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HOW DOES CLAN CULTURE AFFECT AGENCY COSTS? —EMPIRICAL EVIDENCE FROM PRIVATE LISTED COMPANIES IN CHINA

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Abstract

Clan culture has had the most extensive and profound impact on Chinese socio-economic activities. This article constructs a theoretical model for analysing the impact of clan culture on agency costs from the perspective of evolutionary game theory. The clan culture, as a 'shared belief', leads to an equilibrium of historical repeated game between managers and shareholders in which behavioural combination of (honesty, renewal of employment) occurs. Under this equilibrium, the agency problem between managers and shareholders is constrained. This article takes Chinese listed private enterprises as samples to empirically analyse the impact of clan culture on agency costs between owners and managers, and verify theoretical hypotheses. The empirical results indicate that clan culture reduces agency costs between owners and managers. The impact of clan culture on agency costs is mainly achieved through the internal moral constraints of managers rather than external collective punishment mechanism. Further research suggests that there is a substitutional relationship between the impact of clan culture on owner manager agency costs and the influence of formal institutions, as well as the level of marketization. This study is a supplement to the research on corporate governance of private enterprises from the perspective of traditional culture. It provides a new perspective for understanding the evolution of corporate governance in emerging markets represented by China and how to enhance the competitiveness of enterprises with local characteristics.

Keywords: *Clan Culture; Private Enterprise, Agency Cost, Collective Punishment, Moral Constraint*

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1 INTRODUCTION

With the specialisation of production and the increase in firm size, the ownership and operation of the enterprise began to separate, giving rise to the principal-agent relationship between owners and managers. The fact that both parties act as 'economic agents' leads to information asymmetry. Managers, with a relative information advantage, may act opportunistically to maximise their own interests at the expense of the owner's interests, thus creating a principal-agent problem (Meckling et al., 2012). Principal-agent issues are at the heart of corporate governance research. The methods to solve the principal-agent problem between owners and managers include building internal and external governance mechanisms (Jensen, 1994). The former includes optimizing the structure of the board of directors, supervising managers by major shareholders, establishing an independent director system (Dou et al., 2015), implementing executive compensation incentive mechanisms that include equity and options,

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and increasing liabilities. The latter includes a highly competitive manager market, a company control rights market, independent analysts and auditors, as well as an effective legal system (Burkart, Pannunzi & Shleifer, 2003).

As research has advanced, it has been recognized that research based solely on formal institutions mentioned above is not sufficient. Agency problems between owners and managers are also influenced by informal institutions such as culture and religion (Zhang, 2021). For example, Allen et al. (2004) found that Confucian culture and participation in intense international competition are key factors in reducing agency costs between owners and managers. Gu (2015) and Pan et al. (2020) further found that agents' self-discipline can be improved and their consumption at work reduced by Confucian culture elements such as 'prudence', 'cultivation', 'loyalty', 'righteousness' and 'thrift', thus reducing agency costs and improving agency efficiency. Du et al. (2015) showed that the Chinese Chamber of Commerce culture can also mitigate the agency costs. Du (2013) and Du et al. (2016) showed that Buddhism can constrain managers' opportunistic behaviour and reduce agency costs between owners and managers. Chintrakarn et al. (2017) further found that religion reduces the conflict between owners and managers only when the level of religious devotion exceeds a certain threshold.

The clan organisation is widespread throughout the world, but its influence in China is unparalleled. For a long historical period, China was dominated by clan culture while Europe was dominated by city-state culture. This cultural difference between China and western countries was the main reason why the two regions followed different paths of institutional change (Greif & Tabellini, 2017). Compared with Confucian and religious cultures, clan culture has had a more comprehensive and profound impact on the Chinese people. Even if a person does not believe in Confucianism and has no religious beliefs, they will still be influenced by clan culture to varying degrees. Although it is generally believed that traditional Chinese culture is influenced by both clan and Confucian culture (Chen et al., 2021), research has found that the influences of clan culture and Confucian culture on industrial and commercial activities are not always the same. They still have competitive or even conflicting relationships. For example, Wu et al. (2019) found that Confucianism did not strengthen, but rather weakened, the positive effects of clan culture on the rise of local merchant groups, such as the Hui and Jin merchants, during China's Ming and Qing dynasties.

Even though clan culture is one of the most important informal institutions in Chinese society, in contrast to Confucian culture and religion, research on corporate governance based on clan culture still remains particularly weak. A few studies have paid attention to the impact of clan culture on corporate dividend distribution, financing, mergers and acquisitions, rent-seeking, innovation and other behaviours (Li et al. 2015; Pan et al. 2019; Wang et al. 2020; Wang et al. 2022; Yuan et al. 2022; Dai et al. 2023; Zhang, 2020). However, except for Pan et al. (2019, 2020), few literatures have examined the owner manager agency relationship, a core corporate governance issue, based on clan culture. Especially the specific impact mechanism between these two elements has not received the attention it deserves.

Therefore, this paper attempts to answer three questions. First, does clan culture affect the owner-manager agency problem in Chinese private firms? Second, if the answer to the first question is yes, through what mechanisms does clan culture influence the owner manager agency problem? Third, how does clan culture, as an informal institution, interact with formal institutions and market mechanisms?

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We contribute to the literature from the following three aspects. First, this paper expands research on the impact of culture on the owner-manager agency relationship, which is a central issue for corporate governance. The impact of culture on agency issues has been primarily studied from the perspectives of religion (Hilaryet al., 2009; Callen & Fang, 2015), Confucianism (Du, 2015; Gu, 2015; Pan et al., 2020), and dialect (Dai et al., 2016), while neglecting clan culture, which is the most important aspect of Chinese society. This paper aims to fill this gap in the research. Second, we follow the evolutionary game perspective of Masahiko Aoki (2001) and Greif (2006), and considers culture as the shared beliefs (or shared concepts) held by game participants towards the equilibrium of a historically repeated game. We attempt to empirically investigate the influence of clan culture on individual behaviours 60 years after the collapse of the tightly organised traditional clan organisations in China and further reveals the specific mechanisms by which clan culture influences individual behaviours. Finally, this paper contributes to understanding the reasons for the diversification of corporate governance modes worldwide. We also provide a new perspective on anticipating the evolutionary path of corporate governance mechanisms in a wide range of emerging market countries and on how to optimize corporate governance mechanisms with local characteristics.

The remaining sections of this paper are organised as follows. Section 2 presents the baseline hypotheses of the research. Section 3 describes the data sources and the key variables. Section 4 demonstrates the findings of the empirical study, tests the mechanism by which clan culture influences agency costs between owners and managers and further examines the relationship between clan culture and formal institutions as well as market regulation. Finally, Section 5 includes conclusions and discussion.

2 THEORETICAL BACKGROUND

Chinese clans are basic social organizations where individuals with a common patrilineal ancestor are connected by blood ties (Li et al., 2024). Clans originated in the Western Zhou Dynasty in the 11th century BC and are one of the oldest and most widely used organizations in China (Peng, 2010). Clan is a concept that goes beyond family. A clan is usually composed of several families with clear genealogical relationships among their members. Some clans can even last for hundreds of years, spanning several dynasties. Large-scale clans have also developed vertical management systems, which can be divided into varying numbers of ‘Fang’. ‘Fang’ refers to a branch of the clan directed by a male member, usually the ‘head of the Fang’ (Chen, 2010). The ‘Fang’ can be further divided into several ‘families’, which are directed by ‘parents’. Chinese people can belong to specific clans according to their surnames, as can professional managers. Therefore, professional managers are inevitably influenced by clan culture in their daily lives and work. The following section will analyse the impact of clan culture on the principal-agent problem between shareholders and managers, the possible mechanisms, and the mechanisms that truly work in China.

2.1 Clan culture and agency cost

The separation of enterprise ownership and management rights produces the first type of principal-agent problem (the principal-agent problem between shareholders and managers), which is caused by the inconsistency of interests between the two parties and information asymmetry (Jensen & Meckling, 1976; Fama & Jensen, 1983). In addition to formal institutions, informal institutions, such as clan culture, can also alleviate the first type of principal-agent problem.

First of all, by using the information-sharing networks within the clan, the owners can obtain more accurate and detailed information about the manager's ability, personality, family

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members. It can greatly reduce the degree of information asymmetry between the two parties before employment (Tan et al.,2024) as well as the "adverse selection" behaviour of managers. These networks can screen out managers who are more suitable for their positions. This mechanism reduces agency costs in the pre-employment stage. Second, there is a very effective reputation mechanism within the clan (Peng, 2004), which will restrain the management's laziness and unethical behaviour. Family agreements usually regard ‘integrity’ and ‘benevolence and justice’ as the most important content. In the history of business gangs in China, if the manager harmed the interests of shareholders, the clan would be ashamed. In order to maintain the reputation of the entire clan, those who make mistakes would be severely punished by the entire clan (Greif & Tabellini, 2017). Punishment methods include dismissal and being forced to leave their hometown to escape family condemnation (Huang & Chen, 2020), which undoubtedly greatly increases the cost of managers implementing opportunistic behaviours. To avoid incurring these costs, managers will strive to reduce agency costs. Third, long-term credit records have been formed within the clan and among clans in the process of multi-generational interactions (Xu & Yao, 2015). This provides sufficient endorsement for the manager's credit level and makes it easier for managers to gain the trust of shareholders, thereby reducing the manager's guarantee expenditure. In order to obtain a good clan credit record, managers will reduce agency costs during their tenure. Finally, clans have the function of mediating conflicts and judging, which is organized by individuals with high moral standards and high clan status (Gao, 2020). If the opportunistic or inefficient behaviour of managers causes large losses to shareholders, shareholders are more likely to make claims against them through clan networks to compensate for their losses as much as possible. This mechanism reduces agency costs in the post event stage.

In conclusion, we sum up the following hypotheses:

H1: Clan culture helps to reduce the level of the principal-agent cost between owners and managers.

2.2 Outside collective punishment mechanism

The formation of clans and ancestor worship was a privilege reserved for the aristocracy before the Song Dynasty (960-1279 AD) (Wang & Zhou, 2024). Ordinary people were not allowed to form clan organisations, and clans served mainly a political function. After the Song Dynasty, clans began to take on primary economic functions, allocating resources within clans and competing for external resources. During the Song Dynasty, the economic centre of China continued to move southwards. With the mass migration of people to the south, rice replaced wheat as the dominant food due to climatic issue. Wheat is a dryland crop with a simple production process. Planting wheat only requires sowing, no seedling cultivation or transplanting, and no construction of water conservancy facilities. Under normal weather conditions, normal growth and maturation can be achieved through natural precipitation (Zhu, 2015). A family can complete the planting of wheat with almost no need for systematic cooperation between families. Due to the small amount of water used for wheat cultivation, the probability of armed conflicts between farmers over water is also relatively low.

Conversely, rice cultivation requires many processes, high technology and labour intensity. Compared to wheat, rice cultivation involves planting processes such as seedling cultivation, transplantation, and artificial irrigation. At different stages of the growth process, rice requires varying amounts of water. The construction and maintenance of a complex rice irrigation project exceeds the capacity of a single family. Moreover, as ‘public goods’, irrigation projects are prone to disputes during use, requiring coordination of water usage and time for each

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household (Yu et al., 2022). Therefore, rice cultivation requires efforts that break through the boundaries of a single family and integrating human and financial resources within the clan to build irrigation projects. In this process, it is also necessary to impose ‘collective punishment’ on opportunistic behaviours such as laziness and ‘free riding’ during project construction and maintenance. It is also necessary to mediate non cooperative behaviours such as competition and plunder during the use of irrigation projects. At the same time, in order to compete for natural resources such as water and land, immigrants also need to engage in ‘armed struggle’ with local indigenous residents relying on their clans. As the population grows beyond the capacity of the land, the ‘armed struggle’ between settlers is also increasing. The organizational and coordination skills required for ‘armed struggle’ exceed the scope of irrigation construction. Some ‘armed battles’ involve tens of thousands of people and were as violent as small-scale wars. In the 1990s, large-scale "armed struggles" continued in the southeastern coastal areas of China. Even in the early 21st century, clan wars did not completely cease.

Through activities such as ancestor worship, production cooperation, infrastructure construction, and organizing ‘armed struggles’, clan members frequently interact with each other. The rapid dissemination of information within the clan belongs to a typical "acquaintance society". Through activities such as establishing clan rules, electing clan leaders, and holding clan meetings, a collective punishment mechanism for clans has been formed. This mechanism effectively punishes various opportunistic and uncooperative behaviours in the production and maintenance of ‘public goods’ and the process of ‘armed struggles’ (Qi & Wu, 2015). By the 16th century (late Ming and early Qing dynasties), ordinary people could also build clan temples and repair genealogies, and clans gradually became the most important basic organizations in Chinese society. Clans not only undertake economic functions, but also gradually develop a series of social governance functions. The clan owns public property such as fields and houses. In addition to providing productive public goods such as irrigation, roads, and bridges, they also undertake the function of providing relief for the elderly, the weak, the sick, and the disabled, as well as providing nonproductive public goods such as education, finance, and justice. This has largely replaced the functions of financial institutions and judicial institutions (Greif & Tabellini, 2017; Chen et al., 2022). At the end of the 19th century, the development of clans reached its peak in China. Many clans have established a set of norms that all members must abide by, prescribing the behaviour of clan members in marriage, family, inheritance, education, and other aspects (Peng, 2010). These norms have influenced and dominated the behaviour of many ordinary Chinese people from birth to death.

For example, the famous Huizhou merchant group in Chinese history emerged in the mid Ming Dynasty (1465-1505) and continued until the end of the Qing Dynasty (late 19th and early 20th centuries). They mainly operate in industries such as salt, tea, and wood, with their business scope covering most of China. When operating on a small scale, they often corporate with family members who are closely related by blood, such as father, son, brothers, and uncles. When the scale expands, they often choose individuals with both moral integrity and talent as high-level agents among members of other clans with distant blood relationships (Fu, 1956). Both parties often do not sign a formal contract, which is a typical ‘personification’ transaction. The principal mainly relies on the implicit ‘collective punishment mechanism’ within the clan to reduce the motivation for opportunistic behaviour of the agent (Lei et al., 2018). If the agent engages in behaviours such as laziness, fraud, embezzlement of finances, etc. that harm the interests of the principal in business activities, not only will the employment relationship be terminated, but more seriously, this matter will become a well-known ‘public information’ among the clan and even the local society. Due to the high efficiency of information dissemination in the 'acquaintance society' (Li & Ran, 2022), the misdeeds committed by them

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will quickly spread throughout the clan. Merchants within the clan will unite together to collectively punish agents who engage in opportunistic behaviour. No firm would hire this manager again, which would result in interrupting their career and being forced to flee to a foreign land in order to make a living (Huang & Chen, 2020).

This is very similar to the Maghreb merchants of the late Middle World. Grief (1994) believes that Maghreb merchants are influenced by collectivist values and are able to impose ‘collective punishment’ on their agents. No merchants would be willing to hire an agent who go 'off the path of play' again. However, agents within the clan not only have to compete with the merchant group within the clan, but also with the clan organization. Two games constitute a ‘related game’. Once the agent engages in opportunistic behaviour, in addition to being subjected to ‘collective punishment’ by the clan merchant group, they will also be subjected to ‘collective punishment’ by the entire clan (Lei et al., 2018). Honesty and benevolence are usually one of the most important contents of ethnic agreements. If the professional ethics of the agent are tainted, resulting in losses to the principal's interests, it means that he has also violated the clan rules. The clan leader will impose punishment based on the severity of the violation of clan rules, including verbal admonishment, kneeling or caning in the ancestral hall, economic compensation, and even expulsion from the clan genealogy and expulsion from the clan. Members within the clan may also engage in ‘non cooperative behaviour’ in social activities such as mutual assistance, borrowing, and marriage. The collective punishment of clans not only has a direct impact on the agents themselves, but also indirectly affects their parents and other family members, and even damages the reputation of the family. This leads to the agent feeling guilty in front of their family, resulting in serious consequences far exceeding the collective punishment of the business community.

Therefore, if family members are employed by firms within the family, their motivation to engage in opportunistic behaviour is smaller than their motivation to be employed by non-family businesses. Because under the ‘reputation mechanism’ of the acquaintance society, the former not only faces punishment within the family, but also bears the dual ‘collective punishment’ outside the family. This punishment includes property punishment as well as moral, physical, and reputational punishment, and family members will also be implicated. These punishments ultimately result in the cost of the agent's incorrect behaviour exceeding the benefits (Huang et al., 2022). Therefore, as a ‘personified’ organization, clans have served as a substitute for formal third-party governance mechanisms in traditional Chinese society. Clans suppress the motivation of agents to engage in opportunistic behaviour and can successfully control agency costs at a lower level. This has driven the development of complex and long-distance commercial activities within the clan.

In conclusion, we sum up the following hypotheses:

H2: Clan culture reduces agency costs between owners and managers by improving the level of information transmission and utilizing collective punishment mechanisms based on personal reputation.

2.3 Intrinsic moral constrain mechanism

Based on the perspective of evolutionary game theory, Grief (2006) believes that culture is the most important element of institutions. He interprets culture as a belief, a cognitive system that participants use to explain their own and others' environment and generate expectations for others’ behaviour. Starting from evolutionary games, Aoki (2001) believes that institutions (including formal and informal institutions) are the ‘shared beliefs’ of participants about the

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actual way the game is conducted. Repeated games will evolve into a stable outcome (a combination of actions). Participants are bounded rational and do not know all the details of the action decision rules of other participants, but can understand some significant characteristics of the action decision rules of other participants based on personal experience. They condensed the information they obtained. Based on this condensed information, participants can formulate their own action decision rules. In repeated games, 'condensed information' containing significant features of participants' decision-making rules for others' actions will continue to emerge and stabilize. All participants take their own actions under the guidance of 'condensed information', jointly determining the emergence of game equilibrium. The emergence of equilibrium in turn strengthens the 'information concentration' of participants. Therefore, the system is a self-sustaining system of shared beliefs among participants about how repeated games are primarily conducted. Its essence is the concentration of information about the equilibrium of the game or the summary of phenomena by the participants.

Some Chinese clans can last for hundreds of years, while male descendants of merchants may still be merchants, so the game between agents and merchants in clans is essentially a repetitive game. Individuals with bounded rationality do not need and cannot know the detailed decision-making rules of each merchant and clan governance institution represented by the clan leader. However, all the agents around him choose to act sincerely, and almost none of them were opportunistic, thus they obtain condensed information about the details of decision-making and action rules of merchant groups and clan organizations. This information is that if the agent chooses to act honestly, the merchant will maintain a long-term employment relationship. If the agent chooses unethical behaviour, they will be subject to a 'double punishment' by merchant groups and clan organizations, and the agent and their family will suffer significant losses. Under the guidance of this information, agents will naturally choose honest behaviours or imitate the honest behaviours of surrounding agents. Therefore, the combination of actions (honesty, reemployment) becomes a game equilibrium. With the repetition of game equilibrium, when a group of agents unanimously choose honest behaviours, individual agents strengthen this 'condensation information'. Honesty is taken for granted and does not require further consideration, which has become a common practice followed by agents.

If all participants agree with the condensed information mentioned above, game equilibrium (honesty, employment updates) will become a 'common belief' solidified in the form of personal thoughts. The reason why businessmen are able to hire honest agents is not because honesty is the agent's thoughtful choice, but because every agent with bounded rationality has a 'common belief'. Honesty becomes a mindset and behavioural inertia, rather than the result of deductive or inductive reasoning by completely rational individuals in a one-stage game. Therefore, institutions are the product of long-term social experience generated by bounded rationality and reflective individuals (Kreps, 1990). The process of generating and strengthening condensed information and 'common beliefs' in the repeated games between agents and merchants, as well as between agents and clan organizations, is the process of accumulating an honest culture or honest habits for agents. This process reduces agency costs.

In summary, we have come up with the following hypothesis:

H3: Clan culture improves individual moral standards, reduces the motivation for major shareholders to engage in embezzlement behavior, and lowers agency costs between owners and managers.

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After the 1980s, well organized traditional clan organizations no longer existed. Loose clan organizations such as "Clan Associations" and "Chambers of commerce for merchants with the same surname" began to be established (Pan et al., 2019). The ‘Clan Association’ fulfils the functions of promoting kinship relationships, strengthening connections, helping the poor, donating educational funds, and inheriting clan culture among clan members. Entrepreneurs, as local economic elites, are usually the main donors of clan associations and occupy a dominant position in the ‘Clan Associations’. The ‘Chambers of commerce for merchants with the same surname’ is an organization established by a group of local entrepreneurs with the same surname, aiming to promote communication, expand connections, and facilitate cooperation. At present, in the southeastern coastal areas of China, "Clan Associations" and "Chambers of commerce for merchants with the same surname" can also coordinate conflicts among clan members, regulate commercial disputes between entrepreneurs, and partially replace the functions of formal national governance institutions.

With the advent of reform and opening up in China in the 1980s, clan culture experienced a revival. Especially in southern China, clan activities such as rebuilding ancestral halls, rebuilding genealogies, and worshiping ancestors have begun to flourish (Peng, 2010; Chen and Chen, 2018). Clan relationships remain an important component of a person's social network. Although clans are no longer the main basic organizations in society, they still exist in a loose form, and clan culture has become an extremely important part of people's customs, values, and ideology. So far, clan culture has profoundly influenced people's behavioural choices in fertility and education (Liang et al., 2023), entrepreneurship and labour mobility (Ruan et al., 2014; Guo et al., 2013), household finance and financial markets (Lin et al., 2016; Chen et al., 2022), rural elections (She, 2016), and the provision of rural public goods.

North (2005) believes that informal rules such as codes of conduct, customs, and behavioural norms are one of the necessary conditions for a well-functioning economy. Although formal rules can be changed overnight, changes to informal rules can only be gradual. The political and economic foundation of the Chinese clan organisation ceased to exist after the 1950s. With the disappearance of tightly organized institutions such as clan leaders, clan fields, and clan meetings, the role and influence of clans have greatly decreased. This affects the implementation of collective punishment, but it is difficult to affect the moral constraints that have been formed over the long term. Of course, it cannot be denied that since the 1980s, with the development of the market economy, the game between agents and entrepreneurs has undergone significant changes. The scope of employment for agents has expanded, no longer limited to the group of family entrepreneurs. The objects of social interaction among agents are also diverse, far beyond the group of clan entrepreneurs and clan organizations. The effectiveness of dual ‘collective punishment’ is inevitably greatly reduced. However, behaviours such as ‘honesty’ and ‘diligence’ have become ‘common beliefs’ as a game equilibrium that has lasted for over a century or even centuries (Sun et al., 2021). This is deeply ingrained in the minds of agents passed down from generation to generation. In this process, ‘shared beliefs’ include past experiences in the form of culture (Aoki, 2001). Honesty, as a common belief held by agents, has become a traditional culture in the agent community. This constitutes the mentality and behavioural practice of bounded rational agents. Even if the external environment changes, new ‘shared belief’ or behavioural practices take a long time to form. The initial ‘shared belief’ will still have an impact on the decision-making rules of the agent's behaviours until it is fully established. Therefore, we speculate that the collective punishment mechanism of clans has been weakened nowadays, but the internal moral mechanism can still operate.

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3 METHODOLOGY AND DATA

This section aims to examine whether clan culture reduces agency costs for enterprises, which is the conclusion drawn from our theoretical analysis. We design a multiple linear regression model and conduct empirical analysis using data from Chinese listed companies.

3.1 Sample selection and data sources

The listed private companies on the main boards of Shanghai and Shenzhen markets in China from 2007 to 2020 are selected as the research sample. Due to the significant lack of measurement data for agency costs before 2007, which has been relatively complete since then, we have chosen 2007 as the starting year for the sample. We also performed the following routine procedures: (1) deleting the ST, *ST, S, S*ST and SST samples[1]; (2) deleting financial industry samples; and (3) deleting the samples with a large number of missing observations. A final sample of 9,199 observations from 1194 firms is obtained. The sample comes from 195 above prefecture level cities (including 4 provincial-level cities), which cover the majority of regions in China and there are significant differences in the level of development of clan culture. These enterprises belong to 68 industries (according to the two-digit industry classification of CSMAR), which have significant differences in market competition, providing us with a good sample for studying the relationship between market and clan culture. All continuous variables are winsorised at the 1% and 99% quantiles to avoid outliers affecting the empirical results. Firm-level data are obtained from CSMAR, and the Wind database is used to supplement some missing values.

3. 2 Model design and variable specification

To test the effect of clan culture on the agency cost between owner and manager, we develop the following baseline regression model:

$$AgencyCost_{i,t} = \beta_0 + \beta_1 Clan_i + \beta X + \varepsilon_{i,t} \quad (1)$$

where $AgencyCost_{i,t}$ represents the level of principal-agent cost for firm i between shareholders and managers in year t; β_i denotes the coefficient of the variables; $Clan_i$ denotes clan culture of firm i; X is a series of control variables; $\varepsilon_{i,t}$ is a random error term.

The specific variables are described as follows:

Dependent variables: $AgencyCost_{i,t}$ is the level of the principal-agent cost of firm i between shareholders and managers in year t, often referred to as the first principal-agent cost. Jensen and Meckling (1976) subdivide agency costs into the principal's monitoring costs, the agent's guarantee costs, and residual losses. Singh and Davidson (2003) believe that the management expense ratio can reflect the supervision cost, guarantee cost, and the cost of managers' excessive consumption at work. Therefore, this paper uses the ratio of management expenses (the logarithm of the proportion of management expenses in operating income) as the proxy variable of the agency cost between shareholders and managers.

[1] ST refers to 'special treatment'. ST samples include companies that have announced net losses for two years. *ST samples include the company that have not improved in the third year and are still in deficit, indicating that the company is at risk of delisting. S samples consist of companies that have not yet completed stock reform. S*ST companies refer to companies that have received delisting warnings and have not yet completed stock reform. SST companies have been specially treated due to continuous losses and other abnormal situations. These enterprises are in a special state and therefore need to be excluded from research sample.

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Independent variables: $Clan_i$ is the clan culture level of the area where company i is located. Pan et al. (2019) and Chen et al. (2022) believe that genealogy is the material carrier for recording clan activities in traditional China. 'The family has its spectrum is like the country has its history'. The genealogy records the clan's history, the clan's members of through the generations, and the ancestors' deeds. The compilation of genealogy, together with building ancestral halls and worshipping ancestors, has become the most important clan activity. Accordingly, the density of genealogy in a region reflects the development of clan culture in this region. This paper uses two variables to measure the level of clan culture. The first is whether the region has any genealogy which is denoted by $Clan1_i$. $Clan1_i$ is 1 if the city has any genealogy, and 0 otherwise. The second is $Clan2_i$ which refers to the number of genealogical records per 10,000 people in the city where the company is located (plus one and take the logarithm). Among them, the genealogy data of each city come from the 'General CatLog of Chinese Genealogy' published by Shanghai Ancient Books Publishing House in 2009. This book contains the most complete genealogy in China so far, most of which were compiled during the Ming and Qing Dynasties (1368-1911). The urban population data come from the China Urban Statistical Yearbook.

Control variables: We mainly select control variables at three levels. (1) At the company level, following Wang et al. (2020), the control variables mainly include the age of the company (*Age*), measured by the duration of the company according to the time between the statistical cut-off date and the company's establishment date; the company size (*Size)*, which is the logarithm of total assets; capital intensity (*K/A*), which is the ratio of capital expenditure to total assets, of which capital expenditure refers to the cash paid by the company to construct fixed assets, obtain intangible assets and other long-term assets; the proportion of independent directors (*Dbdb*), which is the ratio of the number of independent directors to the total number of directors; profitability (*ROA*), measured by the net interest rate of total assets; long-term solvency (*ALR*), measured by the asset-liability ratio; growth (*Income*), measured by the growth rate of operating revenue; whether the chair is also the general manager (*Presmn*), which is 1 when the chair is also the general manager, and 0 otherwise. (2) At the city level, according to Xie and Wang (2021), the city's gross national product (GDP) is introduced to control the impact of city size. (3) At the industry level, according to Hao et al. (2021), the industry Herfindahl index (*HHI*) is introduced to control the influence of industry concentration, measured by the sum of squares of market share for a single company in the industry. Finally, this paper also controls for the fixed effects of time trends and industry characteristics.

3.3 Descriptive statistics

Panel A in Table 1 is the descriptive statistics of key variables. Among them, the total number of samples is 9,199, and the average level of urban clan culture is 0.882 (an average of 0.882 genealogies per 10,000 people), with a standard deviation of 1.424. The mean of the management expense ratio of listed companies is 0.106 and the standard deviation is 0.313. Panel B shows that the mean value of the management expense ratio of listed companies in areas with a strong clan culture is significantly lower than that in areas with a weak clan culture by 0.028. We also demonstrate this gap in Figure 1. The sample contains 437 observations from companies located in areas without genealogy. The remaining 8762 observations are located in areas where genealogy exists. The average agency cost of the former is 0.131, while the average agency cost of the latter is 0.105, significantly higher than the former. We show the difference between the two in Figure 2. The correlation coefficient of Panel C shows that the level of clan culture is negatively correlated with the management expense ratio at the 1% significance level. Therefore, the hypothesis that clan culture can reduce agency costs between owners and managers is preliminarily supported.

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Tab. 1 –Descriptive statistics Source: own research

Panel A: Descriptive statistics of key variables					
Variables	Sample size	Mean	Std. Dev.	Minimum	Maximum
AgencyCost	9,199	0.106	0.313	0.00197	16.61
Clan1	9,199	0.952	0.213	0	1
Clan2	9,199	0.882	1.424	0	8.341
Age	9,199	17.96	5.852	5.362	32.42
Size	9,199	21.71	1.250	19.24	25.33
K/A	9,199	0.0530	0.0514	0.000124	0.242
Dbdb	9,199	0.373	0.0488	0.308	0.500
ROA	9,199	0.0582	0.0721	-0.228	0.280
ALR	9,199	0.445	0.194	0.0669	0.892
Income	9,199	0.195	0.559	-0.683	4.140
Presmn	9,199	0.241	0.428	0	1
GDP	9,199	0.975	0.971	0.00342	3.870
HHI	9,199	0.138	0.153	0.0144	1

Panel B: Mean difference in agency costs between different groups			
Variables	Weak clan culture sample	Strong clan culture sample	Difference
AgencyCost	0.1203	0.0922	- 0.028***

Panel C: Correlation coefficient of key variables	
Variables	AgencyCost
Clan1	- 0.035***
Clan2	- 0.071***

Note: *, **, *** represent significant at the significance level of 10%, 5% and 1% respectively.

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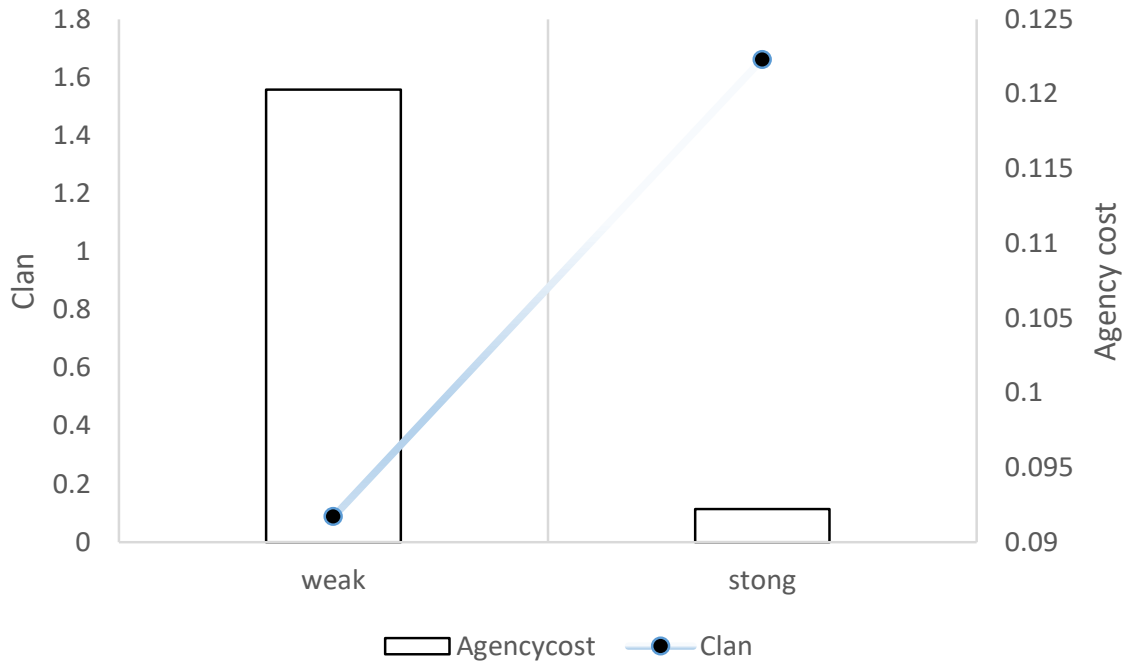

Fig. 1 – Mean difference in agency costs between weak and strong clan culture groups

Fig. 2 –Mean difference in agency costs between areas with and without genealogy

4 RESULTS

4.1 Analysis of baseline empirical results

Table 2 shows the regression results of model (1). The first to fourth columns take the existence of genealogy as the indicator of clan culture, and the fifth to eighth columns take the number of

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genealogies per 10,000 people as the indicator of clan culture. In the first and fifth columns, we only added the key independent variables for clan culture. The regression results show that the coefficients of clan culture variables *Clan1* and *Clan2* are - 0.148 and - 0.056 respectively, both of which are significant at the 1% significance level. It shows that the listed companies' agency cost between owner and manager is lower in regions with genealogy records, and the greater the number of genealogies, the lower the agency cost. In the second and sixth columns, control variables at the firm level are added. Controlling the effects of differences in size, governance characteristics, and profitability of listed companies, the results show that the influence of clan culture is still significant. The third and seventh columns further added control variables at the city level to control the impact of regional economic scale. The conclusion has not changed. The fourth and eighth columns have added control variables at the industry level, controlling the influence of industry competition intensity. The core conclusion still holds. All models control the fixed effects at the industry level and time level to avoid the impact of missing variables. Meanwhile, we judge the significance of the regression coefficients according to the robust standard errors. We conclude that clan culture reduces agency costs between shareholders and managers, which supports Hypothesis 1.

Tab. 2-1 –Clan culture and agency costs of listed companies Source: own research

Variables	(1)	(2)	(3)	(4)
Clan1	-0.148***	-0.189***	-0.209***	-0.208***
	(-3.46)	(-4.75)	(-5.20)	(-5.19)
Age		0.012***	0.012***	0.012***
		(8.07)	(8.17)	(8.15)
Size		-0.154***	-0.153***	-0.153***
		(-22.68)	(-22.54)	(-22.53)
K/A		0.671***	0.702***	0.703***
		(4.75)	(4.95)	(4.95)
Dbdb		-0.272*	-0.250*	-0.250*
		(-1.88)	(-1.72)	(-1.72)
ROA		-2.804***	-2.823***	-2.824***
		(-21.78)	(-21.82)	(-21.83)
ALR		-0.716***	-0.716***	-0.716***
		(-14.57)	(-14.54)	(-14.56)
Income		-0.154***	-0.154***	-0.154***
		(-8.86)	(-8.89)	(-8.89)
Presmn		0.072***	0.069***	0.069***
		(4.39)	(4.21)	(4.21)
GDP			0.030***	0.030***
			(3.58)	(3.59)
HHI				0.041
				(0.42)
Constant	-3.189***	0.687***	0.665***	0.655***
	(-15.68)	(3.10)	(3.00)	(2.94)
Year	YES	YES	YES	YES
Industry	YES	YES	YES	YES
N	9,199	9,199	9,199	9,199
R-squared	0.185	0.343	0.344	0.344

Note: *, **, *** represent significant at the significance level of 10%, 5% and 1%, respectively. The t statistics are in the brackets. Similarly, hereinafter.

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Tab. 2-2 –Clan culture and agency costs of listed companies Source: own research

Variables	(5)	(6)	(7)	(8)
Clan2	-0.056***	-0.047***	-0.041***	-0.042***
	(-4.16)	(-3.83)	(-3.25)	(-3.26)
Age		0.011***	0.011***	0.011***
		(7.68)	(7.76)	(7.74)
Size		-0.153***	-0.152***	-0.152***
		(-22.55)	(-22.36)	(-22.35)
K/A		0.699***	0.714***	0.714***
		(4.91)	(5.00)	(5.01)
Dbdb		-0.265*	-0.252*	-0.252*
		(-1.83)	(-1.74)	(-1.74)
ROA		-2.801***	-2.817***	-2.819***
		(-21.76)	(-21.72)	(-21.74)
ALR		-0.717***	-0.718***	-0.719***
		(-14.58)	(-14.58)	(-14.60)
Income		-0.156***	-0.156***	-0.156***
		(-8.95)	(-8.96)	(-8.96)
Presmn		0.073***	0.071***	0.071***
		(4.43)	(4.30)	(4.31)
GDP			0.017**	0.018**
			(2.06)	(2.08)
HHI				0.052
				(0.54)
Constant	-3.302***	0.498**	0.463**	0.451**
	(-16.37)	(2.29)	(2.12)	(2.06)
Year	YES	YES	YES	YES
Industry	YES	YES	YES	YES
N	9,199	9,199	9,199	9,199
R-squared	0.185	0.342	0.342	0.342

4.2 Endogeneity discussion

Endogeneity problems may lead to spurious regressions. The potential situation that independent and dependent variables are causally related to each other is an important reason for endogeneity. The independent variables selected in this study are regional variables, and they are historical data, while the dependent variables are enterprise variables. Historical regional variables, as macro variables, usually have an impact on enterprise variables, while enterprise variables have little impact on regional variables. Therefore, the empirical model in this paper is hardly affected by the problem of reciprocal causation. The only possible reverse causality is that lower agency cost between owners and managers accelerated the development of enterprises, improved the level of economic development in the region in a longer historical period, and increased the growth of local population. This provided favourable conditions for forming large families, and thus promoted the development of clan culture.

For the robustness, we use the instrumental variable method to deal with this problem. The rice planting area in 2010 is used as an instrumental variable for clan culture. Regions with larger

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rice planting area are more likely to have social group settlements, which is conducive to the development of clan culture. Moreover, the rice planting area in 2010 was mainly influenced by the natural environment, thus fulfilling the condition of exogeneity. The results in Table 3 show that the coefficients of *Clan1* and *Clan2* are still significantly negative. The results do not suffer from under-identification of instrumental variables, weak instrumental variables or over-identification, according to the Anderson canon corr LM statistic test, Cragg-Donald Wald F-test and Sargan test. Therefore, the empirical findings of this paper are not affected by the problem of endogeneity due to mutual causation.

Tab. 3 –Rice planting area as the instrumental variable for clan culture Source: own research

Variables	(1)	(2)
Clan1	-0.754***(-5.14)	
Clan2		-0.267***(-5.10)
Age	0.013***(9.06)	0.010***(6.50)
Size	-0.162***(-24.51)	-0.160***(-24.49)
K/A	0.669***(4.70)	0.807***(5.58)
Dbdb	-0.268*(-1.91)	-0.291**(-2.06)
ROA	-2.745***(-24.52)	-2.626***(-22.50)
ALR	-0.648***(-15.09)	-0.632***(-14.49)
Income	-0.153***(-12.30)	-0.164***(-12.99)
Presmn	0.074***(4.54)	0.082***(4.99)
GDP	0.043***(4.86)	-0.009(-0.89)
HHI	0.037(0.40)	0.085(0.90)
Year FE	YES	YES
Industry FE	YES	YES
Constant	1.321***(5.02)	0.728***(3.62)
Observations	9,018	9,018
R-squared	0.336	0.327
First Stage		
IV	0.024***(26.47)	0.067***(26.52)
Anderson canon corr LM statistic	656.582***	658.70***
Cragg-Donald Wald F statistic	700.838***	703.270***
Sargan statistic	0.000	0.000

The second major cause of endogeneity is omitted variables. In the baseline model, many of control variables at the enterprise, city, and industry level are introduced, and the fixed effects of time and industry are controlled. The main influencing factors of agency cost between owners and managers are included to avoid the effects of missing variables as much as possible.

For robustness, we further conduct a differences-in-differences regression based on firms' relocation. As the differences-in-differences model makes two differences between the experimental and control groups and between pre- and post-events, it can better solve the deviation caused by omitting unobservable variables. Thus, DID is widely used in the treatment of endogenous problems. First, when a firm moves to a new region, the long-accumulated clan network in the original area is lost. It is separated from the original acquaintance or quasi-acquaintance society, and enters into a 'stranger' society alone, which leads to the weakening of the 'reputation mechanism', and greatly reduces the possibility of 'collective punishment' of

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managers by the former regional entrepreneurial groups and clans as well as the effectiveness of the 'collective punishment'. Second, after the firm has moved, it will gradually employ managers from the newly relocated area. As clan culture belongs to the culture of specialism, it has 'short radius and strong pull' characteristics (Cheng et al., 2021). Managers from the newly relocated area are 'strangers' in the field. If they engage in opportunistic behaviour, they are neither subject to the 'collective punishment mechanism' of local entrepreneurial groups and clans, nor do they fall within the scope of their 'shared beliefs'. This is because 'honesty' is the equilibrium of a long-term game played by the local 'society of acquaintances' over time. It is difficult to expand the scope of its action to include the group of strangers from outside the region. Therefore, firm relocation weakens the effect of clan culture on agency costs between owners and managers (Pan et al., 2019). Based on the impact of an exogenous event such as relocation, we test whether a causal relationship exists between clan culture and principal-agent costs. The empirical models are as follows:

$$AgencyCost_{i,t} = \beta_0 + \beta_1 Change_i \times After_{i,t} + \beta X + \varepsilon_{i,t} \quad (2)$$

where $Change_i$ is a dummy variable for relocated companies, which is 1 if company i is relocated and 0 otherwise.; $After_{i,t}$ denotes the dummy variable of relocation time, which is 0 before the relocation and 1 after the relocation. Table 4 shows the regression results of model (2). The results show that the interaction coefficient of *Change* and *After* is significantly positive, indicating that firms are less affected by clan culture after relocation and have higher agency cost between owners and managers, thus further validating the conclusion that clan culture can reduce agency costs.

Tab. 4 –Differences-in-differences regression based on enterprise relocation Source: own research

Variables	(1)
Change×After	0.137***(2.66)
Age	0.011***(7.66)
Size	-0.151***(-22.40)
K/A	0.706***(4.94)
Dbdb	-0.252*(-1.73)
ROA	-2.843***(-21.98)
ALR	-0.725***(-14.78)
Income	-0.155***(-8.94)
Presmn	0.070***(4.28)
GDP	0.021**(2.54)
HHI	0.048(0.50)
Constant	0.430**(1.98)
Year FE	YES
Industry FE	YES
Observations	9,199
R-squared	0.342

4.3 Robustness tests

To test the robustness of the empirical findings, we conduct the following five tests. First, to avoid the influence of extreme values, all the continuous variables in the baseline model have been winsorized. This section uses the raw data for analysis and the results are listed in Table 5. The key conclusions still hold and are not affected by the winsorized data.

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Tab. 5 –Regression results using raw data Source: own research

Variables	(1)	(2)
Clan1	-0.221***(-5.06)	
Clan2		-0.049***(-3.61)
Age	0.014***(8.28)	0.014***(8.00)
Size	-0.152***(-20.30)	-0.150***(-20.18)
K/A	0.343**(2.19)	0.358**(2.28)
Dbdb	-0.357**(-2.42)	-0.361**(-2.45)
ROA	-1.610***(-5.00)	-1.606***(-4.99)
ALR	-0.619***(-9.80)	-0.622***(-9.85)
Income	0.000(1.06)	0.000(0.94)
Presmn	0.092***(4.90)	0.094***(4.99)
GDP	0.027***(2.93)	0.013(1.41)
HHI	0.033(0.30)	0.046(0.41)
Constant	0.482**(1.98)	0.275(1.15)
Year FE	YES	YES
Industry FE	YES	YES
Observations	9,199	9,199
R-squared	0.292	0.290

Second, we replace the proxy variables for principal-agent costs. The sum of sales expense ratio and management expense ratio is used in this section to measure agency cost between owner and managers. The results are listed in Table 6. After changing the measurement method, the core findings of this paper still hold.

Tab. 6 –Results after changing the measurement of the dependent variables Source: own research

Variables	(1)	(2)
Clan1	-0.176***(-4.27)	
Clan2		-0.079***(-6.10)
Age	0.002(1.41)	0.001(0.81)
Size	-0.101***(-15.02)	-0.101***(-15.04)
K /A	0.139(0.96)	0.168(1.16)
Dbdb	-0.170(-1.17)	-0.174(-1.20)
ROA	-1.819***(-14.43)	-1.785***(-14.18)
ALR	-0.619***(-12.78)	-0.616***(-12.72)
Income	-0.164***(-9.54)	-0.166***(-9.68)
Presmn	0.073***(4.35)	0.076***(4.51)
GDP	0.059***(7.00)	0.044***(5.09)
HHI	0.089(0.96)	0.103(1.09)
Constant	0.374*(1.90)	0.261(1.34)
Year FE	YES	YES
Industry FE	YES	YES
Observations	9,199	9,199
R-squared	0.350	0.351

Third, we replace the proxy variable for clan culture. We identify whether a genealogy is found in the location of the company with the same surname as the chairman or general manager. The value of *Surenameclan1* is 1 if a genealogy with the same surname is found in the local area,

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and 0 otherwise. *Surenameclan2* indicates the number of same-surname genealogies (taking logarithms). The chairman and general manager are the core personnel of the enterprise's operations. If *Surenameclan1* takes 1, chairmen and general managers have a higher probability of belonging to their own clan and are more directly and deeply influenced by clan culture. The results are listed in Table 7. The conclusion still holds after the measurement of clan culture is changed.

Tab. 7 –Results after changing the measurement of the independent variable Source: own research

Variables	(1)	(2)
Surenameclan1	-0.103***(-5.70)	
Surenameclan2		-0.030***(-5.92)
Age	0.010***(5.78)	0.010***(5.48)
Size	-0.157***(-17.95)	-0.156***(-17.92)
K /A	0.605***(3.33)	0.613***(3.38)
Dbdb	-0.205(-1.20)	-0.214(-1.25)
ROA	-2.886***(-16.99)	-2.880***(-16.98)
ALR	-0.657***(-10.82)	-0.661***(-10.92)
Income	-0.156***(-8.68)	-0.156***(-8.71)
Presmn	0.047***(2.68)	0.055***(3.14)
GDP	0.008(0.81)	0.014(1.36)
HHI	-0.056(-0.49)	-0.043(-0.37)
Constant	0.580**(2.37)	0.559**(2.28)
Year FE	YES	YES
Industry FE	YES	YES
Observations	7,108	7,108
R-squared	0.337	0.336

Fourth, we test the effect of accounting policy changes on the empirical findings. According to the 'Notice on Revising and Issuing the Format of Financial Statements of General Enterprises' issued by the Ministry of Finance of China, since 2018, the two accounts used to measure the dependent variable of this paper (management expense ratio), have changed significantly. First, research and development expenses are presented separately and have not been attributed to management expenses since 2018. Second, other receivables have been consolidated with interest receivable and dividends receivable since 2018. Therefore, a systematic change might have occurred in the management expense ratios of public companies in 2018. Since this paper controls the time fixed effect in the baseline model, the impact of this policy change has been covered. Additionally, changes in the coverage of these two accounts may cause changes in the marginal impacts of clan culture on agency cost between owners and managers. Therefore, this section introduces the interaction term of the time dummy variable *dum2018* (the value of *dum2018* is 0 before 2018, and 1 otherwise) and clan culture to test whether the conclusion holds after accounting policy changes are considered.

The results are listed in Table 8. The regression coefficients of clan culture are significantly negative, indicating that the conclusion of this paper is still valid. The interaction between *dum2018* and clan culture is significantly negative, indicating that after R&D expenses are listed separately, the marginal impact of clan culture on agency cost between owners and

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managers increases. Thus, we suggest that the role of clan culture is more reflected in the reduction of management expenses rather than R&D expenses.

Tab. 8 –Results after considering 2018 accounting policy changes Source: own research

Variables	(1)	(2)
Clan1	-0.139***(-3.05)	
dum2018×Clan1	-0.267***(-3.36)	
Clan2		-0.026*(-1.71)
dum2018×Clan2		-0.047*(-1.87)
Age	0.012***(8.10)	0.011***(7.77)
Size	-0.153***(-22.53)	-0.152***(-22.38)
K/A	0.721***(5.08)	0.719***(5.03)
Dbdb	-0.249*(-1.72)	-0.250*(-1.72)
ROA	-2.816***(-21.77)	-2.816***(-21.71)
ALR	-0.716***(-14.57)	-0.721***(-14.63)
Income	-0.154***(-8.88)	-0.155***(-8.91)
Presmn	0.070***(4.27)	0.072***(4.36)
GDP	0.031***(3.79)	0.017**(1.97)
HHI	0.049(0.52)	0.048(0.50)
Constant	0.585***(2.61)	0.447**(2.05)
Year FE	YES	YES
Industry FE	YES	YES
Observations	9,199	9,199
R-squared	0.345	0.342

Fifth, we use the Bootstrap method for regression. This method can effectively reduce or eliminate the limited sample error in the statistical test through random repeated sampling (Horowitz, 2019). We set the number of repeated samplings to 100 times and test the robustness of the main empirical model. The results are listed in Table 9. Clan culture remains significantly negatively related to agency cost between owner and managers, indicating that our conclusions are not affected by limited sample error.

Tab. 9 –Regressions using Bootstrap method Source: own research

Variables	(1)	(2)
Clan1	-0.208***(-4.89)	
Clan2		-0.042***(-2.94)
Age	0.012***(8.08)	0.011***(7.76)
Size	-0.153***(-25.22)	-0.152***(-23.99)
K/A	0.703***(4.62)	0.714***(4.74)
Dbdb	-0.250*(-1.88)	-0.252*(-1.67)
ROA	-2.824***(-22.99)	-2.819***(-20.72)
ALR	-0.716***(-22.31)	-0.719***(-13.80)
Income	-0.154***(-8.34)	-0.156***(-10.04)
Presmn	0.069***(4.72)	0.071***(4.75)
GDP	0.030***(3.76)	0.018*(1.91)
HHI	0.041(0.48)	0.052(0.51)
Constant	0.655***(3.24)	0.451**(2.40)
Year FE	YES	YES
Industry FE	YES	YES
Observations	9,199	9,199
R-squared	0.344	0.342

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4.4 The mechanism test: External collective punishment mechanism or intrinsic moral constraints?

In the theoretical hypotheses section, we analysed that clan culture can reduce the agency costs between owners and managers through two mechanisms. First, the 'collective punishment mechanism' based on the 'reputation mechanism' of the acquaintance society, which can be called the external collective punishment mechanism. As mentioned above, although clan organisations have existed after China's reform and opening up, loose clan organisations such as 'clan associations' and 'chambers of commerce with the same family name', have been set up in large numbers in line with the market economy. These organisations still fulfil some of the functions of traditional clan organisations. Entrepreneurs frequently interact through these organisations to share information, coordinate opinions and promote cooperation, particularly in areas where clan culture is popular, such as the south-east coast of China. Local entrepreneurial groups are still similar to 'acquaintance societies' or 'quasi-acquaintance societies'. The 'reputation mechanism' may still be useful. Once a manager engages in unethical behaviours, there is a risk of 'collective punishment' by the entrepreneurial community and the clan organisations mentioned above.

To test the 'collective punishment mechanism' based on the 'reputation mechanism' of the acquaintance society (the external collective punishment mechanism), models (3) and (4) are constructed in conjunction with model (1).

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

$$AgencyCost_{i,t} = \beta_0 + \beta_1 Clan_i + \beta_2 Information_i + \beta X + \varepsilon_{i,t} \quad (4)$$

where $Information_i$ is an indicator of information transmission level in the city where firm i is located. The smoother the information transmission, the greater the impact of reputation mechanism. A question from the Chinese General Social Survey (CGSS), 'In the past year, did you often do the following in your free time?1. Socialise', is used to measure the level of information transmission level in the city. According to the questionnaire, the higher the social activity frequency, the higher the score. We take the average value of this indicator within the city as the measurement indicator.

Second, the moral constraints based on managers' 'shared beliefs' can be called intrinsic moral constraints. Based on the evolutionary game perspective, 'honesty', as the equilibrium solution of the long-term repeated game between managers and clan member in history, has been internalised as a 'shared belief' in the minds of managers. It has become the cultural tradition of the managerial group. With the development of the market economy, the game between managers and entrepreneurs has changed dramatically. The region where the manager is employed has broken through the limitations of clan and geography. Even though the external environment has changed significantly, 'honesty' has become a common behavioural habit and mindset for managers.

To test the moral constraint mechanism based on managers' 'shared beliefs' (the intrinsic moral constraint mechanism), models (5) and (6) are constructed in conjunction with model (1):

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

$$AgencyCost_{i,t} = \beta_0 + \beta_1 Clan_i + \beta_2 Moral_i + \beta X + \varepsilon_{i,t} \quad (6)$$

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where $Moral_i$ is the intrinsic moral level of individuals in the city where firm i is located. To measure the level of morality of the city, we use the question from the China General Social Survey (CGSS): 'Do you agree that in this society, if you are not careful, others will find ways to encroach on your interests?' According to the questionnaire, the higher the level of morality the lower the score. We also take the average value within the city.

Data from the 2012 China General Social Survey (CGSS) near the midpoint of the sample are selected for the mechanism test. Columns 1 and 2 of Table 10 show the results of the external collective punishment mechanism test, where column 1 shows the regression results of clan culture on the level of information transmission. The coefficient of *Clan2* is not significant. This indicates that clan culture cannot improve the level of information transmission. Therefore, the external collective punishment mechanism is ineffective. The clan culture is not able to reduce agency cost between owners and managers through a 'collective punishment mechanism' based on the 'reputation mechanism' of an acquaintance or quasi-acquaintance society.

Columns 3 and 4 of Table 10 show the results of the intrinsic moral constraints mechanism test. Column 3 presents the regression results of clan culture on the individual morality level. The coefficient of *Clan2* is significantly negative, suggesting that the stronger the clan culture in the city, the higher the level of individual intrinsic morality. Column 4 introduces both clan culture and individual morality level into the model. The coefficient of individual morality level is positive at the 1% significance level, which indicates that morality level forms a fully mediation effect. Clan culture reduces agency cost between owners and managers of Chinese private firms by increasing individual morality level.

Tab. 10 –Clan culture, external collective punishment mechanism, intrinsic moral constraints mechanism and agency cost Source: own research

Variables	(1)	(2)	(3)	(4)
Information		-0.285***		
		(-7.92)		
Moral				0.264***
				(4.50)
Clan2	0.004	-0.031**	-0.118***	-0.001
	(0.91)	(-2.40)	(-46.98)	(-0.04)
Age	0.004***	0.011***	0.002***	0.009***
	(8.02)	(7.74)	(7.31)	(6.62)
Size	-0.013***	-0.152***	0.003**	-0.149***
	(-5.76)	(-22.13)	(2.46)	(-21.64)
K/A	0.097*	0.647***	-0.027	0.627***
	(1.95)	(4.50)	(-0.93)	(4.34)
Dbdb	0.098**	-0.336**	-0.122***	-0.332**
	(2.28)	(-2.32)	(-4.50)	(-2.28)
ROA	0.073**	-2.751***	-0.002	-2.771***
	(1.97)	(-21.13)	(-0.10)	(-21.04)
ALR	0.048***	-0.673***	-0.015*	-0.683***
	(3.34)	(-13.80)	(-1.67)	(-13.84)
Income	0.002	-0.154***	0.001	-0.155***
	(0.38)	(-8.81)	(0.45)	(-8.86)
Presmn	0.002	0.079***	0.003	0.078***
	(0.31)	(4.83)	(1.09)	(4.70)
GDP	0.072***	0.049***	0.042***	0.017*
	(28.46)	(5.62)	(26.28)	(1.96)
HHI	-0.086**	0.064	0.025	0.082

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	(-2.33)	(0.66)	(1.20)	(0.84)
Constant	2.990***	1.245***	3.094***	-0.422
	(56.02)	(5.17)	(80.28)	(-1.48)
Year FE	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES
N	8,996	8,996	8,996	8,996
R-squared	0.198	0.341	0.360	0.337

Note: The CGSS research did not cover all cities, so the sample size is reduced.

In summary, the internal moral constraint mechanism has played a major role, but in the past two decades, the external collective punishment mechanism has basically become ineffective. As a historical equilibrium of the long-term game between the principal and the agent, 'honesty' has been internalised into the 'shared beliefs' of all participants, and has been fostered into the cultural tradition of the managerial group, which has had a long-term impact on this group's behavioural choices. This paper corroborates that cultural change is slow (Guiso et al., 2008). Culture not only determines social performance during a given period, but also influences the process of long-term institutional change by constraining the participants, thus determining long-term social performance.

4.5 The relationship between formal institutions and clan culture

As informal institution, culture usually interacts with formal institutions to jointly affect corporate governance (El Ghoul et al.,2012). We use the number of board meetings and shareholders' meetings to measure the effect of formal institutions in corporate governance. Companies with the number of board meetings and shareholders' meetings above the median are classified as a subsample with strong formal institutional constraints, and others are classified as a subsample with weak formal institutional constraints. The regression results are presented in Table 11 (sub-sample by number of board meetings) and Table 12 (sub-sample by number of shareholders' meetings). The marginal impact of clan culture is significantly smaller in sub-samples with strong formal institutional constraints than that of sub-samples with weak formal institutional constraints. Therefore, the impacts of the formal institutions and clan culture on agency cost between owners and managers have a substitution relationship. Effective informal institutions can complement the role of formal institutions.

Tab. 11 –Clan culture and formal institutions (1) Source: own research

	(1)	(2)	(3)	(4)
Variables	Weak formal institutions sample		Strong formal institutions sample	
Clan1	-0.274***		-0.125**	
	(-4.09)		(-2.48)	
Clan2		-0.048**		-0.027
		(-2.37)		(-1.60)
Age	0.011***	0.010***	0.013***	0.012***
	(4.63)	(4.38)	(6.96)	(6.79)
Size	-0.161***	-0.160***	-0.148***	-0.147***
	(-13.60)	(-13.45)	(-16.43)	(-16.36)
K/A	0.856***	0.830***	0.639***	0.655***
	(3.52)	(3.36)	(3.59)	(3.68)
Dbdb	0.076	0.112	-0.451**	-0.465**
	(0.34)	(0.50)	(-2.36)	(-2.43)
ROA	-3.162***	-3.158***	-2.654***	-2.647***
	(-14.63)	(-14.58)	(-15.49)	(-15.36)
ALR	-0.878***	-0.877***	-0.645***	-0.646***

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	(-10.98)	(-10.94)	(-9.87)	(-9.85)
Income	-0.139***	-0.140***	-0.163***	-0.164***
	(-5.07)	(-5.08)	(-7.31)	(-7.37)
Presmn	0.012	0.011	0.142***	0.144***
	(0.50)	(0.49)	(5.70)	(5.77)
GDP	0.017	0.003	0.039***	0.031***
	(1.36)	(0.27)	(3.51)	(2.71)
HHI	0.363**	0.371**	-0.118	-0.107
	(2.22)	(2.27)	(-0.97)	(-0.88)
Constant	0.559	0.266	0.637**	0.527*
	(1.50)	(0.72)	(2.22)	(1.87)
Year	YES	YES	YES	YES
Industry	YES	YES	YES	YES
N	3,808	3,808	5,391	5,391
R-squared	0.392	0.389	0.338	0.337

Tab. 12 –Clan culture and formal institutions (2) Source: own research

	(1)	(2)	(3)	(4)
Variables	Weak formal institutions sample		Strong formal institutions sample	
Clan1	-0.272***		-0.135**	
	(-4.52)		(-2.50)	
Clan2		-0.069***		-0.015
		(-3.76)		(-0.86)
Age	0.011***	0.010***	0.014***	0.013***
	(5.11)	(4.56)	(7.19)	(7.11)
Size	-0.144***	-0.142***	-0.160***	-0.158***
	(-12.92)	(-12.79)	(-16.59)	(-16.43)
K/A	0.348	0.334	0.853***	0.860***
	(1.49)	(1.42)	(4.72)	(4.74)
Dbdb	0.133	0.139	-0.672***	-0.680***
	(0.64)	(0.67)	(-3.34)	(-3.39)
ROA	-2.974***	-2.980***	-2.687***	-2.680***
	(-14.02)	(-14.06)	(-14.98)	(-14.83)
ALR	-0.770***	-0.774***	-0.621***	-0.624***
	(-9.74)	(-9.79)	(-9.38)	(-9.38)
Income	-0.156***	-0.155***	-0.140***	-0.141***
	(-6.09)	(-6.05)	(-5.85)	(-5.93)
Presmn	0.056**	0.057**	0.108***	0.109***
	(2.53)	(2.57)	(3.98)	(4.02)
GDP	0.014	-0.001	0.047***	0.040***
	(1.17)	(-0.08)	(4.06)	(3.35)
HHI	-0.042	-0.018	0.225*	0.231*
	(-0.31)	(-0.13)	(1.71)	(1.74)
Constant	0.858***	0.613**	0.247	0.089
	(3.06)	(2.23)	(0.72)	(0.26)
Year	YES	YES	YES	YES
Industry	YES	YES	YES	YES
N	4,440	4,440	4,759	4,759
R-squared	0.368	0.366	0.355	0.354

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4.6 The relationship between market and clan culture

The level of city marketisation is also an important factor affecting the agency cost between owners and managers (Luo, 2012). First, in areas with a relatively high level of marketisation, resource allocation is mainly regulated by market. The market for professional managers is relatively mature. Second, in cities with a relatively high level of marketisation, the formal media market is also relatively highly developed, and external media monitoring of the managers is more intense. Third, in cities with a higher marketisation level, property rights are correspondingly protected better legally. The price managers have to pay for immoral behaviour is higher. Due to three aspects mentioned above, the agency costs between owners and managers have been directly or indirectly reduced.

We take the median of the marketisation level of each region as the dividing line and divides the samples into low marketisation level sub-sample and high marketisation level sub-sample (Kong & Qin, 2021; Liu et al., 2021). We run regressions on these two sub-samples respectively. The results are listed in Table 13. In samples with a low level of marketisation, the coefficient (in absolute value) of clan culture is significantly greater than that of samples with a high level of marketisation, indicating that the marginal impact of clan culture is smaller in cities with higher marketisation. A substitution relationship also exists between the effects of clan culture and market regulation. Clan culture can play an effective supplementary role to market regulation. Clan culture can supplement the lack of market regulations.

Tab. 13 –Market and clan culture Source: own research

	(1)	(2)
Variables	Low marketisation level sample	High marketisation level sample
Clan2	-0.054***(-2.78)	-0.043**(-2.44)
Age	0.008***(4.01)	0.014***(6.99)
Size	-0.144***(-15.04)	-0.162***(-16.69)
K/A	0.606***(3.09)	0.774***(3.67)
Dbdb	-0.317(-1.56)	-0.096(-0.46)
ROA	-2.825***(-15.49)	-2.898***(-15.52)
ALR	-0.811***(-11.43)	-0.580***(-8.56)
Income	-0.151***(-7.25)	-0.149***(-4.89)
Presmn	0.113***(4.57)	0.038*(1.71)
GDP	0.041***(3.68)	-0.026(-1.38)
HHI	0.019(0.15)	0.400**(2.54)
Constant	0.897***(3.53)	-0.755*(-1.95)
Year FE	YES	YES
Industry FE	YES	YES
Observations	4,898	4,301
R-squared	0.351	0.380

5 DICUSSION

This study explores how clan culture influences the principal-agent problem between managers and shareholders in the context of the resurgence of clan culture following China's economic reform and opening up in the 1980s. As economic reforms have advanced, traditional clan organizations have become active again and have had profound impacts on the business environment. Clan culture is not only part of the social structure but also an important factor in shaping individual and group behaviour.

The results indicate that clan culture significantly reduces agency costs between managers and shareholders, which is consistent with H1. This is primarily achieved through intrinsic moral

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mechanisms such as integrity in business operations and mutual benefit, which encourage managers to act more in line with the interests of shareholders. These intrinsic moral mechanisms effectively mitigate the negative effects of information asymmetry and enhance trust between managers and shareholders, which is consistent with H3.

However, the findings also show that external punishment mechanisms do not play the expected role in this relationship. H2 is not established in today's Chinese society. While clan organizations historically served to maintain order and enforce collective punishment, in contemporary Chinese society, this function has been considerably weakened. This may be due to the perfection of modern legal systems and the enhancement of personal rights awareness, rendering traditional forms of collective punishment less applicable.

The conclusions of this study support existing theories regarding the impact of clan culture on managerial behaviour (Pan et al., 2019; Zhu & Yin, 2021; Xue et al.,2021). Although the traditional functions of clan organizations have changed, the cultural ideals they have long fostered, such as integrity in business, remain deeply ingrained and continue to positively influence modern corporate management practices. This aligns with previous research findings about the role of clan culture in modern corporate governance. Previous literature considers agency costs as a general concept (including various principal-agent relationships) and has not conducted research on the agency problem between managers and shareholders. In addition, existing literature considers agency costs as intermediaries between clan culture and other variables, without carefully exploring how clan culture affects agency costs. This article supplements this.

The above findings provide us with the following insights into understand the formation and evolution of corporate governance in emerging markets, represented by China, and how to create corporate governance mechanisms with local characteristics.

First, traditional culture is an important perspective for understanding China's rapid economic development since the country's reform and opening up in the late 1970s. In an external environment where formal institutions such as laws and markets are extremely weak, Chinese private entrepreneurs, especially the first generation of entrepreneurs born and raised in rural areas, have formed a simple and efficient corporate governance mechanism. They use informal institutions, such as clan culture to gather and integrate production factors such as human capital and financial capital at low cost. Traditional culture is therefore an important and indispensable method for the realisation of the ‘Chinese economic miracle’.

Second, effective corporate governance mechanisms cannot be separated from mature external formal institutions, but it takes a long historical process for formal institutions to be improved. Therefore, it can be expected that for a long period of time in the future, enterprises in emerging market countries and regions will still need to leverage the advantages of their traditional culture to compensate for the relatively weak external formal institutions and achieve a positive interaction between formal and informal institutions.

Finally, there are diverse corporate governance models worldwide, and both informal and formal institutions within a country or region jointly influence and shape the corporate governance mechanism. Therefore, when borrowing corporate governance mechanisms from the developed countries, emerging countries should take into account the particularity of their own informal systems, especially their unique traditional cultures. They need to pay special attention to coordinating the internal relationships between different systems, especially between local informal systems and foreign formal systems.

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6 CONCLUSION

Corporate governance research based on cultural perspectives has attracted a growing number of studies. This paper takes clan culture, which has a long history and wide influence in Chinese society, as a research object and examines the influence of clan culture on the agency problem between owners and managers of private enterprises. We also analyse the specific mechanism by which clan culture affects agency costs.

The results of the empirical research show that clan culture still reduces the agency costs between owners and managers in Chinese private firms sixty years after the demise of the traditional well-organised clan organisations. This finding remains significant after accounting for the endogeneity issue, changing the measure of the variable, and further considering the effect of the change in accounting policy. Mechanism tests found that clan culture mainly affects agency costs through moral constraint mechanisms based on managers' shared beliefs (individual intrinsic moral constraint mechanisms). Although there are still some loose modern clan organisations, the 'collective punishment mechanism' based on the 'reputation mechanism' of the acquaintance society (the external collective punishment mechanism) is no longer effective in disciplining the behaviour of managers. Further research also shows that there is a substitution relationship between clan culture and formal institutions, market regulation in reducing principal-agent costs. In other words, clan culture can improve the corporate governance performance of private firms in environments with weak formal institutions and marketisation.

However, our research still has some limitations. For example, regarding clan culture, existing statistical data only record the number of genealogies. But clan culture is reflected in many aspects, such as clan sacrificial activities, scale, which are elements we cannot measure. We also cannot exhaust all the channels through which clan culture affects agency costs, but can only analyse from an observable and measurable perspective. Therefore, future research could focus on exploring more mechanisms by which clan culture affects business operations.

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