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# Influential factors of corporate involvement in community resilience governance from the perspective of symbiosis theory

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Urban resilience is a new paradigm for urban risk governance, whereas developing community resilience is the foundation for better resilient governance. Corporations serve as both the foundation and pivotal factor in ensuring the resilience of a community. Therefore, it is vital to encourage their active involvement in community resilience governance. This investigated the key influential factors of corporations in community resilience governance as well as the influence paths related to these factors. Firstly, multi-participant symbiotic relationships in the community resilience symbiosis system were analyzed. The hypothesis model of corporations' involvement in community resilience governance was proposed, combining the Theory of Planned Behavior and the Theory of Social Practice. Finally, the subjective and objective factors and influence paths were explored based on the structural equation model and the linear regression model by questionnaire investigation. The results show that: 1) Corporate involvement behavior is influenced by subjective factors such as behavioral attitude (ATT), subjective norm (SN), perceived behavioral control (PBC), and behavioral intention (BI), and also by objective community institutional factors including Field and Social capital. 2) The five influence paths to behavior (B) are as follows: SN→ATT→BI→B; PBC→ATT→BI→B; PBC→B; Field × BI → B; and Social capital × BI → B. 3) The involvement behavior is the result of a combination of rational and moral reasoning, with rationality preceding morality. Field capital and Social capital positively and negatively moderate the transformation of behavioral intention into behavior, respectively.

## KEYWORDS

corporate community involvement, community resilience, symbiosis theory, theory of planned behavior, theory of social practice

## 1 Introduction

Modern society faces a variety of challenges, from natural disasters to social crises. With the process of urbanization, our cities are facing not only natural disasters like floods, earthquakes, and storms but also kinds of social risks such as pandemics, environmental pollution, economic downturns, and so on, which have a profound impact on the population (Vesalon and Remus, 2013; O'Brien et al., 2023; Remus et al., 2023). In this context, cities are becoming increasingly vulnerable and susceptible. The traditional emergency governance strategy has been unable to meet the actual needs of urban governance when dealing with these complex problems. Improving urban resilience to

resist risks has become a revolutionary urban planning method and a new paradigm of urban governance, and it has become an urgent direction to explore and practice (Datola, 2023). The resilient city belief, espoused by non-governmental organizations, international organizations, and specific countries, has had a considerable impact on modern urban governance practices. In 2010, the United Nations Strategy for Disaster Reduction (UNISDR) launched the Make Cities More Resilient program. The Sendai Framework for Disaster Risk Reduction 2015–2030, the United Nations Sustainable Development Goals (SDGs), and the Paris Agreement all call for worldwide efforts to build resilient, inclusive, secure, and sustainable countries between 2015 and 2030. China has incorporated the creation of “resilient cities” into its 14th Five-Year Plan, drawing on the United Nations’ disaster reduction plan and successful international initiatives.

The community, as the city’s basic unit, is the first field of disaster and crisis impacts, the direct bearer of risk consequences, and the core of post-disaster societal reconstruction (Zhang et al., 2023). Nations around the world are putting more emphasis on community governance and improving community resilience planning and practice (Gerges et al., 2023). The community is a compact social system consisting of various entities such as corporations, local administrations, and communities (Stotten et al., 2021). Corporations serve as both the foundation and pivotal factor in ensuring community resilience. Corporate assistance to communities may reduce losses and aid in community reconstruction (Ballesteros et al., 2017). Additionally, corporations’ development plans and business practices play a crucial role in supporting the community’s sustainable development across environmental, social, and economic dimensions (DiBella et al., 2023). Meanwhile, corporations accomplish the enhancement of their economic interests, the promotion of their own reputation, and the development of community relations (Kumar et al., 2022). However, the top-down community governance paradigm, led by the government, remains dominant in China’s practice of resilient governance. In this approach, the government frequently serves as both the decision-maker and the executor, whereas corporations and communities are more passive, accepting and implementing government decisions and plans. The strict and one-sided paradigm ultimately results in poor communication and collaboration between corporations and communities, as well as little corporate involvement and enthusiasm for community governance (Liu et al., 2021; Wang et al., 2021). To address the limits of the current community governance model, it is essential to encourage corporations to become more active in developing community resilience. Therefore, it is vital to investigate the key influential factors of corporations in community resilience governance as well as the influence paths related to these factors. It is expected that more extensive corporate involvement in community resilience governance will enhance community resilience and sustainable development.

## 2 Literature review

Urban resilience is the ability of cities to respond, adapt, and evolve in the face of various unexpected events. Previous studies have focused on urban resilience assessment and resilience

governance. From the macro perspective, some scholars have assessed urban resilience according to society, economy, and ecology (Huang et al., 2023), while others have constructed resilience assessment indicators tailored for specific events or areas (Yu et al., 2023; Han et al., 2023). Community resilience governance has progressively emerged as an important topic of interest (Meriläinen, 2020). Some studies have proposed collaborative governance as a key approach to community resilience governance, emphasizing the active involvement and close cooperation of diverse entities such as corporations, government agencies, and residents to jointly build a community governance system with strong resilience (Cheng et al., 2020; Liu Z. et al., 2021). However, it is also pointed out that resilience governance at the community level differs from conventional governance in that it focuses on strengthening communities’ resilience to risks (Gajendran and Oloruntoba, 2017), emphasizing holistic and systemic multiple synergies (Mahajan et al., 2022). Certain scholars have suggested a transition from the conventional collaboration model to the symbiosis model, which emphasizes the reciprocal attributes of cooperation and symbiosis (Liu et al., 2023). Under the theory of “urban symbiosis,” the city is perceived as an intricate and methodical social and ecological system, comprised of numerous interconnected and interacting components (Ness and Xing, 2017). The concept of symbiotic governance is consistent with the belief in community resilience, emphasizing the systemic and interactive deep collaborative relationship formed by community governance participants such as corporations, governments, and communities within the community system, which promotes multi-dimensional resilience and sustainable development of communities.

Corporations, as prominent market actors, play an important role in the community governance process because of their considerable resources, technology, innovation, and expertise in the market (Franco and Ali, 2017). Current research on corporate involvement in community governance primarily focuses on two aspects: corporate social responsibility (CSR) and corporate community involvement (CCI). Community-oriented CSR activities are broad and superficial, including environmental preservation, charitable giving, and community connection development, with the benefit of increasing community capability and wellbeing (Gamu et al., 2015; Frederiksen, 2018; Pegg, 2012). CCI focuses on deeper involvement in the community and issues solutions in a more active and planned manner to support community development (Liu et al., 2013). This type of involvement encompasses more than the mere provision of material or financial aid; it also entails active collaboration with local communities in the development of tourism initiatives, poverty alleviation projects, pollution emission reduction, and the promotion of environmentally protective technologies (Delannon et al., 2016; Gold et al., 2018; Yang et al., 2019). The current research on the influential factors of corporations’ involvement tends to be corporation-centered, as evidenced by scholars’ in-depth examination of the internal factors of corporations, such as corporate performance, CEO characteristics, and firm characteristics, on the influence and mechanism of their involvement (Bhaskar et al., 2023; Van Huong et al., 2023; Fosu et al., 2024). There is also macro-level research on policy, economics,

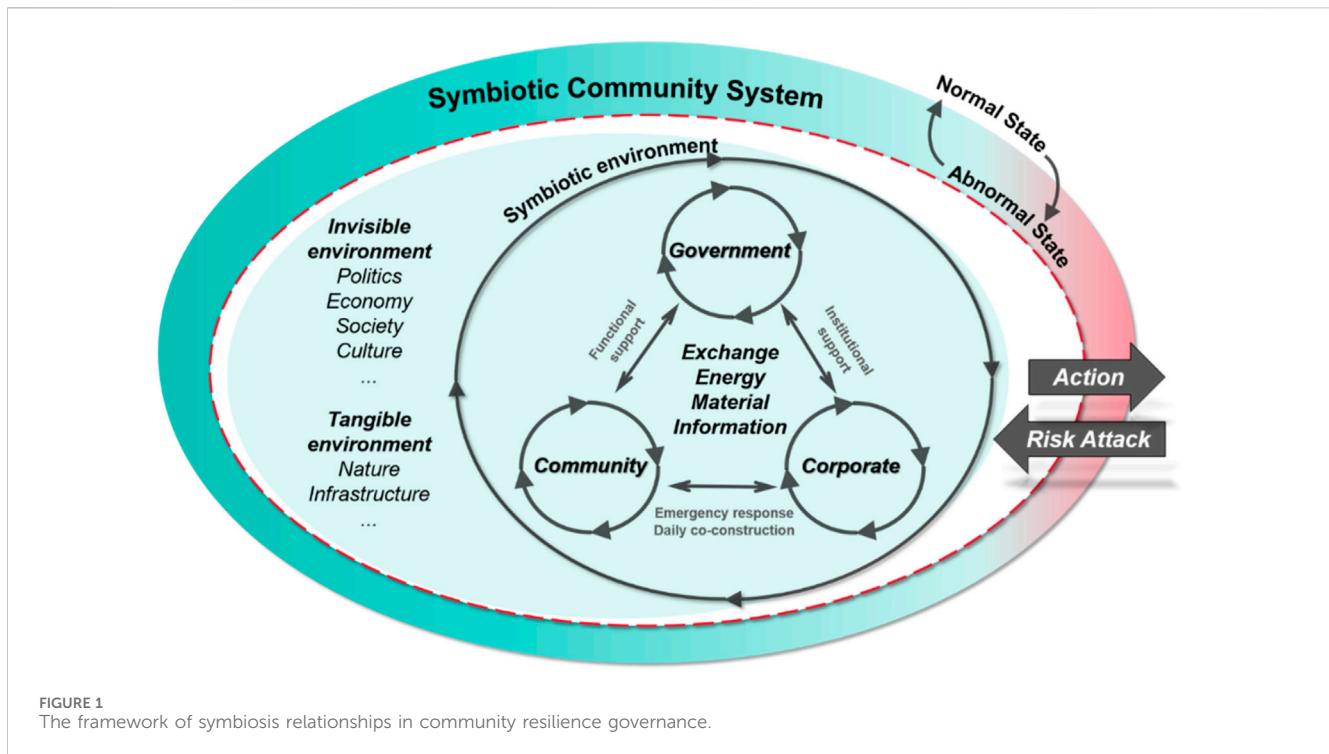


FIGURE 1 The framework of symbiosis relationships in community resilience governance.

the cultural environment, and various perspectives on corporate involvement in community governance (Bowen et al., 2010).

Given the stringent requirements for corporate involvement set by community resilience governance, previous studies primarily focused on the interests of corporations, failing to uncover the underlying motivations driving corporation behavior. Therefore, it is necessary to comprehensively explore the influential factors and mechanisms of corporate involvement from the perspective of the community system. In the context of community resilience governance, an in-depth study of corporate community involvement is helpful to understand more clearly the multiple roles and responsibilities of corporations in the community, as well as the influential factors and mechanisms of their deep involvement in community governance. This study combined the Theory of Planned Behavior and the Theory of Social Practice, employing the structural equation model and linear regression model to conduct a more comprehensive study on the subjective and objective factors influencing corporations' involvement in community resilience governance from the perspective of symbiosis theory.

### 3 Analysis of community resilience symbiotic system and research hypotheses

#### 3.1 Analysis of the community resilience symbiotic system

The community is comprised of a complex social ecology where companies, governments, community organizations, and residents coexist. In order to ensure their own existence and growth, they have

to be involved in sharing resources and interdependence, thereby enhancing the community's organic interaction and collaborative problem-solving capacity. In the realm of community governance, normal and abnormal governance situations are intertwined, with the normal governance situation maintaining prominence. The change between the two governance situations is mutually dependent and intertwined, requiring strong coordination and joint efforts across different community participants. Thus, in light of the significant objective of fostering resilient governance within communities, symbiosis has emerged as an unavoidable strategic decision. This research provides a comprehensive analysis of the community symbiotic resilience system and reveals its internal mechanisms and operational processes from two perspectives: system composition and multi-subject symbiotic relationships.

##### 3.1.1 Community symbiotic resilience system components

A community symbiotic resilience system, as depicted in Figure 1, is a complex system comprising important components, including symbiotic units, modes, environments, and interfaces. These components collaborate to preserve the sustainability, resilience, and stability of communities.

The symbiotic unit serves as the foundation of the system, encompassing the community, government, corporations, etc., which promote community development through cooperation and coordination. The symbiotic mode refers to the interactions between these components, wherein various patterns influence resource utilization, task accomplishment, and issue resolution. The symbiotic environment is divided into two parts: the tangible environment, such as nature and infrastructure, and the intangible environment, involving politics, economy, culture, etc.,

collectively composing the basis of resilient communities. The symbiotic interface, serving as a critical platform, facilitates the interchange of matter, energy, and information, thereby strengthening the symbiotic bond among units. Information flow occurs via the public service platform; material flow consists of the system of government and mechanisms; and energy flow involves the production and distribution of value. Collectively, these components constitute a symbiotic system of community resilience that is both sustainable and stable in the face of adversity.

### 3.1.2 The symbiotic relationships of resilient community governance

The relationships among symbiotic units, comprising the government, the community, and corporations, are intricate and nuanced within the community's symbiotic resilience system. Each entity possesses unique resources, capacities, and functions, collectively propelling community growth. Community residents actively engage in community life and stand as primary beneficiaries of community development. Mutual collaboration, information sharing, and shared decision-making among residents are pivotal for bolstering community resilience and stability. Government agencies serve as guides and supporters of the symbiotic community resilience system. Through policy formulation, financial resource allocation, and infrastructure development, they create conducive environments and conditions for community advancement. Corporations, integral components of the community's symbiotic resilience system, offer substantial economic support, resource integration, innovative capabilities, crisis response, and community involvement. A consensus on "symbiosis" among corporations, communities, and governments enables them to establish resource-sharing partnerships and collaborate embeddedly through both non-profit and for-profit initiatives. This collaboration effectively addresses the diverse needs of the community in both routine and extraordinary governance scenarios. The interdependence and interaction among these diverse participants in the community's symbiotic resilience system have forged a complex and closely-knit network of relationships.

In the community symbiotic resilience system, corporations are encouraged not only to provide superficial emergency response measures such as disaster assistance and donations but also to actively engage in all aspects of resilience governance. This deeper involvement aims to enhance the symbiotic synergy between communities and corporations. Corporations' involvement in community resilience governance can be categorized into two distinct types: normal community-corporation co-construction behavior and abnormal disaster response behavior. Normal community-corporation co-construction behavior represents a multidimensional and comprehensive cooperation model that covers five core aspects: public welfare activities, infrastructure co-construction, fostering business communities, promoting industrial economic cooperation, and supporting ecological protection and development. Abnormal disaster response behavior, on the other hand, entails the swift provision of robust anti-disaster support by corporations in response to community needs during times of crisis. This response encompasses three main aspects: financial donations,

the provision of essential services and support, and the active involvement of employees in volunteer activities.

## 3.2 Research hypotheses

This study combines the Theory of Planned Behavior (TPB) and the Theory of Social Practice (TSP) from a symbiotic perspective to comprehensively explore the subjective and objective factors that affect corporate involvement in community resilience governance. Figure 2 illustrates the construction of the research hypothesis framework.

The Theory of Planned Behavior (TPB), originating in social psychology, has become a pivotal framework for analysing decisions concerning corporate social responsibility behavior (Ding et al., 2023; Li et al., 2023). This theory integrates three subjective cognitive variables: behavioral attitude (ATT), subjective norm (SN), and perceived behavioral control (PBC), collectively shaping behavioral intention (BI) (Ajzen, 1991). BI is widely recognized as a crucial predictor of actual behavior (B) (Ajzen, 1991). Research indicates that subjective norms and perceived behavioral control contribute to corporate behavioral attitudes, with perceived behavioral control directly influencing actual behavior (Ding et al., 2023). Moreover, in the examination of corporations' involvement in school-corporation cooperation, it was observed that perceived behavioral control significantly positively impacts their involvement (Zhang et al., 2022). Based on the aforementioned research, it is believed that in the process of corporate involvement in community resilience governance, corporations' behavior is influenced by three key factors: behavioral attitude (ATT), perceived behavioral control (PBC), and subjective norm (SN). As corporations are part of the community's symbiotic resilience system, their behavior is intricately intertwined with community development. In this process, corporations are not only constrained by social pressures (SN) from various parties but also adjust their attitudes (ATT) toward involving themselves in community resilience governance based on their evaluation of the difficulty of governance involvement (PBC). When corporations demonstrate a positive attitude (ATT) and perceive a strong level of social pressure (SN) while having high perceived behavioral control (PBC), their intention (BI) to get involved in community resilience governance will be further stimulated and strengthened. Additionally, this behavioral intention (BI) and perceived behavioral control (PBC) directly determine their actual level of involvement and effectiveness in community resilience governance. Based on the aforementioned in-depth analysis and discussion, this paper proposes hypotheses H1 to H7.

The Theory of Social Practice (TSP) elucidates the behavioral patterns exhibited by actors through three fundamental elements: capital, field, and habitus (Husu, 2022). The term "field" pertains to the arrangement or interconnection of objective relationships among numerous subjects, serving as the platform for actors to collaborate and get involved in interactions (Kitchin and David Howe, 2013). The relative strength of the field's power determines, to some extent, the actors' decisions and behaviors (Kump, 2023). Habitus can be described as a "system of sustained and transformable tendencies" whereby people have a propensity to acquire knowledge through their previous behavioral encounters

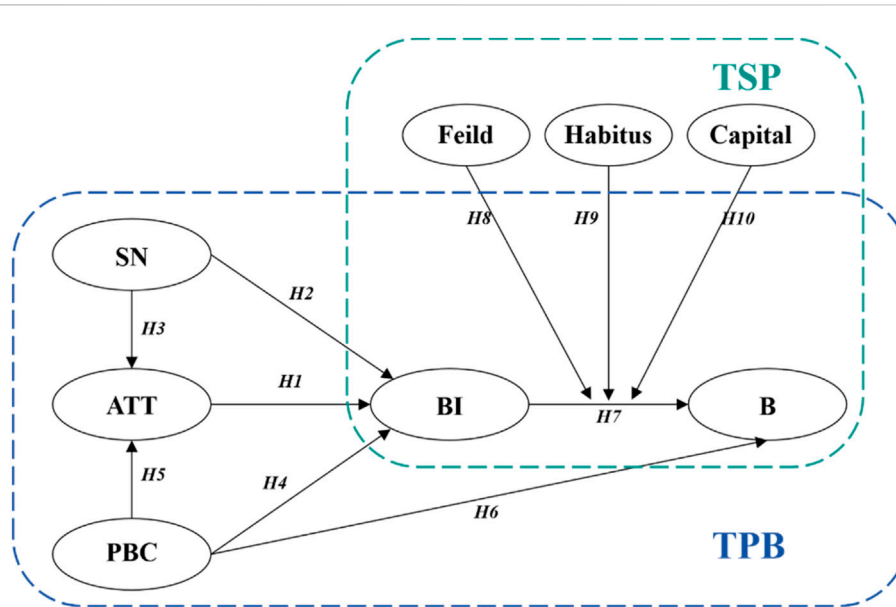


FIGURE 2 Research hypothesis.

and subsequently apply that knowledge to generate new actions (Sahakian and Wilhite, 2014). Furthermore, the TSP theory places significant emphasis on the notion of capital, which pertains to the capacity of organizations or individuals to obtain resources via social network connections (Nguyen-Trung et al., 2023). Social capital drives collective activity by sending positive signals that stimulate the willingness of actors to invest in social relationships, thereby facilitating cooperation and contribution among members to jointly achieve collective goals (Pretty, 2003). Given that corporations are deeply embedded in the complex network of the community resilience symbiosis system, their involvement in community resilience governance is inevitably influenced by a series of objective community factors. According to the TSP theory, this paper argues that the behavior of corporations involved in community resilience governance is actually affected by objective factors such as the habitus of corporations, the keen perception of the community resilience governance field, and the accumulation of social capital. A good community field environment can not only effectively reduce the information asymmetry between corporations and communities but also deepen corporations' cognition and understanding of community resilience governance, so as to encourage corporations to transform their behavioral intentions into concrete actions. In addition, if corporations have a good habitus of involving themselves in community resilience governance, it can provide solid support for their actual involvement behavior. At the same time, the rich accumulation of community social capital also plays an irreplaceable role in promoting close cooperation and joint contribution between communities and corporations and jointly promoting the long-term realization of resilient governance and community symbiosis goals. Based on the above analysis, hypotheses H8 to H10 are proposed in this paper.

In conclusion, this study proposes the following hypotheses:

- H1. Behavioral attitude (ATT) impacts the behavioral intention (BI) of corporate involvement in community resilience governance.
- H2. Subjective norm (SN) impacts the behavioral intention (BI) of corporate involvement in community resilience governance.
- H3. Subjective norm (SN) impacts the behavioral attitude (ATT) of corporate involvement in community resilience governance.
- H4. Perceived behavioral control (PBC) impacts the behavioral intention (BI) of corporate involvement in community resilience governance.
- H5. Perceived behavioral control (PBC) impacts the behavioral attitude (ATT) of corporate involvement in community resilience governance.
- H6. Perceived behavioral control (PBC) impacts the behavior (B) of corporate involvement in community resilience governance.
- H7. Behavioral intention (BI) impacts the behavior (B) of corporate involvement in community resilience governance.
- H8. Field moderates the relationship between behavioral intention (BI) and behavior (B) of corporate involvement in community resilience governance.
- H9. Habitus moderates the relationship between behavioral intention (BI) and behavior (B) of corporate involvement in community resilience governance.
- H10. Social capital moderates the relationship between behavioral intention (BI) and behavior (B) of corporate involvement in community resilience governance.

## 4 Research method and data collection

### 4.1 Model selection

To validate the research hypotheses, this study employed structural equation modeling and the linear regression model. Structural equation modeling (SEM) is primarily utilized to examine the direct effects and paths between variables in TPB models, whereas the linear regression model is used to test the moderating effects hypothesis based on TSP theory.

Structural equation modeling (SEM) is a statistical analysis method that examines the correlations between observable and latent variables according to predefined theories. Structural equation modeling comprises measurement modeling and structural modeling. Measurement modeling shows how unobserved latent variables are related to observed variables and assesses the reliability and validity of the observed variables. Structural modeling examines the causal connections between latent variables. The exogenous factors in this study model are SN and PBC, while ATT, BI, and B are endogenous variables. Each variable's measurement matrix consists of the measurement dimensions relating to it. Evaluating the correlation between variables involves examining the path coefficient and its statistical significance. Interaction effects between variables can be categorized as direct impacts and indirect effects, with the total utility being the combination of both.

Linear regression models are frequently employed to elucidate the connection among independent variables, dependent variables, and control variables (Park and Yi, 2022). It is widely utilized to demonstrate the impact of specific factors on the correlation between two variables. The study examines the relationship between the behavioral intention (BI) of corporations involved in community resilience governance, the behavior (B) of corporate involvement in community resilience governance, and the moderating variables field, habitus, and social capital. According to the questionnaire design, the five variables mentioned are all continuous variables. Here is the linear regression model.

$$Y = \beta + \sum_{i=1}^3 a_i \times X_i + a_4 \times X_4 + \sum_{j=1}^3 b_j \times Z_j + \sum_{j=1}^3 c_j \times X_4 \times Z_j + \varepsilon$$

where the dependent variable  $Y$  represents the behavior of corporations involved in community resilience governance (B), whereas  $\beta$  is a random constant factor.  $X_1 \sim X_3$  represent the control variables of corporation scale, development stage, and nature, while  $a_1 \sim a_3$  represent their coefficients. The independent variable  $X_4$  represents corporations' behavioral intention (BI) to involve themselves in community resilience governance, while  $a_4$  is the independent variable coefficient.  $Z_1 \sim Z_3$  represent the moderating variables field, habitus, and social capital, while  $b_1 \sim b_3$  indicate their coefficients.  $X_4 \times Z_j$  ( $j = 1, 2, 3$ ) is the interaction term of the independent variable and the moderator variable, that is, the interaction term of behavioral intention (BI) with field, habitus, and social capital.  $c_1 \sim c_3$  represents the interaction term coefficient, and  $\varepsilon$  is the random error term. The importance of the moderating impact is mostly determined by the significance and coefficient of the interaction term.

### 4.2 Questionnaire design

This study designed a questionnaire based on existing mature measurement scales and conducted a pilot study with 30 respondents. Subsequently, the scale was modified according to the results of the pilot study and the actual situation of corporations involved in community resilience governance, resulting in the final research scale of this study. The survey questionnaire consisted of three parts: 1) Basic information about the sample. 2) TPB scale: five variables (ATT, SN, PBC, BI, and B) related to corporate involvement in community resilience governance. 3) TSP scale: three variables (field, habitus, and social capital) related to corporate involvement in community resilience governance. These variables were measured using a 5-point Likert scale, where the dimensions "1 to 5" respectively represented "strongly disagree," "disagree," "neutral," "agree," and "strongly agree." Specific variables, measurements, and reference sources are presented in Table 1.

### 4.3 Data collection and test

Corporate employees were selected as research subjects for this study, which investigates pertinent information about corporate employees and their respective organizations. During the survey period of August to September 2023, the questionnaire was disseminated electronically via the network application. After eliminating invalid questionnaires, 363 valid questionnaires remained, for an effective rate of 90.75 percent out of a total of 400 questionnaires distributed. The questionnaire consists of three sections: fundamental subject information, fundamental corporate information about the subject's employers, and the measurement scale for research variables. Table 2 shows the basic information of the collected questionnaires.

The basic demographic information indicates that the number of women in this survey is marginally greater than that of males. Those under the age of 35 comprised 90.36 percent of the total samples. Comprising 93.11% of all the participants, the majority of those involved held a bachelor's degree or higher. The majority of the positions were administrators, comprising 68.87% of the total samples; 53.99% of the individuals had at least 3 years of experience in the organization. Non-state-owned corporations comprised the majority of those surveyed, accounting for 64.19% of the total. The size distribution of the companies investigated was relatively uniform. A significant proportion of the corporations, amounting to 86.22%, were in the developmental stage of growth and maturity.

As can be seen in Table 3, the Cronbach's  $\alpha$  values, CR values, and standardized factor loadings for all measurement question items on the measurement scales in this study were higher than the reference value of 0.7 and statistically significant ( $p < 0.01$ ). Combined with Table 4, it can be seen that the AVE value of each variable is greater than 0.5, and the square root of the AVE of each construct is greater than the correlation coefficient between the individual constructs. The scale displays good reliability and validity and is appropriate for further investigation.

TABLE 1 Scale design.

Variable dimension		Measurement item	References
ATT	ATT1	The corporation or sector values the response to disaster risk	Wang et al. (2015)
	ATT2	The culture of the corporation includes a belief in undertaking social responsibility	
	ATT3	Managers emphasize communication and cooperation with the government and the community	
SN	SN1	The corporation's involvement in community resilience governance is positively guided and motivated by government publicity	Ding et al. (2023), Li et al. (2023)
	SN2	The corporation's involvement in community resilience governance is motivated by public media expectations and coverage attention	
	SN3	The corporation's involvement in community resilience governance is motivated by the support and encouragement of industry associations	
	SN4	The corporation's involvement in community resilience governance is motivated by the high level of attention paid by customers to their corporations' CSR performance, especially in terms of community synergy	
	SN5	The corporation's involvement in community resilience governance is influenced and driven by the active involvement of other corporations in the industry	
PBC	PBC1	The corporation has the economic base to respond to disaster risks or provide assistance to the community	Singh et al. (2018)
	PBC2	The corporation has specialized professional and technical employees or volunteers with experience in emergency disaster relief	
	PBC3	The corporation can provide equipment or materials for emergency relief	
	PBC4	The corporation is able to maintain close contact with the government and the community	
BI	BI1	The corporation is willing to pay attention to the information and policies related to community resilience construction	Yang et al. (2020), Lou et al. (2022)
	BI2	The corporation is willing to actively organize or get involved in emergency training, emergency drills, volunteer services, and other activities carried out by the community	
	BI3	The corporation is willing to provide equipment, materials, and funds in the process of disaster response	
	BI4	The corporation is willing to take the initiative to publicize their involvement in community resilience construction	
B	B1	The corporation has gotten involved in activities or projects related to community disaster risk response	Yang et al. (2024)
	B2	The corporation has either purchased emergency equipment or set up funds or budgets for emergency management	
	B3	The corporation has carried out emergency response training for employees or has set up incentives for employees who are involved in community disaster relief or construction activities	
Field	F1	The streets and communities to which the corporation belongs have established proprietary platforms to seek support and assistance from corporations	Kitchin and David Howe (2013), Hampton (2016)
	F2	Relevant government or community authorities have formulated relevant policies for corporations to assist communities in coping with risks	
	F3	Other corporations in the street or community to which the corporation belongs are generally actively involved in community resilience construction	
Habitus	H1	Corporations often communicate to their employees the need for community volunteers and community services	Kitchin and David Howe (2013)
	H2	Corporations are often involved in risk response activities or projects organized with the community	
	H3	Corporations engage in good communication and cooperation with the government and the community	
Social capital	S1	I think there is currently mutual trust between government departments and corporations	Kitchin and David Howe (2013)
	S2	I think the current system of community resilience construction is relatively standardized	
	S3	I think there is a well-developed network of participants in community resilience construction at this stage	
	S4	I think other corporations are actively involved in community resilience construction	

TABLE 2 Basic information of the collected questionnaires.

Variable	Category	Quantity/pc	Ratio/%
Gender	Male	167	46.01
	Female	196	53.99
Age/year	≤25	167	46.01
	26–35	161	44.35
	36–45	27	7.44
	≥46	8	2.20
Educational attainment	High school (technical secondary school) and below	5	1.38
	Junior college	20	5.51
	Undergraduate course	183	50.41
	Master's degree or above	155	42.70
Position	Senior management	23	6.34
	Middle managers	77	21.21
	Grassroots managers	150	41.32
	Other	113	31.13
Work experience/year	Within 3 years	196	53.99
	3–5 years (excluding 5 years)	60	16.53
	5–10 years (excluding 10 years)	62	17.08
	10 years and above	45	12.40
Nature of corporation	State-owned corporation (including state-controlled corporations)	130	35.81
	Private corporation	146	40.22
	Foreign corporation	48	13.22
	Joint venture	16	4.41
	Else	23	6.34
Corporation Scale	Large	136	37.47
	Medium	113	31.13
	Small, Micro	114	31.40
Corporation development stage	In the start-up phase	38	10.47
	In the growth phase	157	43.25
	At maturity	156	42.98
	In decline	12	3.31

## 5 Results and discussion

### 5.1 Subjective factors analysis

#### 5.1.1 Evaluation of model fit

Before examining the impact mechanism, it is required to evaluate the model fit to verify its dependability. The absolute fit index, relative fit index, and parsimony index are employed for evaluating models. As shown in Table 5, every indicator satisfies the predetermined criteria, and the theoretical model exhibits a strong correspondence with the sample data. This suggests that the model developed in this research is

rational and dependable, enabling a more comprehensive examination of the interrelationship among variables.

#### 5.1.2 Analysis of the impact of subjective factors

The significance of the model path of corporate involvement in community resilience governance established in this study is evident, as shown in Figure 3. Consequently, hypotheses H1–H7 are confirmed. The following is an analysis of the subjective factors that influence the mechanism of corporate involvement in community resilience governance.



TABLE 3 Analysis of variable reliability and validity.

Variable		Parameter significance estimation				Factor loading	Topic reliability	Cronbach's $\alpha$	Compositional reliability (CR)	Convergent validity (AVE)	Average value	KMO
		Unstd.	S.E.	t-value	P							
ATT	ATT1	0.887	0.060	14.705	***	0.775	0.600	0.821	0.822	0.607	4.177	0.717
	ATT2	0.908	0.063	14.528	***	0.765	0.586					
	ATT3	1.000				0.797	0.635					
SN	SN1	0.955	0.072	13.250	***	0.716	0.513	0.864	0.864	0.560	3.958	0.855
	SN2	1.028	0.074	13.933	***	0.751	0.564					
	SN3	1.000				0.751	0.565					
	SN4	1.089	0.075	14.607	***	0.787	0.619					
	SN5	1.044	0.077	13.639	***	0.736	0.542					
PBC	PBC1	1.000				0.788	0.621	0.869	0.869	0.624	3.634	0.820
	PBC2	1.082	0.067	16.235	***	0.817	0.668					
	PBC3	0.991	0.063	15.716	***	0.794	0.630					
	PBC4	0.941	0.063	14.921	***	0.759	0.576					
BI	BI1	1.000				0.791	0.626	0.876	0.875	0.636	4.029	0.836
	BI2	1.058	0.068	15.577	***	0.766	0.586					
	BI3	1.065	0.067	15.951	***	0.780	0.609					
	BI4	1.098	0.062	17.759	***	0.851	0.724					
B	B1	1.000				0.826	0.683	0.861	0.861	0.674	2.758	0.736
	B2	1.032	0.061	16.860	***	0.817	0.668					
	B3	1.013	0.060	16.930	***	0.820	0.673					

Note: \*\*\* $p < 0.001$ .

TABLE 4 Discriminant validity.

	BI	ATT	PBC	SN	B
BI	0.798				
ATT	0.757	0.779			
PBC	0.728	0.627	0.790		
SN	0.678	0.664	0.539	0.749	
B	0.709	0.656	0.610	0.601	0.821

Note: The diagonal values are the AVE square root of each variable.

### 5.1.2.1 Behavioral attitude

The factor loading coefficients for the three components of ATT are as follows: 0.775, 0.765, and 0.797, respectively, with ATT3>ATT1>ATT2. ATT3 is the factor that exerts the most significant impact on the corporate behavioral attitude. This finding suggests that managers' attitudes play a critical role in facilitating corporate involvement in community resilience development. The standardized path coefficient of ATT→BI is 0.38 ( $p < 0.001$ ), and hypothesis H1 was verified. Furthermore, it was observed that the standardized path coefficients for SN→ATT and PBC→ATT were 0.456 and 0.382 ( $p < 0.001$ ). These results supported hypotheses H3 and H5. This indicates that the corporate attitude toward community resilience governance is shaped by both external pressures and the self-evaluation of capabilities. External pressures have a more significant impact. This result supports prior research findings and validates the interaction link between ATT, SN, and PBC (Ding et al., 2023; Cialdini et al., 1990). According to the comprehensive analysis, it can be concluded that corporations formulate their perspectives on community resilience involvement by taking into account regulatory obligations, social expectations, and their own sustainability concerns. Corporations that adopt a positive attitude towards their involvement in community resilience governance will exhibit a greater propensity to take action.

### 5.1.2.2 Subjective norm

The load coefficients for SN's five factors are 0.716, 0.751, 0.751, 0.787, and 0.736, with SN4 having the highest coefficient. Customer expectations about company involvement in community resilience building are a notable factor in this research. The standardized path coefficient for the relationship between SN and BI is 0.244 ( $p < 0.001$ ), and H2 is confirmed. This implies that the expectations of various stakeholders—including the government, industry associations, consumers, peer competitors, and the public media—contribute to the behavioral intentions of corporations regarding community resilience governance.

### 5.1.2.3 Perceived behavioral control

PBC's four factor load coefficients are 0.788, 0.817, 0.794, and 0.759, in that order. The human capital, material assets, and financial resources of a firm are significant indicators of its capability. Assuming H4 is validated, the standardized path coefficient of PBC→BI is 0.354 ( $p < 0.001$ ). The standardized path coefficients of PBC→B and BI→B are 0.172 and 0.606, respectively, which are significant at the levels of 0.001 and 0.05, and the hypotheses H5 and H7 are verified. Behavioral intention is a more direct and significant factor for corporations to get involved in the behavioral practice of community resilience governance. Corporations will thoroughly assess their own capabilities when formulating decisions. When organizations possess robust capabilities across all domains, they exhibit a greater inclination to get involved in collaborative efforts aimed at enhancing community resilience and are better equipped to operationalize this understanding. Table 6 displays the results of the hypothesis testing.

### 5.1.2.4 Analysis of the influence path and total effects

In this paper, the bootstrap method and user-defined estimands were employed to test the mediation effect in the model, and 1,000 repeated samples were sampled under a 95% confidence interval. The criterion for the significant existence of an intermediary effect is that the estimated confidence interval does not contain 0. The test results are shown in Table 7.

TABLE 5 Model goodness-of-fit tests.

	Evaluation indicators	Actual value	Evaluation criteria
Absolute fit index	X <sup>2</sup> /df	1.651	<3
	GFI	0.938	0.9–1
	AGFI	0.918	0.9–1
	SRMR	0.0383	<0.08
	RMSEA	0.042	<0.08
Relative fit index	CFI	0.976	>0.9
	NFI	0.942	>0.9
	TLI	0.972	>0.9
Simplicity index	PCFI	0.822	>0.5
	PNFI	0.793	>0.5
	PGFI	0.711	>0.5

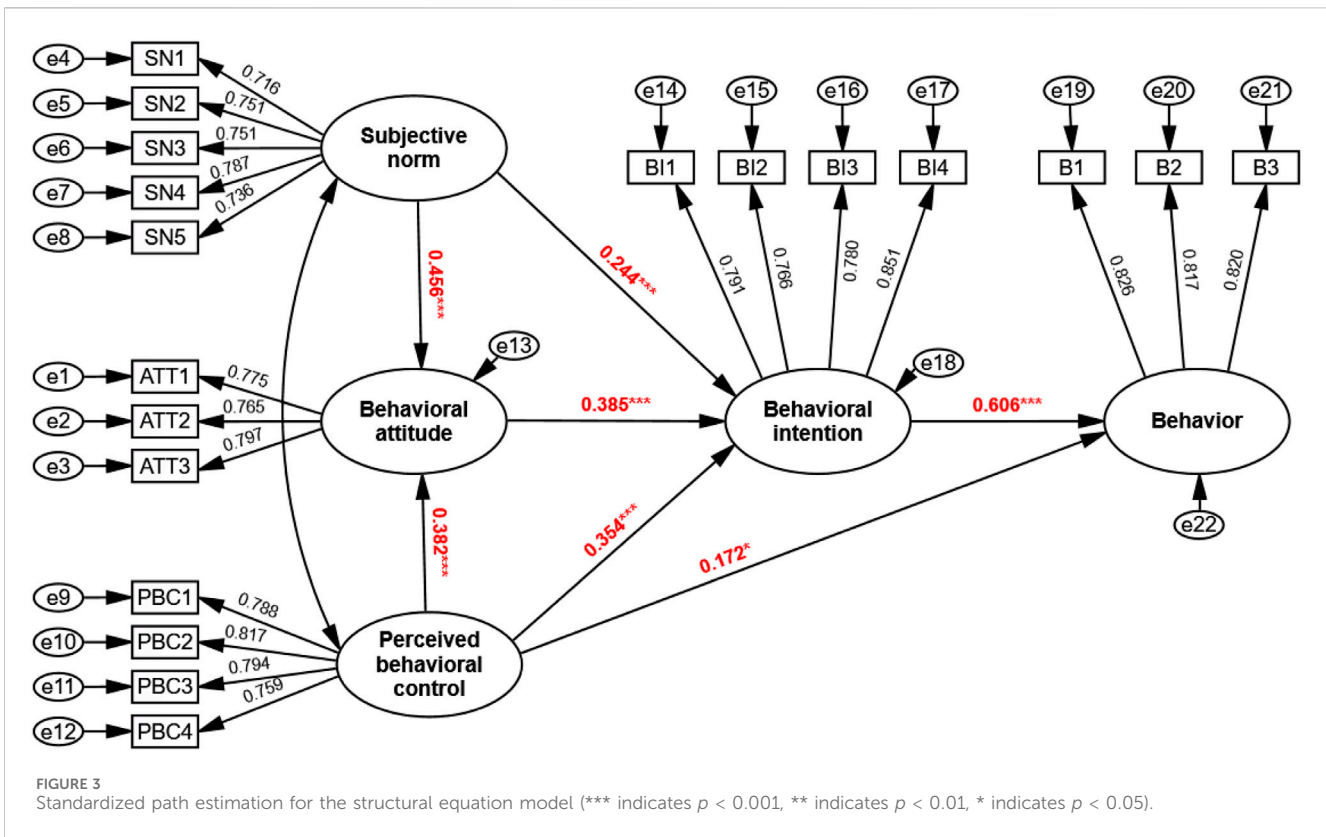


FIGURE 3 Standardized path estimation for the structural equation model (\*\*\*) indicates  $p < 0.001$ , \*\* indicates  $p < 0.01$ , \* indicates  $p < 0.05$ .

TABLE 6 Results of hypothesis testing.

Hypothesis	Estimate	P	
H1	ATT→BI	0.385	***
H2	SN→BI	0.244	***
H3	SN→ATT	0.456	***
H4	PBC→BI	0.354	***
H5	PBC→ATT	0.382	***
H6	PBC→B	0.172	*
H7	BI→B	0.606	***

Note: \* $p < 0.05$ , \*\*\* $p < 0.001$ .

After testing, none of the path confidence intervals in Table 7 contain 0, indicating that the mediation effect exists significantly and that the model has multiple chain mediation paths. Combined with the test of direct effects, the subjective factors in this study formed three main influence paths: 1) SN→ATT→BI→B; 2) PBC→ATT→BI→B; and 3) PBC→B. Behavioral intention and corporate behavioral attitude are crucial intermediary variables, with subjective norms and perceived behavior control exerting both direct and indirect influences on behavioral intention. The total effect of behavioral attitude, subjective norm, and perceived behavioral control on firm behavioral intention is 0.385, 0.423, and 0.483, respectively, and the total effect on behavior is 0.270, 0.301, and 0.481, respectively.

This suggests that these three types of factors play a crucial role in shaping the behavior of the corporate community's involvement

in community resilience governance, which is consistent with the findings of existing TPB-based corporate behavioral studies (Khan et al., 2020; Lang et al., 2023). However, it is notable that the three factors, PBC, SN, and ATT, show a decreasing trend in the degree of cumulative influence on behavioral intention and behavior. The rational factor (PBC) precedes the moral factor (SN) among the influential factors of corporations. In contrast, scholars in the study of sustainable production behaviors in cement manufacturing corporations found that SN had a greater influence on behavioral intention than ATT and PBC, i.e., the moral factor of social pressure was more important (Luo et al., 2017). Research on corporate social and environmental responsibility practices to reduce greenhouse gas emissions has also pointed to SN as a more critical factor influencing practice behavior compared to PBC (Lin et al., 2018). This difference stems from the highly interactive and sustainable requirements of community resilience governance, which requires a higher standard of involvement behavior from corporations. Rather than just providing shallow assistance, corporations are required to integrate deeply with the community to achieve co-development, co-existence, and sharing. In addition, the systematic governance of community resilience and symbiosis makes it necessary for corporations to consider more complex factors, and their behavior is no longer the isolated action of a single individual but the product of multi-participant collaboration and interaction. Therefore, as rational economic subjects, corporations, in the decision-making process of their involvement in community resilience governance, need to have a deep understanding of and a sense of moral responsibility in order to promote their own active involvement in community governance; at the same time, they also need to weigh the pros and cons prudently

TABLE 7 Results of mediating effects test.

Pathway relationship	Point estimate (degree of explanation)	Bootstrap inspection		P
		Lower bound of the confidence interval	Upper limit of the confidence interval	
SN→ATT→BI	0.179	0.098	0.295	**
ATT→BI→B	0.270	0.150	0.423	**
SN→BI→B	0.175	0.057	0.313	**
PBC→ATT→BI	0.129	0.068	0.215	**
PBC→BI→B	0.218	0.132	0.358	**
SN→ATT→BI→B	0.126	0.062	0.236	**
PBC→ATT→BI→B	0.091	0.046	0.161	**

Note: \*\**p* < 0.01.

TABLE 8 Results of moderating effects test.

	Model 1		Model 2		Model 3	
	B	t	B	t	B	t
Corporation Scale	-0.131	0.835	-0.062	-1.214	-0.039	-0.769
Nature of corporation	-0.101*	-1.903	-0.072*	-2.056	-0.064	-1.847
Corporation development stage	0.094	-2.148	0.081	1.407	0.098	1.711
Zscore (BI)			0.394***	8.331	0.399***	7.896
Zscore (Field)			0.122*	2.161	0.133*	2.379
Zscore (Habitus)			0.199**	3.410	0.206***	3.572
Zscore (Social capital)			0.091	1.827	0.089	1.813
BI × Field					0.095*	2.042
BI × Habitus					0.035	0.745
BI × Social capital					-0.142***	-3.520
sig.F change	0.002		0		0.003	
sig. (Anova)	0.002		0		0.000	

Note: \**p* < 0.05, \*\**p* < 0.01, \*\*\**p* < 0.001.

to ensure that their willingness and level of involvement match their actual ability. This decision-making process is highly consistent with the rational decision-making cognition demonstrated by corporations in fulfilling their CSR (Sun and Li, 2022).

## 5.2 Objective factors analysis

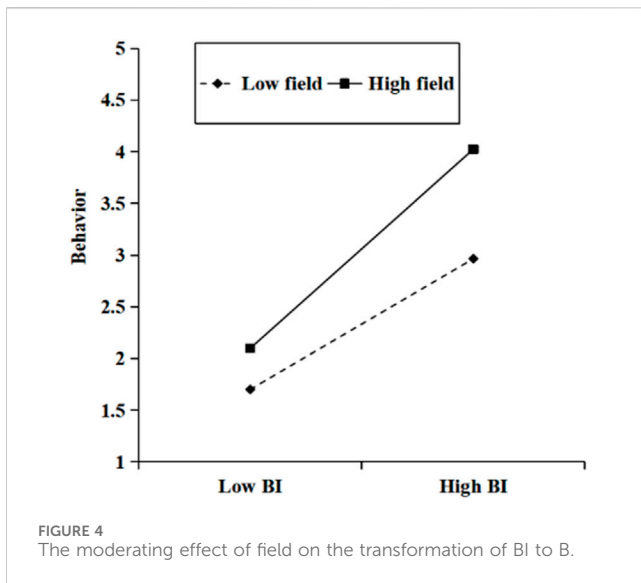
The study utilized a linear regression model to examine how three objective variables—field, habitus, and social capital—affect the transition of corporate involvement in community resilience building from intention to action. The goal was to measure the influence of these variables on the changeover. The analysis results are shown in Table 8.

In Model 1, only corporate size, corporate registration type, and corporate development stage control variables are considered.

Model 2 adds four variables of behavioral intention, field, habitus, and social capital on the basis of Model 1. Model 3 adds the interaction terms corresponding to behavioral intention and field, habitus, and social capital on the basis of Model 2. Table 8 specifically shows the results of processing the three models. From the results of the analysis, it can be seen that from Model 1 to Model 3, the R2 change is significant (Sig. F Change<0.05), and the inclusion of moderating variables is statistically significant in predicting the improvement of the corporation’s involvement behavior.

### 5.2.1 Impact analysis of control variables

In Model 1 and Model 2, the type of corporate registration has a significant negative impact on involvement behavior, and corporations with a background in state-owned attributes are more likely to take action in the process of community resilience



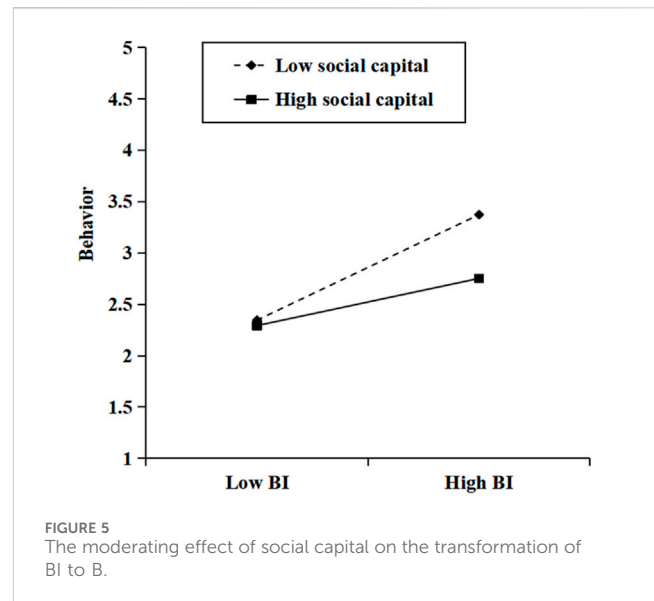
governance. This is attributed to the dual nature of state-owned corporations, which not only bear the burden of the nation's economic development but also must attend to a range of non-economic social initiatives; as a result, their pro-social behavior practices surpass those of other corporation types (Kong et al., 2022). There is no statistically significant relationship between corporation size, corporation registration type, corporation development stage, and involvement behavior in corporate community resilience governance in Model 3. This result is not surprising given that earlier research has demonstrated that these variables have a mixed effect on company behavior (Huang and Zhao, 2016; Matuszak et al., 2019; Wang et al., 2022).

### 5.2.2 Impact analysis of objective variables

In regression Model 2 and Model 3, there is a statistically significant relationship ( $p < 0.001$ ) between corporate behavioral intention and corporate behavior. This finding is consistent with the results of the TPB model study and supports a second verification of hypothesis H7. The determination of the effects of moderating variables on corporate involvement behavior primarily relies on the coefficients and  $p$ -values of the interaction terms.

The coefficient of  $BI \times field$  on the behavior of involvement in community resilience governance is 0.095 and  $p < 0.05$ . As shown in Figure 4, this indicates that the field moderates the relationship between behavioral intention and behavior in a significant positive way; conversely, the imperfect field impedes the transformation of corporate involvement in community resilience governance intention into behavior in a significant hindering way (see Figure 4). Thus, hypothesis H8 is confirmed. During the governance of corporate collaborative community resilience, the community's single channel of involvement and the imperfect field of asymmetric information regarding resilient community governance may prevent corporations from obtaining timely information about the community's needs and from getting involved more effectively in the governance of the community under the direction of government policies.

The coefficient of  $BI \times habitus$  on behavior is 0.035 and  $p > 0.05$ , indicating that corporate habitus has no significant moderating



effect between behavioral intention and involvement behavior in community resilience governance, and hypothesis H9 was not verified. The motivations and behaviors of corporations regarding pro-social sustainability are not determined by a single factor. Although these behaviors are often reinforced by habitus, they can occasionally clash with the pursuit of economic interests (Font et al., 2016). The present study finds that prior involvement of corporations in community governance and resilience governance practices and experiences does not have a substantial impact on the conversion of behavioral intentions into actual behaviors.

The coefficient of  $BI \times social$  capital on involvement in community resilience governance behavior is  $-0.142$  and  $p < 0.001$ . According to the findings, as shown in Figure 5, social capital has a significant negative moderating influence between behavioral intention and behavior in community resilience development (see Figure 5), which contradicts the H10 hypothesis. Previous research has found that the presence of social capital enhances the growth of social interaction networks and assists companies in making better use of resources (Matsaganis and Wilkin, 2015). Research also revealed a dynamic and positive interaction between corporate social responsibility, social capital, and corporate value (Mengke et al., 2023). However, this study reveals that excessive accumulation of social capital in the practice of community resilience governance may inhibit corporations from translating their desires into actual acts, resulting in "inconsistency between words and deeds" among corporations. In the context of high social capital, the minimization of reciprocity, free-riding behavior, and the weakening of the cooperation desire of organization members undoubtedly reveal the double-edged characteristics of social capital (Zhang and Zhang, 2023).

Combining the results of the in-depth tests of the moderating effects of objective factors, two influence paths of the community objective factors, field and social capital, on the influence of corporation behavior can be clearly identified:

TABLE 9 Effects of corporate attributes on research variables.

	ATT	SN	PBC	BI	B	F	H	SC
CRT	-0.171**	-0.202**	-0.222**	-0.146**	-0.219**	-0.196**	-0.182**	-0.139**
CS	-0.112*	-0.124**	-0.180**	-0.077	-0.154**	-0.093*	-0.101*	-0.053
CDS	0.073	0.086	0.112*	0.034	0.116*	0.048	0.077	-0.013

Note: \* $p < 0.05$ , \*\* $p < 0.01$ .

1) Field  $\times$  BI  $\rightarrow$  B 2) Social capital  $\times$  BI  $\rightarrow$  B. Specifically, on the one hand, field moderates positively the process of transforming corporate behavioral intention (BI) to behavior (B); on the other hand, social capital moderates negatively the process of transforming corporate behavioral intention (BI) to behavior (B). Research on corporation-stakeholder collaboration in Chiang Mai's tourism industry insightfully points out that the matching of field and social capital is the cornerstone of successful corporate practices (Çakmak et al., 2018). In particular, this study points out that in the process of corporations' involvement in community resilience governance, field and social capital have non-negligible positive and negative moderating effects on corporate behavior. However, the mismatches and imperfections that exist in the current practice seriously constrain the effect of corporations' involvement and value creation. This also reveals the complexity of community resilience governance and the need to emphasize and promote the matching and balanced development of field and social capital in order to more effectively promote the practice of community resilience governance.

### 5.3 Corporation-related attribute analysis

This study selects three core corporate attributes, namely, corporation registration type (CRT), corporation size (CS), and corporation development stage (CDS), for correlation analysis. The five types of corporate attributes are integrated in this study into two categories: state-owned corporations (SOEs) and non-state-owned corporations (NSOEs). The size of corporations is large, medium, and small-micro. The four stages of corporation development are start-up, growth, maturity, and decline. As can be seen from Table 9, CRT has a significant negative effect on all eight variables, and the significance level of this effect is 0.01. This result clearly indicates that SOEs have a significant advantage over non-SOEs on the above eight variables. In particular, the impact of the difference in CRT is particularly significant in the variable of perceived behavioral control, which further emphasizes the importance of the nature of the corporation in shaping the perception of its own behavioral control. In addition, the detailed data in Table 9 also shows that CS has a significant negative effect on the variables of subjective norm (SN), perceived behavioral control (PBC), and behavior (B) at the significance level of 0.01. At the significance level of 0.05, CS also has a significant negative effect on Attitude Towards Behavior (ATT), Level of Fields (F), and Habits of Firms (H), which implies that as the size of the corporation decreases, the scores on these dimensions also show a decreasing trend. For CDS, Table 9 shows that it has a significant positive effect on perceived behavioral control (PBC) and corporation behavior (B) at the 0.05 level of significance.

## 6 Conclusion and suggestion

### 6.1 Conclusion

From the perspective of symbiosis, this paper considers the corporation as a communal symbiotic unit. Based on the integration of the Theory of Planned Behavior (TPB) and the Theory of Social Practice (TSP), this article quantitatively investigated the subjective and objective factors that influence corporate involvement in the development of community resilience. The conclusions are as follows.

Corporate involvement is influenced by both subjective and objective factors during the community resilience governance process. Critical factors include subjective behavioral attitude (ATT), subjective norm (SN), perceived behavioral control (PBC), and behavioral intention (BI), in addition to objective community institutional factors including field and social capital. These influential factors interact and determine corporations' active conduct in the development of community resilience. These factors form five influence paths to influence the behavior (B) of corporations' involvement in community resilience governance, as follows: SN $\rightarrow$ ATT $\rightarrow$ BI $\rightarrow$ B; PBC $\rightarrow$ ATT $\rightarrow$ BI $\rightarrow$ B; PBC $\rightarrow$ B; Field  $\times$  BI  $\rightarrow$  B; Social capital  $\times$  BI  $\rightarrow$  B. From the subjective perspective, the behavioral decision-making process of corporations' involvement in community resilience governance is the result of a combination of rational and moral reasoning, with rationality preceding morality. The rational factor of perceived behavioral control and the moral factor of subjective norm are the triggering points that influence corporate behavioral attitude, and the three functions interact to stimulate the behavioral intention of corporate involvement in community resilience governance, which ultimately promotes corporate behavior. In the context of community resilience governance, due to the deeper involvement requirements for corporations, they must take their own capabilities into account as an important consideration in actual operation. From the objective perspective, the community environment of a community system influences the behavior of corporations involved in community resilience governance through field and social capital. Field capital and social capital positively and negatively moderate the transformation of behavioral intention into the behavior of corporations' involvement in community resilience governance, respectively.

The core of resilient urban governance lies in upholding the concept of symbiosis and promoting resilient community governance. This process requires not only the involvement of all participants but also the active role of corporations as an important force to be brought into action. Therefore, the involvement of corporations should not only be superficial economic and

material assistance but also deeper integration into community development and active involvement in win-win cooperation projects, so as to realize deep integration and common progress with the community. In order to stimulate enthusiasm and enhance the effectiveness of corporate involvement, attention should be paid to both subjective and objective influential factors. Subjectively, due attention should be paid to the ability of corporations themselves and the role of external pressures in shaping their attitudes and willingness to get involved, so as to encourage corporations to give full play to their own strengths and actively respond to challenges. Objectively, efforts should be made to create a favorable environment for community resilience governance, including the establishment of a sound communication mechanism, the enhancement of trust among community members, and the development and implementation of effective resilience governance norms, so as to provide a strong guarantee for the involvement of corporations in community resilience governance. Comprehensive consideration of subjective and objective factors can more effectively promote the active involvement of corporations in community resilience governance and jointly build safer, more harmonious, and more resilient urban communities.

This study still has limitations at the data level. The respondents were not all managers, and there may be bias in their understanding of the purpose of the study and their feedback on the involvement of their corporations in community resilience governance. Meanwhile, the behaviors and influential factors of corporations in community resilience governance may vary across different industries. In the future, data from corporations in multiple industries can be further collected to explore in depth the industry differences in the influential factors and mechanisms of corporations' involvement in community resilience governance.

## 6.2 Suggestion

This paper proposes specific suggestions for enhancing the involvement of corporations in community resilience governance from three perspectives: government, community, and corporations.

The government serves as a compass for corporate-community coexistence and mutual prosperity, as well as a directive force in constructing a symbiotic community. Enhancing the community resilience governance system and the symbiosis coordination mechanism is essential to ensuring the consistent operation of the symbiosis system. Mobilize all sectors of society to focus on community resilience governance, coordinate the value orientation of symbiosis units, and deepen the consensus on community symbiosis.

Communities are the implementors of decisions to safeguard symbiosis and resilience in governance. The community should raise the public's awareness of community coexistence and establish a conducive environment for coexistence under the direction of the government. Simultaneously, relying on vertical government departments and horizontal social organizations, forming a collaborative government cooperation network, and establishing a perfect and effective communication mechanism to improve the effectiveness of multiple subjects' involvement to

form a good social capital and field of community resilience governance. Further, communities should preferentially seek social forces for the development of symbiosis and resilience, clarify the subjects' rights and obligations, and balance the density and quality of the numerous subjects in the community's symbiosis system.

Corporations are orderly participants in community symbiosis. Managers inside the corporate system must constantly improve the relationship between the corporation and its external environment, as well as express a favorable attitude towards community governance. Increase the vitality of the corporate system while increasing the stability and sustainability of its own ecosystem in order to build power to enhance the community ecosystem. Take the initiative to integrate into community governance, actively respond to the different demands of the community, encourage good interaction among multiple actors, and improve the community system's metabolism and virtuous cycle.

## Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

## Author contributions

JH: Conceptualization, Funding acquisition, Methodology, Writing–original draft, Writing–review and editing. YL: Formal Analysis, Investigation, Resources, Writing–original draft.

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## Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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