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RESEARCH ARTICLE

The Impact of Membership in Non-Local Chambers of Commerce on Corporate Innovation: The Dual Role of Business Culture and Social Networks*

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Abstract

Using a sample of A-share listed companies from the Shanghai and Shenzhen Stock Exchanges from 2010 to 2020, this study examines the impact of membership in non-local chambers of commerce (NLCCs) on corporate innovation, considering the dual attributes of business culture and social networks associated with these chambers. The research finds that joining a NLCC significantly promotes corporate innovation. Agency costs play a partial mediating role between membership in NLCCs and corporate innovation, with a chain mediation path of "NLCC–social capital–agency costs–corporate innovation." Further analysis reveals that the more NLCCs there are in a company's location, the greater the positive impact of joining one on corporate innovation. The promotion effect of joining a NLCC on corporate innovation is stronger for state-owned enterprises (SOEs) compared to non-state-owned enterprises (non-SOEs). In addition, membership in NLCCs fosters both invention and non-invention innovation.

Keywords non-local chamber of commerce (NLCC), corporate innovation, business culture, social networks, agency costs, social capital

1 Introduction

As formal organizations with the legal status of social groups, non-local chambers of commerce (NLCCs) play a crucial role in resource allocation, credit guarantees, and information provision for their member enterprises (Wei, 2015). Extant research has shown that NLCCs can help member enterprises build social capital (Dessí & Piccolo, 2016). Leveraging the social network attributes, studies have confirmed that NLCCs promote commercial growth, expand trade (Greif et al., 1994), help enterprises overcome cross-regional development barriers (Cao & Jia, 2020), enhance the performance of cross-regional mergers and acquisitions for private enterprises (Liao et al., 2022), alleviate financing constraints for private enterprises (Ning et al., 2022), increase corporate risk-taking levels (Huang et al., 2022), and are significant for taxes and welfare (Dessí & Piccolo, 2016). In essence, NLCCs inherit and advance the traditions of historical merchant guilds, thus carrying forward a business culture rich in Confucian values such as integrity and kindness and balancing righteousness and profit. Therefore, NLCCs feature both social networks and

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business culture attributes. The business culture environment is conducive to reducing agency costs for enterprises (Du et al., 2017); therefore, the business culture attributes of NLCCs can also play an important role. However, prior research has inadequately addressed these business culture attributes, particularly the interaction between the two attributes.

Innovation is a crucial means for enterprises to gain core competitiveness, which serves as the driving force behind economic and social development and provides strategic support for the long-term development of nations. The second chapter of China's 14th Five-Year Plan emphasizes the need to adhere to innovation-driven development, strengthen the central role of enterprises in innovation, and enhance their technological innovation capabilities. Thus, in the context of building a leading country in science and technology, studying how to promote corporate innovation holds significant theoretical and practical importance. Extensive research has investigated how external governance mechanisms, such as media, analysts, institutional investors, and auditors, can enhance corporate innovation capabilities and levels. In reality, NLCCs, as a type of intermediary organization, can also influence corporate innovation. Particularly, their social networks can allocate resources necessary for innovation and facilitate knowledge transfer (Inkpen & Tsang, 2005), thereby promoting corporate innovation. Moreover, the business culture environment of NLCCs can help reduce agency costs (Du et al., 2017), and this reduction can further promote corporate innovation. Hence, this study posits that NLCCs can serve as an effective external governance mechanism conducive to promoting corporate innovation. However, extant research has not yet sufficiently explored this topic.

Given this, this paper aims to examine the impact of joining NLCCs on corporate innovation and verify the mechanisms through which this impact occurs based on the dual attributes of business culture and social networks of these chambers, drawing on compiled data on listed companies' membership in NLCCs. The study observes the effects of the number of NLCCs in the company's location and the nature of the company's ownership on the relationship between NLCC membership and corporate innovation. Furthermore, it analyzes the impact of NLCC membership on both invention and non-invention innovation.

The potential marginal contributions of this study are reflected in the following aspects: (1) Based on the dual attributes of business culture and social networks inherent in NLCCs, this study examines the impact of these external intermediary organizations or external governance mechanisms on corporate innovation, expands the perspective and scope of research on the factors influencing corporate innovation, and enriches the research on the corporate governance effects of NLCCs. (2) By utilizing dual mediations of agency costs and social capital, and through a chain mediation model of "NLCC–social capital–agency costs–corporate innovation," this study probes into the pathways through which joining a NLCC influences corporate innovation. It illuminates the black box of how NLCCs exert their governance effects, thus providing a reference for other studies on NLCCs. (3) The study reveals the significant role of NLCCs in promoting corporate innovation and confirms that the more NLCCs in a company's location, the greater the positive impact of joining one on corporate innovation. These findings provide managerial insights for government sectors in guiding and optimizing the founding and development of NLCCs and similar organizations.

2 Theoretical Analysis and Research Hypotheses

2.1 NLCCs

NLCCs are voluntary, legally registered civil economic organizations established at the place of business by entrepreneurs sharing the same places of origin, with the aim of assisting compatriots in their business development (Wei, 2015). In 2003, to regulate the management and development of NLCCs, the Ministry of Civil Affairs of China issued the *Opinion on Issues Related to Registration of Non-Local Chambers of Commerce* (hereinafter referred to as *the Opinion*), stipulating that a NLCC must be registered with the local civil affairs department. *The Opinion* legally affirmed the legitimacy of NLCCs as formal organizations with the status of social groups. Since the issuance of *The Opinion* in 2003, NLCCs have flourished in China. According to data from the Chinese Research Data Services (CNRDS), there are currently 462 provincial-level NLCCs in China, making them one of the largest and most influential forms of chambers of commerce in the country (Huang et al., 2022).

Wei (2015) notes that NLCCs play roles as resource allocators, credit guarantors, and information providers for their member enterprises. From the macro perspective, NLCCs can promote inter-provincial trade by reducing information costs and mitigating market segmentation (Cheng et al., 2021), fostering commercial growth and expanding trade (Greif et al., 1994), and are crucial for tax and welfare (Dessí & Piccolo, 2016). From the micro perspective, NLCCs can help member enterprises acquire more resources in unfamiliar environments, thereby enhancing their risk-taking capabilities (Huang et al., 2022); they can facilitate information sharing and collective security among members, thus reducing transaction costs (Wei, 2015); they can strengthen cooperation and trust among members, thereby enabling mutual financing and business cross-collaboration (Cheng et al., 2021; Ning et al., 2022); and they can help enterprises overcome cross-regional development barriers, thus achieving regional expansion (Cao & Jia, 2020). Clearly, NLCCs play a vital role in economic and corporate development.

Nevertheless, extant research on NLCCs is relatively narrow in focus. Studies with practical analyses are case studies within specific regions, failing to effectively address real governance issues. This disconnect does not align with the significant role of NLCCs in modern economic and corporate development, nor does it meet the theoretical needs for their reform and development in China. Furthermore, research on the corporate governance effects of NLCCs is limited. Currently, several empirical studies by Cao and Jia (2020), Ning et al. (2022), and Huang et al. (2022) have examined the impact of NLCCs on cross-regional development, financing constraints, and risk-taking. There has been no research exploring their impact on corporate innovation.

2.2 NLCCs and Corporate Innovation

NLCCs feature business culture attributes. Traditional merchant guild culture can motivate business owners to self-regulate and reduce agency costs (Du et al., 2017), and lower agency costs can improve corporate innovation levels (Kong et al., 2020; Xiu & Zhou, 2018). In addition, NLCCs are initiated by leading enterprises from various provinces, promoted by the governments, and voluntarily formed by entrepreneurs from the same province operating

in different locations. Their members include entrepreneurs from various industries, with mutual support and resource sharing being key characteristics (Ning et al., 2022). Thus, NLCCs serve as a relational network platform that aggregates substantial market resources. They integrate the political and economic resources of each member enterprise and the political connections between member enterprises and governments. Through NLCCs, enterprises can establish extensive internal and external social networks, thereby embodying their social network attributes. The increase in social capital fosters corporate innovation (Ning et al., 2022), and social capital reduces agency costs, which in turn improves corporate innovation levels (Sun, 2018; Sun & Yin, 2021). Based on this, the following hypothesis is proposed.

H1: NLCCs can improve the innovation levels of their member enterprises.

The basic principle of merchant guild culture is to balance righteousness and profit (Xiu & Zhou, 2018). According to this principle, a moral person or a gentleman should earn money in a legitimate way and not seek personal gain at the expense of others. Thus, righteousness can prevent managers from pursuing personal interests at the cost of shareholders' interests. Traditional merchant guild culture emphasizes honest operations and imposes multilateral punishment mechanisms for opportunistic behavior. Du et al. (2017) confirm that traditional merchant guild culture can motivate business owners to self-regulate and constrain their unethical behavior, thereby reducing owner-manager agency conflicts and lowering agency costs. Kong et al. (2020) also confirm that CEOs with a merchant guild cultural background are more likely to gain the trust of suppliers, making it easier for their enterprises to obtain trade credit. Therefore, the business culture attributes of NLCCs result in lower agency costs for their member enterprises. Agency issues are a significant reason for low corporate innovation (Sun, 2018). Agency costs arising from management's on-the-job consumption and moral hazards can crowd out corporate innovation. High agency costs indicate strong self-interest motivations among managers, who may prefer projects with short-term returns over long-term, high-risk projects such as corporate innovation (Sun & Yin, 2021). Thus, companies with higher agency costs tend to have lower innovation levels. In this regard, reducing agency costs can mitigate the inhibitory effects of agency problems on corporate innovation, leading to higher innovation levels. Based on this, the following hypothesis is proposed.

H1a: NLCCs can reduce the agency costs of their member enterprises, thereby enhancing corporate innovation. In other words, agency costs mediate the relationship between joining a NLCC and corporate innovation.

According to Lesser (2000), social capital is reflected in three dimensions: structured organization, dynamic interpersonal relationships, and a shared context and language. Legally registered NLCCs are formal organizations with the status of social groups that are characterized by well-established internal organizational structures. Through various formal and informal activities and connections, chamber members can establish dynamic interpersonal relationships. Since all members are businessmen from the same places of origin, they share common contexts and languages. Bian and Qiu (2000) also believe that enterprises acquire power, status, funds, opportunities, and information—scarce resources—through vertical connections, horizontal connections, and social connections of the business

owners, which constitute the enterprises' social capitals. Therefore, NLCCs can increase the social capital of their member enterprises. The increase in social capital promotes corporate innovation.

Social capital facilitates the search for innovative knowledge and the sharing of innovative resources, thereby benefiting corporate innovation. First, the increase in social capital helps enterprises acquire more intangible resources related to innovation, such as simplifying the application, initiation, authorization, and approval processes for innovation projects (Lesser, 2000). It also enhances the protection of a company's patent rights in cases of patent acquisition by competitors, replication, or patent disputes (He & Su, 2013). In addition, increased social capital assists enterprises in establishing more business partnerships (Cai & Szeidl, 2018). Close business relationships allow companies to obtain valuable resources and capabilities from their partners that aid innovation, such as critical knowledge that can improve innovative outcomes (Inkpen & Tsang, 2005). Furthermore, an increase in social capital enables enterprises to directly or indirectly obtain more tangible resources related to innovation. Innovative activities often require substantial financial resources, which internal funds typically cannot satisfy (Ayalew & Zhang, 2020). Higher levels of social capital can strengthen inter-enterprise communication, build cooperative trust, and achieve mutual financing through business collaborations (Wei, 2015). It can also make it easier for enterprises to secure more patent subsidies and tax incentives (van Rijnsoever et al., 2014) and provide more opportunities to establish private contacts with financial institutions, thus facilitating access to credit support (Ning et al., 2022). All these tangible and intangible resources acquired directly or indirectly through social capital enhance corporate innovation capabilities. Therefore, the increase in social capital can promote corporate innovation. Based on this, the following hypothesis is proposed.

H1b: NLCCs can increase the social capital of their member enterprises, and the increase in social capital can directly improve corporate innovation levels. That is, social capital mediates the relationship between joining a NLCC and corporate innovation.

Social capital can constrain agents' opportunistic behavior. Social capital reduces uncertainties within enterprises and their actions, thereby alleviating the pressure on agents to engage in opportunistic behavior to some extent (Lioliou & Zimmermann, 2015). Furthermore, social networks contain abundant information flows, cash flows, and reputational flows. The expectation of gaining value within the network exerts a constraining influence on the actors, making the reputation mechanism a form of social capital governance (Zhou, 2005). Gupta et al. (2020) point out that social capital increases the costs for management to engage in opportunistic behavior, thereby leading to a reduction in such behavior and consequently lowering agency costs. Lower agency costs, in turn, improve corporate innovation levels (Sun, 2018; Sun & Yin, 2021). Based on this, the following hypothesis is proposed.

H1c: NLCCs can increase the social capital of their member enterprises, and this increase in social capital can reduce agency costs, thereby promoting corporate innovation. Thus, social capital and agency costs have a chain mediation effect between joining a NLCC and corporate innovation.

In summary, the following research model is constructed (see Figure 1).

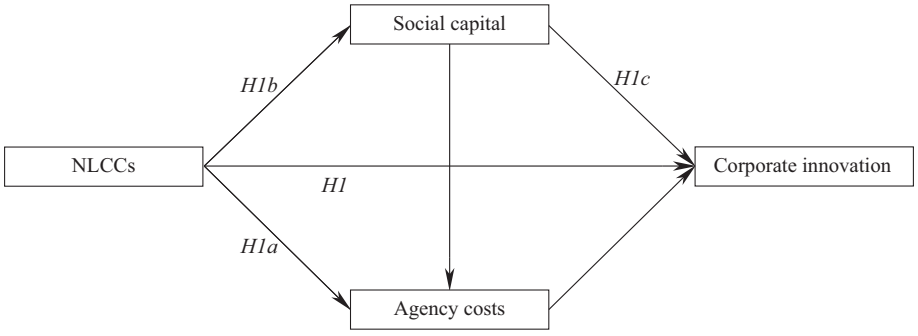

Figure 1 Research Model

3 Research Design

3.1 Sample and Data Source

This study selects A-share listed companies from the Shanghai and Shenzhen Stock Exchanges in China from 2010 to 2020 as the research sample. The initial sample is screened sequentially as follows: (1) excluding financial and insurance companies; (2) excluding companies under Special Treatment (ST); (3) excluding samples with missing observations; and (4) excluding abnormal samples, such as those with an asset-liability ratio greater than or equal to 1, or with a board size of 0. After this screening process, the study obtains a final effective sample of 2,801 listed companies, totaling 18,710 company-year observations.

The data on corporate innovation and NLCCs used in this study are sourced from the Chinese Research Data Services (CNRDS). Data on the average years of education per province are sourced from the National Bureau of Statistics website. Other financial and corporate governance data at the enterprise level are obtained from the China Stock Market & Accounting Research Database (CSMAR) and CNRDS.

In addition, to eliminate the impact of extreme values on the research results, all continuous variables involved in this study are winsorized at the 1% and 99% levels.

3.2 Definition and Measurement of Variables

The definition and measurement of various variables are as follows.

Dependent variable. Corporate innovation (P_i). Referring to Sun (2018), this study measures corporate innovation using the total number of patent applications and the total number of patent grants. The natural logarithm of the total number of patent applications plus one, and the natural logarithm of the total number of patent grants plus one, are used as proxy variables for corporate innovation ($P1$, $P2$). Considering the lag effect of patent applications or grants, the value of corporate innovation is lagged by one period.

Independent variable. Membership in NLCCs (C). Based on the information disclosed by CNRDS on 462 provincial-level NLCCs and following the studies of Ning et al. (2022) and Huang et al. (2022), this study determines whether a listed company has joined a NLCC by

cross-referencing the disclosed member company lists. Considering that member enterprises are typically invited to join at the inception of the chamber, The year when a company becomes a member of the chamber is regarded as the chamber's founding year. The variable *C* is assigned a value of 1 for the year the company joins and for subsequent years, otherwise, it is 0.

Mediating variables. (1) Agency costs (*AC*): Agency costs comprise monitoring costs by principals, bonding costs by agents, and residual loss. The management expense ratio is primarily used to measure monitoring and bonding costs, as well as the costs arising from managerial excessive consumption. Total asset turnover ratio reflects the inefficiency costs related to the use of company assets by managers, indicating the efficiency loss due to the agent's effort and capability (Wang et al., 2014). Following Chen et al. (2017), this study measures agency costs (*AC*) by the average of the inverse of the management expense ratio and the total asset turnover ratio. (2) Social capital (*SC*): Lin and Long (2021) suggest that social capital is mainly accumulated through activities such as mutual visits, banquets, and gift exchanges among stakeholders, which help enterprises acquire various policy resources. Therefore, public relations expenses can to some extent measure a company's social capital. This study uses the ratio of corporate public relations expenses to the size of the company to measure social capital (*SC*).

Control variables. Referring to Sun (2018), this study controls for the following variables: (1) Company-level factors: Company size (*A*), asset-liability ratio (*Lv*), return on total assets (*R*), board size (*B*), proportion of independent directors (*In*), ownership nature (*S*), largest shareholder's shareholding ratio (*T*1), CEO duality (*Is*), company age (*La*), and operating cash flow (*CF*). (2) Regional factors: Marketization index (*Id*) and average education level of each province (*Ed*). In addition, this study controls for industry and year fixed effects.

The descriptions of the variables involved in this study are shown in Table 1.

Table 1 Description of Variables

Variable name	Variable symbol	Definition and measurement
Corporate innovation	*P*1	The natural logarithm of the annual number of patent applications plus one
	*P*2	The natural logarithm of the annual number of patent grants plus one
Membership in NLCCs	*C*	The value is 1 in the year the company joins a NLCC and for subsequent years; otherwise, the value is 0
Agency costs	*AC*	The average of the inverse of the management expense ratio and the total asset turnover ratio
Social capital	*SC*	The ratio of corporate public relations expenses to the size of the company
Company size	*A*	The natural logarithm of the company's total assets at the end of the period
Asset-liability ratio	*Lv*	The asset-liability ratio at the end of the period
Return on total assets	*R*	Net profit divided by total assets at the end of the period, multiplied by 100%

(*To be continued*)

(*Continued*)

Variable name	Variable symbol	Definition and measurement
Board size	*B*	The natural logarithm of the total number of board members
Proportion of independent directors	*In*	The number of independent directors divided by the total number of board members
Ownership nature	*S*	The value is 1 if the company is state-owned; otherwise, the value is 0
Largest shareholder's holding ratio	*T*1	The number of shares held by the largest shareholder divided by the total shares of the company
CEO duality	*Is*	The value is 1 if the chairman also serves as the general manager; otherwise, the value is 0
Company age	*La*	The natural logarithm of the number of years the company has been listed plus one
Operating cash flow	*CF*	The ratio of net operating cash flow to total assets
Marketization index	*Id*	The marketization index of the company's location
Education level of each province	*Ed*	The average years of education of employed individuals in each province
Year	*Y*	Year dummy variable
Industry	*Ind*	Industry dummy variable

3.3 Model Building

To test *H1*, which posits that joining a NLCC can promote corporate innovation, this study establishes the following model:

$$P_{i,t+1}=\alpha_0+\alpha_1 C_{i,t}+\alpha_2 Controls_{i,t}+\epsilon_{i,t}, \tag{1}$$

where $P_{i,t+1}$ represents the innovation level of firm i in period t+1, measured by the number of patent applications or grants; $C_{i,t}$ indicates whether firm i joins a NLCC in period t; α_0 represents the constant term; α_1 and α_2 are coefficients; *Controls* is a set of control variables; and ϵ is the error term.

To test *H1a* and *H1b*, this study establishes the following models:

$$\frac{AC_{i,t}}{SC_{i,t}}=\alpha_0+\alpha_1 C_{i,t}+\alpha_2 Controls_{i,t}+\epsilon_{i,t}, \tag{2}$$

$$P_{i,t+1}=\alpha_0+\alpha_1 C_{i,t}+\frac{\alpha_2 AC_{i,t}}{SC_{i,t}}+\alpha_3 Controls_{i,t}+\epsilon_{i,t}, \tag{3}$$

where $AC_{i,t}$ represents the agency costs of firm i in period t; $SC_{i,t}$ represents the social capital of firm i in period t; and α_3 is a coefficient.

For testing the chain mediation effect proposed in *H1c*, this study employs the Bootstrap method.

4 Empirical Results and Analysis

4.1 Descriptive Statistics

The descriptive statistics of the main variables are shown in Table 2. From Table 2, we can

observe the following: (1) Corporate innovation (*P*1): The maximum value is 5.303, and the minimum value is 0.000. For corporate innovation (*P*2), the maximum value is 5.521, and the minimum value is 0.000. This indicates a substantial variation in the innovation levels among the sample firms. (2) Membership in NLCCs (*C*): The mean value is 0.046, indicating that 4.6% of the sample firms have joined NLCCs. This is consistent with the findings of Huang et al. (2022), suggesting that the number of firms joining NLCCs is relatively low.

Table 2 Descriptive Statistics of Main Variables (*N* = 18,710)

Variable	Max.	Min.	Mean	SD	Median
*P*1	5.303	0.000	1.461	1.447	1.386
*P*2	5.521	0.000	1.549	1.544	1.386
C	1.000	0.000	0.046	0.210	0.000
AC	7.212	0.218	1.325	1.081	1.033
SC	0.759	0.003	0.134	0.134	0.092
A	25.201	19.693	21.974	1.162	21.848
Lv	0.889	0.050	0.418	0.209	0.408
R	0.185	–0.275	0.036	0.061	0.037
B	2.890	1.386	2.202	0.293	2.197
In	0.636	0.000	0.386	0.104	0.375
S	1.000	0.000	0.340	0.474	0.000
*T*1	0.742	0.088	0.346	0.147	0.327
Is	1.000	0.000	0.254	0.436	0.000
La	3.258	0.000	1.988	0.915	2.197
CF	0.678	0.017	0.187	0.137	0.147
Id	10.892	2.880	8.108	1.862	8.376
Ed	13.604	8.117	10.454	1.203	10.164

4.2 Regression Results and Analysis

This study conducts regressions based on the above constructed models. The regression results are shown in Table 3.[1]

[1] Due to space limitation, the regression results for the control variables are not presented but are available upon requesting the authors.

Table 3 Regression Results for Main Effects and Mediation Effects (N = 18,710)

Type	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Mode 7	Model 8	Model 9	Model 10	Model 11
	*P*1	*P*2	*AC*	*P*1	*P*2	*SC*	*P*1	*P*2	*AC*	*P*1	*P*2
C	0.347*** (7.55)	0.361*** (7.37)	–0.126*** (–5.75)	0.335*** (7.31)	0.349*** (7.14)	0.029*** (5.70)	0.335*** (7.27)	0.347*** (7.06)	–0.100*** (–4.64)	0.326*** (7.09)	0.338*** (6.90)
SC							0.413*** (6.01)	0.481*** (6.58)	–0.904*** (–15.64)	0.332*** (4.78)	0.395*** (5.35)
AC				–0.094*** (–12.62)	–0.101*** (–12.35)					–0.089*** (–11.81)	–0.095*** (–11.51)
Control variable	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
Industry/Year	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
Constant term	–4.604*** (–19.42)	–4.557*** (–18.03)	1.357*** (6.36)	–4.476*** (–18.92)	–4.420*** (–17.51)	0.970*** (32.49)	–5.004*** (–20.07)	–5.023*** (–19.01)	2.234*** (10.17)	–4.806*** (–19.24)	–4.812*** (–18.16)
R^2	0.321	0.314	0.243	0.325	0.318	0.158	0.322	0.316	0.254	0.326	0.319
F	309.48	301.79	76.85	303.19	297.76	92.97	302.97	296.90	84.11	296.71	292.20

Note. *** p<0.01; t-values are in parentheses.

From models 1 and 2 in Table 3, the regression coefficients for whether a company has membership in NLCCs (*C*) and corporate innovation (*P*1 and *P*2) are 0.347 and 0.361, respectively, both significant at the 1% level. This indicates that joining a NLCC significantly promotes corporate innovation, providing preliminary support for *H1*. Moreover, in model 3, the regression coefficient between membership in NLCCs (*C*) and agency costs (*AC*) is –0.126, significant at the 1% level. In models 4 and 5, the regression coefficients for membership in NLCCs (*C*) and corporate innovation (*P*1 and *P*2) are both significant at the 1% level, and the regression coefficients for agency costs (*AC*) and corporate innovation (*P*1 and *P*2) are also significant at the 1% level. These results indicate that agency costs partially mediate the relationship between membership in NLCCs and corporate innovation, suggesting that joining a NLCC can significantly reduce agency costs, thereby promoting corporate innovation. This provides preliminary support for *H1a*. From model 6, the regression coefficient between membership in NLCCs (*C*) and social capital (*SC*) is 0.029, significant at the 1% level. In models 7 and 8, the regression coefficients for membership in NLCCs (*C*) and corporate innovation (*P*1 and *P*2) are both significant at the 1% level, and the regression coefficients for social capital (*SC*) and corporate innovation (*P*1 and *P*2) are also significant at the 1% level. These results indicate that social capital partially mediates the relationship between membership in NLCCs and corporate innovation, suggesting that joining a NLCC can significantly improve social capital levels, thereby promoting corporate innovation. This validates *H1b*.

In model 9, the regression coefficient between membership in NLCCs (*C*) and agency costs (*AC*) is –0.100, significant at the 1% level, and the regression coefficient between social capital (*SC*) and agency costs (*AC*) is –0.904, also significant at the 1% level. In models 10 and 11, the regression coefficients for membership in NLCCs (*C*) and corporate innovation (*P*1 and *P*2) are 0.326 and 0.338, respectively, both significant at the 1% level. The regression coefficients for social capital (*SC*) and agency costs (*AC*) with corporate innovation (*P*1 and *P*2) are also significant at the 1% level. These results suggest that joining a NLCC can influence corporate innovation through the mediating effects of both agency costs and social capital. Subsequently, this study further examines whether a chain relationship exists between these two mediating variables.

Drawing on the methodology of Sun et al. (2021), this study further employs the Bootstrap test of mediation effect to verify the mediating roles of agency costs and social capital, as well as the chain mediation path of "NLCC–social capital–agency costs–corporate innovation." The results are shown in Table 4. The Bootstrap test is conducted at a 95% confidence level with 5,000 iterations. In testing the partial mediation effect of agency costs between membership in NLCCs and corporate innovation (*C*→*AC*→*P*1/*P*2), the confidence interval does not include 0, providing further validation for *H1a* and indicating that the hypothesis holds. In testing the partial mediation effect of social capital between regional chamber of commerce membership in NLCCs and corporate innovation (*C*→*SC*→*P*1/*P*2), the confidence interval includes 0, suggesting that *H1b* is not further validated and does not hold. This indicates that member enterprises of NLCCs cannot directly promote corporate innovation through increased social capital. The inconsistency between OLS regression and the Bootstrap method results is mainly due to the measurement method of the

dependent variable, corporate innovation. This study uses the number of patent applications or grants, which often includes many zero values, showing a left-truncated distribution. OLS regression requires data to follow a normal distribution, which results in lower estimation efficiency, whereas the Bootstrap method does not have strict requirements on data distribution. Therefore, this study uses both OLS regression and the Bootstrap method to test the research hypotheses. In testing the chain mediation effect of social capital and agency costs between membership in NLCCs and corporate innovation ($C \rightarrow SC \rightarrow AC \rightarrow P1/P2$), the confidence interval does not include 0, providing further validation for *H1c* and indicating that the hypothesis holds. These results indicate that member enterprises of NLCCs can promote corporate innovation by reducing agency costs. Social capital and agency costs exhibit a chain mediation effect between membership in NLCCs and corporate innovation. That is, joining a NLCC can significantly enhance a company's social capital, and the increase in social capital can promote corporate innovation by reducing agency costs.

Table 4 Regression Results of Bootstrap Test of Mediation Effect (N = 18,710)

Indirect effect	Estimate	SD	BootLLCI	BootULCI
$C \rightarrow AC \rightarrow P1$	0.031	0.005	0.022	0.039
$C \rightarrow SC \rightarrow P1$	–0.002	0.002	–0.007	0.003
$C \rightarrow SC \rightarrow AC \rightarrow P1$	0.007	0.001	0.005	0.009
$C \rightarrow AC \rightarrow P2$	0.031	0.005	0.023	0.041
$C \rightarrow SC \rightarrow P2$	0.000	0.003	–0.005	0.005
$C \rightarrow SC \rightarrow AC \rightarrow P2$	0.007	0.001	0.005	0.009

4.3 Robustness Tests

4.3.1 Self-Selection Test

Enterprises that focus on innovation may be more inclined to join NLCCs, which could result in sample selection bias in this study. To address this, we use the Propensity Score Matching (PSM) method to match the samples before conducting regression analysis (see Table 5). First, in the initial stage, a Probit model is used with the dependent variable being whether a company has joined a NLCC (C). Using the Nearest Neighbor Matching (NNM) method, we match the samples based on all control variables from the previously constructed regression model (1), with a matching ratio of 1:1. From models 1 and 2 in Table 5, the regression coefficients for whether a company has joined a NLCC (C) and corporate innovation ($P1$, $P2$) are both significantly positive at the 1% level. This indicates that even after controlling for sample self-selection, the relationship between joining a NLCC and corporate innovation remains significantly positive, confirming the robustness of the earlier empirical results.

Table 5 Regression Results of PSM Test and Two-Stage Instrumental Variable Test

Type	Model 1	Model 2	Model 3	Model 4	Model 5
	*P*1	*P*2	*C*	*P*1	*P*2
C	0.324*** (4.87)	0.343*** (4.86)		19.168*** (6.42)	20.046*** (6.41)
F			–0.004** (–2.07)		
Em			0.013*** (6.26)		
Control variable	Control	Control	Control	Control	Control
Industry/Year	Control	Control	Control	Control	Control
N	1,660	1,660	18,700	18,700	18,700
Constant term	–5.955*** (–7.27)	–5.731*** (–6.34)	–0.379*** (–8.16)	4.771*** (2.80)	5.249*** (2.94)
R^2	0.379	0.357	0.057		
F/χ^2			17.02	1,859.40	1,802.91

Note. For models 4 and 5, the values in parentheses are *z*-values. ** $p<0.05$, and *** $p<0.01$.

After PSM, the Bootstrap method is used to test the mediation effects, with the results shown in Table 6. According to Table 6, in testing the partial mediation effect of agency costs between membership in NLCCs and corporate innovation ($C \rightarrow AC \rightarrow P1/P2$), the confidence interval does not include 0. In testing the partial mediation effect of social capital between membership in NLCCs and corporate innovation ($C \rightarrow SC \rightarrow P1/P2$), the confidence interval includes 0. In testing the chain mediation effect of social capital and agency costs between membership in NLCCs and corporate innovation ($C \rightarrow SC \rightarrow AC \rightarrow P1/P2$), the confidence interval does not include 0. These results are consistent with the previous mediation effect tests, indicating the robustness of the earlier mediation effect results.

Table 6 Regression Results of Bootstrap Test of Mediation Effect after PSM

Indirect Effect	Estimate	SD	BootLLCI	BootULCI
$C \rightarrow AC \rightarrow P1$	0.027	0.004	0.019	0.036
$C \rightarrow SC \rightarrow P1$	–0.002	0.002	–0.007	0.003
$C \rightarrow SC \rightarrow AC \rightarrow P1$	0.006	0.001	0.004	0.009
$C \rightarrow AC \rightarrow P2$	0.028	0.004	0.020	0.037
$C \rightarrow SC \rightarrow P2$	0.000	0.003	–0.005	0.005
$C \rightarrow SC \rightarrow AC \rightarrow P2$	0.006	0.001	0.004	0.009

4.3.2 Omitted Variable Test

Considering that individual characteristics of managers and other factors related to the enterprise's location may also influence corporate innovation, this study might have an omitted variable issue. To address this potential endogeneity problem, this study employs the instrumental variable (*IV*) method and uses the terrain ruggedness (*F*) of the enterprise's location and the total number of employees (*Em*) as instrumental variables. Natural conditions like terrain can influence a company's commercial decision-making for external exchanges. Generally, in relatively flat plains with less geographical isolation, it is easier for companies to engage in cooperation and exchanges (Huang et al., 2022). Therefore, companies located in flatter areas are more likely to join NLCCs. Following the methodology of Huang et al. (2022), this study uses ArcGIS software to process the terrain slope of each province in China to measure the terrain ruggedness (*F*) of the company's location. A higher value of this variable indicates steeper terrain. Moreover, the larger the number of employees, the more influential the company is likely to be locally, and thus more likely to be invited to join NLCCs (Luo & Li, 2019). This study measures the total number of employees (*Em*) by taking the natural logarithm of the total number of employees plus one.

From model 3 in Table 5, we can see that the regression coefficients for whether a company has joined a NLCC (*C*) with the terrain ruggedness (*F*) and the total number of employees (*Em*) are significant at the 5% and 1% levels, respectively. This indicates that the flatter the terrain and the larger the number of employees, the more likely a company join a NLCC, satisfying the basic requirement for correlation between the instrumental variable and the explanatory variable. In addition, the *F*-value for the weak instrument test is 22.48, greater than the empirical value of 10, indicating no weak instrument problem. The *p*-values for the exogeneity test of the instrumental variables are 0.72 and 0.47, respectively, accepting the null hypothesis that the instrumental variables are exogenous. Therefore, the selection of instrumental variables in this study is appropriate. From models 4 and 5 in Table 5, we can see that the regression coefficients of whether a company has joined a NLCC (*C*) with corporate innovation (*P*1, *P*2) are significant at the 1% level. This indicates that, even after considering the endogeneity issue of omitted variables, the positive impact of joining a NLCC on corporate innovation still exists, confirming the robustness of the previous empirical results.

4.3.3 Additional Robustness Tests

This study also conducts the following robustness tests: (1) Following the method of Du et al. (2017), we measure the influence of traditional merchant guild culture by the number of geographic origins of the top 10 traditional merchant guilds within a 200-kilometer radius of the company's location. The results confirm that the denser the traditional merchant guild culture in the company's location, the greater the positive impact of joining a NLCC on corporate innovation, thereby validating the rationale of this study. (2) Referring to the method of Liao et al. (2022), we consider the political connections of the chairman or CEO as control variables and include them in further regressions. (3) To test the sensitivity of the dependent variables, we replace them with values lagged by two periods ($P1_{t+2}$, $P2_{t+2}$) and three periods ($P1_{t+3}$, $P2_{t+3}$). (4) Given that the dependent variables often include many

zero values and show a left-truncated distribution, we replace the dependent variables with the number of applications (*P*1_*n*) and the number of grants (*P*2_*n*) and then perform regression using a negative binomial model. (5) We directly exclude samples with zero values for the dependent variables and perform the regression again. (6) Considering that there are differences in education and marketization among provinces but also in geographical conditions and policies, we further control for provincial fixed effects. The empirical results of these robustness tests indicate that the positive impact of joining a NLCC on corporate innovation remains, confirming the robustness of the previous empirical results.[2]

5 Further Research

5.1 The Moderating Effect of the Number of NLCCs at Companies' Location

The economic exchanges facilitated by NLCCs are not limited to interactions between their member enterprises and between members and the government departments. These chambers also actively develop horizontal connections and establish relationships with other NLCCs to further expand their network (Wei, 2015). The number of NLCCs at a company's location varies, and when this number is higher, the business culture is stronger, and more resources can be accumulated. Consequently, the positive impact of joining a NLCC on corporate innovation is greater. Therefore, this study uses the natural logarithm of the number of NLCCs at the company's location plus 1 as a proxy variable (*C*_*n*) to further examine its moderating effect on the relationship between membership in NLCCs and corporate innovation (see Table 7). From models 1 and 2 in Table 7, it can be seen that the regression coefficients of the interaction term between whether a company has joined a NLCC (*C*) and the number of NLCCs at the company's location (*C*_*n*) are significantly positive at the 5% and 1% levels, respectively. This indicates that the more NLCCs there are at a company's location, the greater the positive impact of joining a NLCC on corporate innovation. This provides direct evidence for encouraging the robust development of NLCCs across various locations.

5.2 Heterogeneity Analysis of Ownership

Extant research suggests that agency problems are more severe in state-owned enterprises (SOEs) compared to non-state-owned enterprises (non-SOEs) (Sun & Yin, 2021). SOEs suffer from owners' absence and multiple layers of principal-agent relationships, leading to a lack of oversight on innovation by the management. In addition, SOEs often enjoy a monopolistic position and face insufficient market competition, resulting in a lack of motivation for innovation (Xu et al., 2019). Therefore, agency problems in SOEs are more pronounced concerning innovation. Joining a NLCC can directly reduce agency costs and indirectly reduce them through the constraint effect of social capital. Consequently, when SOEs join a NLCC and their agency problems are mitigated, the promotion effect on innovation output will be relatively greater. To test this, the study further examines the impact based on the nature of ownership (*S*), grouping enterprises into SOEs and non-SOEs.

[2] Due to space limitation, the regression results for other robustness tests are not presented but are available upon requesting the authors.

Table 7 Regression Results of Further Research

Type	Model 1	Model 2	SOEs		Non-SOEs		Invention patent application	Invention patent grant	Non-invention patent application	Non-invention patent grant
			Model 3	Model 4	Model 5	Model 6	Mode 7	Model 8	Model 9	Model 10
	*P*1	*P*2	*P*1	*P*2	*P*1	*P*2	*IP*1	*IP*2	*NP*1	*NP*2
C	0.240*** (3.78)	0.206*** (3.04)	0.715*** (7.70)	0.663*** (6.52)	0.247*** (4.75)	0.279*** (5.01)	0.236*** (5.61)	0.163*** (4.73)	0.356*** (7.81)	0.365*** (7.96)
C×*C_n*	0.125** (2.26)	0.182*** (3.12)								
C_n	–0.042*** (–3.29)	–0.054*** (–3.99)								
Control variable	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
Industry/Year	Control	Control	Control	Control	Control	Control	Control	Control	Control	Control
N	18,710	18,710	6,367	6,367	12,343	12,343	18,710	18,710	18,710	18,710
Constant term	–4.622*** (–19.48)	–4.583*** (–18.12)	–3.321*** (–8.72)	–2.805*** (–6.92)	–5.349*** (–17.29)	–5.525*** (–16.82)	–4.460*** (–20.74)	–4.284*** (–24.16)	–3.462*** (–15.66)	–3.498*** (–15.55)
R^2	0.322	0.315	0.354	0.347	0.303	0.299	0.247	0.202	0.288	0.288
F	295.20	287.85	131.31	125.90	192.93	191.04	222.04	169.47	224.00	235.58

Note. ** $p<0.05$ and *** $p<0.01$.

From models 3 and 4 in Table 7, it can be seen that the regression coefficients for whether SOEs have joined a NLCC (*C*) or not and corporate innovation (*P*1, *P*2) are both significant at the 1% level. Models 5 and 6 in Table 7 show that the regression coefficients for whether non-SOEs have joined a NLCC (*C*) or not and corporate innovation (*P*1, *P*2) are also significant at the 1% level. Comparing the results of both groups indicates that joining a NLCC promotes corporate innovation for both SOEs and non-SOEs. Further testing of the coefficient differences between the groups shows that the *p*-value is 0.00, indicating a significant difference in the regression coefficients between the two groups. This finding suggests that the promotion effect of joining a NLCC on innovation is greater for SOEs than for non-SOEs, demonstrating that innovation significantly improves when SOEs join a NLCC.

5.3 Heterogeneity Analysis of Patent Types

Patents are categorized into three types: invention patents, utility model patents, and design patents. Invention patents have the highest level of originality and difficulty, resulting in fewer applications and grants compared to utility model and design patents, which are considered non-invention patents. Therefore, this study further examines the impact of joining NLCCs on the application and granting of invention patents and non-invention patents, distinguishing between invention innovation and non-invention innovation for further analysis.

From models 7 and 8 in Table 7, it can be seen that the regression coefficients for whether a company has joined a NLCC (*C*) and invention innovation (*IP*1, *IP*2) are both significant at the 1% level. From models 9 and 10 in Table 7, it is evident that the regression coefficients for whether a company has joined a NLCC (*C*) and non-invention innovation (*NP*1, *NP*2) are also significant at the 1% level. These results indicate that joining a NLCC significantly enhances both invention and non-invention innovation.

6 Conclusion

Using a sample of A-share listed companies from the Shanghai and Shenzhen Stock Exchanges from 2010 to 2020, this study empirically examines the impact of joining NLCCs on corporate innovation. The results indicate the following: (1) Joining a NLCC significantly promotes corporate innovation. This effect is achieved through both a direct path of reducing agency costs and an indirect path of increasing social capital, which in turn reduces agency costs. Specifically, there is a direct mediation path of "NLCC–agency costs–corporate innovation" and a chain mediation path of "NLCC–social capital–agency costs–corporate innovation." This shows that the business culture attributes of NLCCs can lower agency costs for their member enterprises, thereby promoting innovation. In addition, the social network attributes of NLCCs can enhance social capital, which further reduces agency costs and promotes innovation. (2) The more NLCCs there are at a company's location, the greater the positive impact of joining one on corporate innovation. This suggests that the number of NLCCs plays a significant role in enhancing the positive effects of these chambers on their member enterprises. (3) The promotion effect of joining a NLCC on corporate innovation

is greater for SOEs than for non-SOEs. In addition, joining a NLCC not only promotes invention innovation but also non-invention innovation.

Based on the above conclusions, this study offers the following insights for management: (1) The findings indicate that NLCCs serve as an effective external governance mechanism that can significantly promote corporate innovation. Enterprises should actively explore the potential positive impacts of NLCCs in other areas to fully leverage their governance role. (2) NLCCs can increase a company's social capital and reduce agency costs. Therefore, enterprises should actively integrate into local chambers and proactively build their social capital to overcome resource bottlenecks in their development. (3) Joining a NLCC can significantly improve corporate innovation levels. The more NLCCs present in a company's location, the greater their positive impact on innovation. Government sectors should recognize the crucial role of intermediary organizations like NLCCs in modern corporate governance, encourage and guide their establishment and healthy development, and actively create platforms for government-enterprise cooperation to improve the efficiency of market resource allocation.

Future research could expand and deepen in the following areas: (1) This study's sample only includes provincial-level NLCCs. Future research can attempt to collect more comprehensive data, including city-level or county-level chambers of commerce, for empirical testing. (2) While this study examines the impact of NLCCs on corporate innovation, research on their effects on corporate governance is relatively limited. Future studies may explore and demonstrate their impact on earnings management, investment efficiency, and other aspects.

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