	$(\text{Operating revenue} - \text{Operating revenue}_{t-1}) / \text{Operating revenue}_{t-1}$
Separation	Separation Rate of Control Rights and Cash Flow Rights
GDP	The Gross Domestic Product of the city
HHI	Industry Herfindahl-Hirschman Index, $\sum_{i=1}^n \left(\frac{\text{Main operating revenue}_i}{\text{Main operating revenue}} \right)^2$

denoting an average of 0.888 clan genealogies per 10,000 individuals, with a standard deviation of 1.428. The mean value of the tunneling measure by major shareholders is 0.206 with a standard deviation of 2.289. Panel B reveals that the mean tunneling level in regions with strong clan culture is significantly lower by 0.193 compared to regions with weak clan culture. The correlation coefficients in Panel C demonstrate a statistically significant negative association at the 1% level between the level of clan culture in a company's location and the logarithm of tunneling behavior by major shareholders. These empirical findings provide preliminary support for Hypothesis 1.

5. Analysis of empirical results

5.1. Baseline regressions

Table 3 presents the regression results for Model (1). Columns 1–4 utilize the presence of clan genealogies (*Clan1*) in the listed firm's location to measure clan culture, while Columns 5–8 employ the number of clan genealogies per 10,000 individuals (*Clan2*) in the local area as the alternative indicator. In Columns 1 and 5, we include only the core independent variable of clan culture. The regression results show that the coefficients of *Clan1* and *Clan2* are -0.422 and -0.389 , respectively, both significant at the 1% level. This suggests that, compared with regions without genealogies, listed companies in genealogy-present regions exhibit a 42.2% lower level of major shareholders' tunneling behavior. Holding other factors constant, a 1% increase in the per capita number of genealogies reduces tunneling intensity by 0.389%. In Columns 2 and 6, we introduce firm-level control variables; subsequently, in Columns 3 and 7, we incorporate regional-level controls; and finally, in Columns 4 and 8, we further augment the model with industry-level controls. Across all these specifications, the coefficients of *Clan1* and *Clan2* stabilize at -0.317 and -0.244 , respectively, and remain statistically significant, providing strong evidence for Hypothesis 1.

5.2. Mechanism tests

To test Hypothesis 2, which posits that clan culture, by leveraging the personal reputation mechanism within acquaintance or quasi-acquaintance societies, curbs major shareholders' tunneling behavior, we construct Models (2) and (3) based on Model (1):

$$Information_i = \beta_0 + \beta_1 Clan_i + \beta X + \varepsilon_{it} \quad (2)$$

$$Tunneling_{i,t} = \beta_0 + \beta_1 Clan_i + \beta_2 Information_i + \beta X + \varepsilon_{it} \quad (3)$$

Information_i represents the level of information transmission in the region where company *i* is located. The more developed the informal communication channels in a region and the higher the level of information transmission, the closer the region resembles an acquaintance society or a quasi-acquaintance society, and the greater the scope for personal reputation mechanisms to exert their influence. Compared with formal communication channels such as professional media, official institutions, and public platforms, exchanges among family members and friends, which are built upon intimate personal relationships and individual trust, represent the most quintessential form of informal communication channels. These exchanges are characterized by personalized communication styles and diversified communication content. Compared to remote communication between family members and friends via telephones, the Internet, and other communication tools, family and friend gatherings constitute face-to-face interactions, offering the highest degree of privacy, the strongest interactivity, and the most in-depth communication. Therefore, we respectively utilize Question A30–6 from the Chinese General Social Survey (CGSS): "In the past year, have you frequently engaged in the following activities during your free time? 6. Getting together with relatives who do not live with you," and Question A30–7: "In the past year, have you frequently engaged in the following activities during your free time? 7. Getting together with friends," to measure the level of information transmission through informal communication channels in a region, and thereby assess the extent to which the personal reputation mechanism operates in that region. According to the questionnaire design, a lower score indicates a higher level of information transmission, and we take the mean value of this indicator.

Secondly, to test Hypothesis 3, which posits that clan culture curbs major shareholders' tunneling behavior by elevating individuals' moral standards, we construct Models (4) and (5) based on Model (1):

$$Moral_i = \beta_0 + \beta_1 Clan_i + \beta X + \varepsilon_{it} \quad (4)$$

$$Tunneling_{i,t} = \beta_0 + \beta_1 Clan_i + \beta_2 Moral_i + \beta X + \varepsilon_{it} \quad (5)$$

Moral_i denotes the individual moral standard in the region where company *i* is situated. The essence of tunneling behavior lies in major shareholders' violation of business ethics and professional integrity, whereby they expropriate undue benefits at the expense of minority shareholders—essentially exploiting minority shareholders for personal gain. Therefore, we measure the individual moral standard of a region using question A34 from the Chinese General Social Survey (CGSS): "On the whole, do you agree that in this society, if you are not careful, others will try to take advantage of you?"³; According to the survey's scoring criteria, a lower score

³ It should be noted that if the question is framed as, "Overall, do you agree or disagree that in this society, one always tries to find ways to take advantage of others?" although it can directly probe into the respondents' thoughts, it also significantly increases the likelihood that respondents will conceal their true opinions.

Table 2
Results of descriptive statistics.

Panel A: Descriptive statistics for key variables					
Variables	N	Mean	Std. Dev.	Min	Max
Tunneling	8919	0.206	2.289	9.41e−05	150.936
Clan1	8919	0.953	0.211	0.000	1.000
Clan2	8919	0.888	1.428	0.000	8.341
Age	8919	18.114	5.841	5.362	32.420
Size	8919	21.720	1.257	19.238	25.330
K/A	8919	0.053	0.052	0.000	0.242
Dbdb	8919	0.374	0.049	0.308	0.500
ROA	8919	0.058	0.072	−0.228	0.280
ALR	8919	0.443	0.195	0.067	0.892
Income	8919	0.191	0.555	−0.683	4.140
Separation	8919	6.427	8.022	0.000	31.198
GDP	8919	0.994	0.978	0.003	3.870
HHI	8919	0.138	0.152	0.014	1.000
Panel B: Difference in mean tunneling measures between groups					
Variable	weak clan culture		strong clan culture		difference
Tunneling	0.274	0.081		−0.193***	
Panel C: Correlation coefficients of key variables					
	Tunneling				
Clan1	−0.078***				
Clan2	−0.207***				

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

Table 3
Clan culture and tunneling behavior by major shareholders.

Dependent variables	(1) Tunneling	(2) Tunneling	(3) Tunneling	(4) Tunneling	(5) Tunneling	(6) Tunneling	(7) Tunneling	(8) Tunneling
Clan1	−0.422*** (−6.57)	−0.294*** (−4.69)	−0.317*** (−4.99)	−0.317*** (−4.98)				
Clan2					−0.389*** (−15.82)	−0.243*** (−10.55)	−0.244*** (−10.35)	−0.244*** (−10.36)
Age		0.031*** (12.27)	0.031*** (12.32)	0.031*** (12.31)		0.028*** (11.38)	0.028*** (11.35)	0.028*** (11.32)
Size		0.120*** (9.93)	0.121*** (10.02)	0.121*** (10.02)		0.117*** (9.72)	0.117*** (9.71)	0.117*** (9.71)
K/A		−0.853*** (−3.18)	−0.817*** (−3.05)	−0.817*** (−3.05)		−0.720*** (−2.70)	−0.723*** (−2.71)	−0.723*** (−2.71)
Dbdb		0.768*** (3.15)	0.795*** (3.25)	0.795*** (3.25)		0.798*** (3.29)	0.795*** (3.27)	0.794*** (3.27)
ROA		−5.662*** (−25.52)	−5.682*** (−25.58)	−5.682*** (−25.55)		−5.564*** (−25.25)	−5.561*** (−25.21)	−5.562*** (−25.20)
ALR		−0.061 (−0.71)	−0.060 (−0.70)	−0.060 (−0.70)		−0.043 (−0.50)	−0.042 (−0.50)	−0.043 (−0.51)
Income		0.027 (1.02)	0.027 (1.02)	0.027 (1.02)		0.018 (0.69)	0.018 (0.69)	0.018 (0.69)
Separation		−0.011*** (−7.11)	−0.011*** (−6.99)	−0.011*** (−6.99)		−0.011*** (−6.87)	−0.011*** (−6.89)	−0.011*** (−6.89)
GDP			0.034** (2.50)	0.034** (2.50)			−0.004 (−0.26)	−0.003 (−0.25)
HHI				0.010 (0.06)				0.043 (0.26)
Constant	−1.261*** (−6.86)	−4.314*** (−13.43)	−4.338*** (−13.52)	−4.340*** (−13.43)	−1.444*** (−7.90)	−4.400*** (−13.87)	−4.393*** (−13.82)	−4.402*** (−13.75)
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES
N	8919	8919	8919	8919	8919	8919	8919	8919
R-squared	0.214	0.357	0.358	0.358	0.231	0.363	0.363	0.363

Note: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. The t statistics are in the brackets. We estimate robust standard error. Similarly hereinafter.

signifies a higher moral standard. We compute the average of this indicator for our analysis.

We sequentially utilize the data from 2013 and 2015, which are proximate to the mid-point of the sample time span, to conduct the mechanism test.⁴ Table 4 presents the test results for information transmission levels, representing the personal reputation mechanism. Columns 1, 3, 5, and 7 report regression results of clan culture on information transmission levels, showing significantly negative coefficients for clan culture. This indicates that stronger clan culture in a company's locality corresponds to higher information transmission levels, demonstrating more pronounced effects of the personal reputation mechanism. Columns 2, 4, 6, and 8 introduce both clan culture and information transmission levels into the model. The results reveal significantly positive coefficients for information transmission levels and significantly negative coefficients for clan culture, suggesting that the personal reputation mechanism generates a partial mediating effect. Specifically, clan culture enhances collective punishment of major shareholders engaged in tunneling by improving local information transmission, thereby strengthening the personal reputation mechanism.

Table 5 presents the mechanism test results for individual moral standards. Columns 1 and 3 show the regression results of clan culture on individual moral standards, where the coefficients for clan culture are significantly negative. This indicates that the stronger the clan culture in the region where a company is located, the higher the individual's intrinsic moral standards. Columns 2 and 4 incorporate both clan culture and individual moral standards as variables into the model simultaneously. The results reveal that the coefficient of individual moral standards is significantly positive, while the coefficient of clan culture is significantly negative. This indicates that individual morality generates a partial mediating effect. Specifically, clan culture, by elevating the individual moral standards within the region, dampens the motivation of major shareholders to engage in tunneling behavior, thereby safeguarding the interests of minority shareholders. This illustrates that clan culture exhibits strong inertia, with the equilibrium solutions of repeated historical games internalized into the "shared beliefs" of clan members. These shared beliefs not only determine short-term individual behaviors but also exert a profound influence on the long-term process of institutional change (North, 2005), thereby affecting long-term individual behaviors. In summary, clan culture inhibits major shareholders' tunneling behavior through two mechanisms simultaneously: by strengthening the personal reputation mechanism (an external constraint mechanism) and by elevating individual moral standards (an internal constraint mechanism).

5.3. Endogeneity discussion

In this paper, the independent variables of the baseline model are regional-level variables derived from historical data, while the dependent variables are company-level variables. Typically, historical regional-level variables exert an influence on current company-level variables, whereas current company-level variables cannot retroactively affect historical regional-level variables. As such, the model is virtually free from endogeneity concerns arising from potential reciprocal causation between the independent and dependent variables. A potential reverse causality in the model may exist: over an extended historical period, effective protection of minority shareholders' interests could have facilitated the sustained growth of clan-based partnerships and commercial companies. This development would have enhanced local economic prosperity, thereby promoting population growth in the region. Such demographic expansion would have laid a solid foundation for clan proliferation, ultimately creating fertile ground for the flourishing of clan culture.

Following Chen, Ma, et al. (2022), we select the minimum spherical distance from listed companies to Zhu Xi Academies as an instrumental variable for clan culture to conduct two-stage least squares (2SLS) regression. The establishment of Zhu Xi Academies exerted a significant influence on the formation of early clan culture; thus, the closer a location is to a Zhu Xi Academy, the deeper its influence by clan culture. This instrumental variable satisfies the relevance condition. In addition, the historical locations of Zhu Xi Academies were determined to a certain extent by chance and were not affected by the level of economic development, meeting the exogeneity condition required for an instrumental variable.⁵ The results in Columns 1 and 2 of Table 6 show that after using the instrumental variable, the coefficients of the clan culture remain significantly negative, and the instrumental variable has no issues of underidentification, weak instrumental variable, or overidentification. It can thus be concluded that the empirical findings of this paper are not affected by endogeneity problems arising from reciprocal causation.

Building upon the approach adopted by Pan (2019a), this study employs a Difference-in-Differences model to rigorously investigate the influence of corporate relocation on agency costs among shareholders. The DID approach, by differencing both between treatment/control groups and pre-/post-event periods, effectively mitigates biases arising from omitted unobservable variables, making it widely adopted for addressing endogeneity concerns. The immediate consequence of corporate relocation is that major shareholders transition from an acquaintance or quasi-acquaintance society into a stranger society, spatially disconnecting from their original clan networks. This leads to a substantial reduction in interaction frequency among clan merchants and members, accompanied by significantly diminished information transmission, consequently weakening the personal reputation mechanism in the original location. Furthermore, post-relocation, even if the destination region exhibits strong clan culture, its reputation mechanism remains largely ineffective for relocated major shareholders. This is because clan culture functions as a club good—while it effectively constrains behavior among members of the same clan, its influence on outsiders is inherently limited. Thus, the local reputation mechanism in the new location fails to extend its governance effects to external major shareholders.

It is evident that following corporate relocation, the personal reputation mechanisms in both the origin and destination areas tend to become ineffective for major shareholders, making it difficult to impose a "dual collective punishment" on their tunneling behavior.

⁴ The Chinese General Social Survey (CGSS) was not conducted in 2014.

⁵ The suitability of this instrumental variable has been discussed in detail by Chen, Ma, et al. (2022), and thus will not be reiterated herein.

Table 4

Clan culture, personal reputation mechanism, and major shareholders' tunneling behavior.

Dependent variables	(1)	(2)	(3)	(4)
	Survey question A30–6			
	2013		2015	
	Information	Tunneling	Information	Tunneling
Information		0.564*** (5.77)		0.469*** (4.03)
Clan2	−0.034*** (−14.26)	−0.203*** (−8.48)	−0.056*** (−26.74)	−0.196*** (−8.00)
Constant	3.891*** (95.96)	−6.694*** (−13.42)	3.984*** (124.24)	−6.369*** (−11.24)
Control	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES
N	8591	8591	8591	8591
R-squared	0.221 (5)	0.364 (6)	0.208 (7)	0.363 (8)
Dependent variables	Survey question A30–7			
	2013		2015	
	Information	Tunneling	Information	Tunneling
Information		0.330*** (3.45)		0.198** (2.34)
Clan2	−0.022*** (−9.07)	−0.215*** (−9.01)	−0.060*** (−20.75)	−0.211*** (−8.74)
Constant	3.707*** (104.90)	−5.724*** (−11.85)	3.633*** (87.43)	−5.220*** (−11.77)
Control	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES
N	8591	8591	8591	8591
R-squared	0.234	0.362	0.153	0.362

Note: The sample size is reduced due to the incomplete coverage of regions by the CGSS survey.

Table 5

Clan culture, individual moral standards, and major shareholders' tunneling behavior.

Dependent variables	(1)	(2)	(3)	(4)
	2013		2015	
	Moral	Tunneling	Moral	Tunneling
Moral		0.209* (1.95)		0.740*** (3.79)
Clan2	−0.119*** (−56.66)	−0.198*** (−7.39)	−0.029*** (−20.59)	−0.201*** (−8.22)
Constant	2.854*** (100.64)	−5.096*** (−11.43)	3.038*** (154.56)	−6.750*** (−9.85)
Control	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES
N	8591	8591	8591	8591
R-squared	0.345	0.362	0.322	0.363

Therefore, leveraging the exogenous shock of relocation, we can examine whether a causal relationship exists between clan culture and major shareholders' tunneling behavior. The empirical model is set up as follows:

$$Tunneling_{i,t} = \beta_0 + \beta_1 Change_i \times After_{t,t} + \beta X + \varepsilon_{i,t} \quad (6)$$

Change is a dummy variable for the relocation of the company, taking the value of 1 if the relocation takes place and 0 otherwise. In addition, *After* is a time dummy variable for relocation, taking the value of 0 in the pre-relocation period and 1 in the post-relocation period. Column 3 of Table 6 shows that the coefficient of *Change* × *After* is 0.192, indicating that the relocation increases the tunneling level of treated firms by approximately 0.192 log units compared with the control group. After relocation, the clan culture of the new address cannot play the same powerful role as its birthplace. Therefore, the increase in tunneling after relocation can prove that lower clan cultural levels bring more principal-agent problems, thereby further providing support for Hypothesis 1.

Table 6

Discussion on endogeneity.

Dependent variables	(1) Tunneling	(2) Tunneling	(3) Tunneling
Clan1	−0.986*** (−5.04)		
Clan2		−0.284*** (−5.09)	
Change×After			0.192*** (2.58)
Constant	−3.514*** (−8.64)	−4.348*** (−13.09)	−4.683*** (−14.97)
Control	YES	YES	YES
Year FE	YES	YES	YES
Industry FE	YES	YES	YES
Observations	8919	8919	8919
R-squared	0.349	0.363	0.356
IV	−0.086*** (26.47)	−0.300*** (26.52)	
Anderson canon. corr. LM statistic	831.338 ***	1665.639 ***	
Cragg-Donald Wald F statistic	907.438 ***	2027.234 ***	
Sargan statistic	0.000	0.000	

5.4. Robustness tests

To ensure the robustness of the baseline conclusions, this paper conducts the following tests one by one. First, to mitigate the impact of extreme values, the baseline model has performed winsorization on all continuous variables. For further verification, we substitute these with the unprocessed original data for regression, with the results presented in Columns 1 and 2 of Table 7. The key conclusions remain significantly valid.

Second, we replace the dependent variable with an alternative proxy. As previously mentioned, in addition to capital occupation, related-party transactions also constitute one of the primary means through which major shareholders tunnel a company. This is typically manifested in the situation where the "other payables" amount in the consolidated financial statements of a listed company is less than that in the financial statements of its parent company, because a substantial portion of the related-party transactions between the listed company and its parent company are offset during the preparation of the consolidated financial statements. Therefore, following the approaches of Zhang, and Chen, and Qing (2021) and Li et al. (2005), we measure tunneling by major shareholders using the natural logarithm of the ratio of the difference between consolidated "other payables" and parent-company "other payables" to operating revenue. The results are presented in Columns 3 and 4 of Table 7, and the core conclusions remain significant.

Third, although the seven types of regulatory violations by listed companies—namely, profit fabrication, asset overstatement, false recording, delayed disclosure, material omissions, inaccurate disclosure, and fraudulent listing—may not have a negative impact on the interests of the company's existing minority shareholders in the short term, they do inflict harm on the interests of minority shareholders who purchase the company's shares in the securities market after the occurrence of such violations, particularly those of poorly-informed individual investors. Therefore, we construct a dummy variable, $Violation_{i,t}$, which indicates whether the company has engaged in any of the aforementioned seven types of regulatory violations in year t (taking a value of 1 if yes, and 0 if no). The results are presented in Columns 5 and 6 of Table 7, and the core conclusions remain valid.

Fourth, we replace the proxy variable for clan culture. The chair of the board and the general manager represent the core executive leadership within a company. We identify whether there exists a genealogy with the same surname as that of the chair of the board or general manager in the company's location. A subsequent count of the number of genealogical clans sharing the same surname with the chairman is conducted, resulting in the construction of the variable $Surnameclan1$. A subsequent count of the number of genealogical clans sharing the same surname with the general manager is conducted, resulting in the construction of the variable $Surnameclan2$. A higher value of $Surnameclan1$ and $Surnameclan2$ indicates a greater probability that the company is located in an area where the chair of the board or general manager belongs to a prominent clan, and consequently, they are more directly and profoundly influenced by clan culture. The results are presented in Columns 1 and 2 of Table 8, and the key conclusions remain unchanged. In addition, we also calculated the number of ancestral halls⁶ in each region as a proxy variable for clan culture. Ancestral halls serve as venues for conducting clan activities, and thus the number of clan ancestral halls is significantly positively correlated with the prevalence of clan culture. The regression results listed in Columns 3 using clan ancestral halls as the proxy variable also support our hypotheses.

Fifth, we assess the influence of significant changes in accounting policies on our conclusions. In 2017, the Ministry of Finance of China issued a regulation requiring the consolidated reporting of "other receivables" along with "interest receivables" and "dividend receivables". This regulatory change may have caused a systematic shift in the dependent variable of this study in 2018. Therefore, we

⁶ Data sources: <http://www.100citang.cn>

Table 7

Regression results using raw data and alternative measures of the dependent variable.

Dependent variables	(1) Tunneling	(2) Tunneling	(3) Tunneling2	(4) Tunneling2	(5) Violation	(6) Violation
Clan1	−0.333*** (−5.01)		−0.061*** (−4.29)		−0.073*** (−3.17)	
Clan2		−0.265*** (−10.73)		−0.020*** (−4.66)		−0.038*** (−5.01)
Constant	−4.916*** (−14.11)	−4.956*** (−14.36)	−0.312*** (−4.47)	−0.360*** (−5.30)	0.432*** (3.39)	0.394*** (3.10)
Control	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES
Observations	8919	8919	8919	8919	8919	8919
R-squared	0.312	0.318	0.246	0.246	0.122	0.122

Table 8

Alternative measurement of the independent variable, incorporating the 2018 accounting policy change.

Dependent variables	(1) Tunneling	(2) Tunneling	(3) Tunneling	(4) Tunneling	(5) Tunneling
Surnameclan1	−0.001** (−2.31)				
Surnameclan2		−0.001** (−2.23)			
Ancestral hall			−0.008*** (−5.35)		
Clan1				−0.323*** (−4.55)	
dum2018 × Clan1				0.022 (0.17)	
Clan2					−0.250*** (−9.13)
dum2018 × Clan2					0.017 (0.36)
Constant	−4.750*** (−15.22)	−4.723*** (−15.11)	−4.718*** (−15.10)	−4.334*** (−13.34)	−4.400*** (−13.73)
Control	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES
Observations	8919	8919	8919	8919	8919
R-squared	0.356	0.356	0.358	0.358	0.363

further introduce an interaction term between a dummy variable, *dum2018* (which takes the value of 1 for the year 2018 and subsequent years, and 0 for prior years), and clan culture, in order to test the validity of our main conclusions following the change in accounting policy. The results are displayed in Columns 4 and 5 of Table 8, with our primary conclusions remaining robustly significant. Furthermore, the coefficient for the interaction term between *dum2018* and clan culture is found to be insignificant, suggesting that significant changes in accounting policies do not undermine the statistical significance of the key conclusions.

In addition, we also controlled for a set of additional regional control variables. These control variables include the basic characteristics of the region (share of primary industry in GDP, total population at the end of the year, total retail sales of consumer goods, export value), regional climatic conditions (annual average temperature, annual precipitation, sunshine duration), geographical characteristics (whether the region is coastal, whether it is along the Yangtze River, whether it is along the Yellow River), and historical economic development status (the number of industrial enterprises in 1927).⁷ The regression results with the above control variables added are reported in Columns 1 and 2 of Table 9.⁸ To test the validity of our conclusions in cross-sectional data, we selected cross-sectional data for 2008 and 2020 for regression, with the results shown in Columns 3 and 4 of Table 9. Meanwhile, we calculated the mean value of the dependent variable over the sample period to construct cross-sectional data, and the regression results are reported in Column 5 of Table 9. The main conclusions remain valid in the cross-sectional data. In order to eliminate the impact of enterprise relocation on the results, we exclude enterprises that had relocation behavior during the sample period, and the results remained unchanged as shown in Column 6 of Table 9.

⁷ Data source: Chen, Z., Ma, C., & Sinclair, A. J. (2022). Banking on the Confucian Clan: Why China Developed Financial Markets so Late. The Economic Journal, 132(644), 1378–1413

⁸ Given the substantial missing data on historical economic development status, we report it separately in Columns 2.

Table 9
Other robustness test.

Dependent variables	(1) Tunneling	(2) Tunneling	(3) Tunneling
Clan2	−0.153*** (−5.37)	−0.087*** (−2.90)	−0.383*** (−2.90)
Constant	−4.735*** (−13.06)	−5.388*** (−13.07)	−0.177 (−0.08)
Control	YES	YES	YES
Year FE	YES	YES	YES
Industry FE	YES	YES	YES
N	8919	7158	315
R-squared	0.370	0.371	0.380
Dependent variables	(4) Tunneling	(5) Tunneling	(6) Tunneling
Clan2	−0.260*** (−3.68)	−0.200*** (−3.24)	−0.238*** (−9.90)
Constant	0.202 (0.14)	−3.200*** (−2.46)	−4.639*** (−14.23)
Control	YES	YES	YES
Year FE	YES	YES	YES
Industry FE	YES	YES	YES
N	984	984	8478
R-squared	0.366	0.464	0.359

6. Further research

6.1. Clan culture and external formal governance mechanisms

There can be either a complementary or a substitutive relationship between informal institutions and formal institutions (Bisin & Verdier, 2017). As previously mentioned, formal external corporate governance mechanisms aimed at curbing major shareholders' tunneling behavior encompass legal systems, external audits, media supervision, and so on. Generally speaking, companies located in regions with higher marketization levels tend to benefit from stronger legal protections for minority investors, more professional auditing services, and more active and influential media supervision. Consequently, the marketization level serves as an ideal proxy variable that comprehensively measures the strength of external formal governance mechanisms. Using the 40th percentile of Fan Gang's marketization index as the dividing line, the entire sample is divided into a low-marketization subsample and a high-marketization subsample, and regression analyses are conducted on each separately. Table 10 reveals that the coefficient of clan in the weak external formal governance sample is −0.342, while that in the strong external formal governance sample is only −0.176. From an economic perspective, the marginal effect of clan culture in weak external formal governance group is nearly 1.94 times that in strong external formal governance group. This indicates that clan culture exerts a stronger marginal effect in curbing major shareholders' tunneling behavior in regions with lower marketization levels, while its influence diminishes in more marketized regions. These findings suggest a substitution relationship between clan culture and external formal governance mechanisms: as external governance institutions become more developed, they progressively reduce the scope for clan culture to play a significant role.

To further verify the relationship between clan culture and formal institutions, we examine the impact of clan culture on the number of penalties issued by the China Securities Regulatory Commission (CSRC) for the seven types of regulatory violations by listed companies, with the results reported in Column 3 of Table 10. The findings show that clan culture significantly lowers the frequency of these seven regulatory violations by listed companies.

6.2. Clan culture and internal formal governance mechanisms

The internal formal governance mechanisms designed to mitigate major shareholders' tunneling behavior include shareholding balance, foreign investors, interlocking shareholders, managerial ownership, and independent directors. When these shareholders and directors can effectively counterbalance the major shareholders, they ensure proper functioning of the board of directors and effectively curb tunneling activities. Conversely, when such formal governance mechanisms are absent or dysfunctional, the unchecked control power of major shareholders not only paralyzes the convening of special board meetings but also reduces regular board meetings to mere rubber-stamp procedures.⁹ In severe cases, major shareholders may even circumvent formal decision-making

⁹ According to convening procedures, board meetings can be classified into regular meetings and special meetings. As stipulated in *China's Guidelines for Articles of Association of Listed Companies*, listed companies are required to hold at least one meeting per quarter, amounting to a minimum of four meetings annually, which includes both regular and special meetings. The Company Law stipulates that shareholders representing at least one-tenth of the voting rights, one-third or more of the directors, or the board of supervisors may propose to convene a special meeting of the board of directors in a joint-stock limited company.

Table 10

Clan culture and external formal governance mechanisms.

	(1) Weak external formal governance	(2) Strong external formal governance	(3) Violation Number
Dependent variables	Tunneling	Tunneling	Tunneling
Clan2	−0.342*** (−8.91)	−0.176*** (−5.57)	−0.087*** (−5.26)
Constant	−3.498*** (−8.31)	−5.315*** (−9.39)	0.323 (1.30)
Control	YES	YES	YES
Year FE	YES	YES	YES
Industry FE	YES	YES	YES
Observations	4459	4460	8919
R-squared	0.376	0.353	0.123

processes altogether, making behind-the-scenes decisions to evade oversight. Accordingly, the frequency of board meetings can serve as a metric for assessing the effectiveness of a company's internal formal governance mechanisms. We classify companies in the top 40% of the full sample as having strong internal governance mechanisms, while the remainder constitute the weak governance subsample. As shown in Table 11, the coefficient of clan in the weak internal formal governance sample is −0.305, while that in the strong internal formal governance sample is only −0.196. From an economic perspective, the marginal effect of clan culture in weak internal formal governance group is nearly 1.56 times that in strong internal formal governance groups. This indicates that the influence of clan culture diminishes in companies with well-established internal governance structures. Therefore, there also exists a substitution relationship between clan culture and internal formal governance mechanisms. That is, in companies with weak internal formal governance mechanisms, clan culture can better play a role in curbing the tunneling behavior of major shareholders.

7. Conclusions and implications

The expropriation of corporate assets and the infringement upon the interests of minority shareholders by major shareholders through their control rights represent a pervasive corporate governance challenge on a global scale. This issue is particularly acute in emerging market economies and countries, where weak formal institutions exacerbate the challenges faced. Clan culture stands as one of the long-established and highly influential informal institutions in East Asia, Southeast Asia, and other regions. Based on the CSMAR database and *The General Catalog of Chinese Genealogies*, our research reveals that clan culture can curb the tunneling behavior of major shareholders in China's privately-listed companies, thereby mitigating the agency conflicts between major shareholders and minority shareholders. In regions with a 1% greater per-capita number of genealogies, the degree of tunneling behavior is 0.244% lower holding other factors constant after controlling for all control variables. After accounting for endogeneity issues within the model, altering the measurement methods for independent and dependent variables, and considering the impacts of accounting policy changes, this conclusion remains robust.

Mechanism analysis indicates that clan culture exerts its effects through two distinct pathways: an external pathway, whereby clan culture curbs major shareholders' tunneling behavior by reinforcing individual reputation mechanisms; and an internal pathway, through which clan culture constrains such behavior by elevating individuals' moral standards. Our study further reveals that clan culture exhibits a substitutive relationship with both external (e.g., legal, auditing, and media oversight) and internal (e.g., shareholding checks-and-balances and independent directors) formal governance mechanisms. Therefore, our research provides evidence on the agency problem between major and minority shareholders, demonstrating that informal institutions are of paramount importance when the formal institutional framework of an economy is weak.

The aforementioned conclusions offer the following implications for emerging market countries seeking to curb major shareholders' tunneling behavior and foster the development of high-quality capital markets:

First, emerging market countries, particularly those lacking a tradition of commercial law but boasting well-developed social networks, urgently need to establish a synergistic framework that integrates formal and informal governance mechanisms. Taking China as an example, despite the recent proliferation of minority investor protection regulations, their effectiveness remains limited. Therefore, it is imperative to focus on enhancing the governance effectiveness of informal institutions such as clan associations, chambers of commerce, and business guilds, fully leveraging personal reputation mechanisms within acquaintance and quasi-acquaintance societies to establish a multi-tiered system for constraining major shareholders' tunneling behavior.

Second, emerging market countries should strike a balance between implementing rigid external regulatory oversight of major shareholders and fostering internal moral self-discipline among them. Effective supervision of major shareholders' tunneling behavior constitutes a fundamental prerequisite for the sound functioning of securities markets, while the moral standards of major shareholders themselves represent a critical determinant of the upper bounds of market development. Given that clan regulations serve as the primary and most influential source of individual values, actively promoting and preserving the positive virtues they embody—such as "integrity" and "accountability"—constitutes a key pathway to enhancing the moral self-discipline of major shareholders.

Finally, emerging market countries must recognize that the evolution from informal to formal governance mechanisms is a long-term process. Clan culture, by its nature, functions as a club good, wherein transactions among clan members are personalized in character. While this inherently conflicts with the impersonal transactions demanded by modern market economies, the governance

Table 11

Clan culture and internal formal governance mechanisms.

	(1) Weak internal formal governance	(2) Weak internal formal governance	(3) Strong internal formal governance	(4) Strong internal formal governance
Dependent variables	Tunneling	Tunneling	Tunneling	Tunneling
Clan1	−0.478*** (−3.77)		−0.210*** (−2.80)	
Clan2		−0.305*** (−7.56)		−0.196*** (−6.72)
Constant	−2.632*** (−4.35)	−2.925*** (−5.01)	−4.598*** (−11.52)	−4.549*** (−11.45)
Control	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES
Observations	2922	2922	5997	5997
R-squared	0.313	0.321	0.399	0.403

role of clan culture remains indispensable over the medium to long term, given the still-nascent state of formal governance mechanisms. Therefore, while drawing on corporate governance models from mature market economies, emerging countries must also anchor their efforts in their own traditional cultural heritage to develop governance frameworks that are deeply rooted in local institutional contexts and exhibit dynamic adaptability.

CRedit authorship contribution statement

Minglin Wang: Writing – review & editing, Writing – original draft, Methodology, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Jiahua Zhao:** Writing – review & editing, Writing – original draft, Methodology, Formal analysis, Data curation, Conceptualization. **Mengna Xu:** Writing – original draft, Data curation. **Si Tan:** Writing – original draft, Data curation.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data Availability

Data will be made available on request.

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