

Exploring The Role of Guanxi in CSR performance and Knowledge Management of a Stakeholder Network: A Case of iStone, China

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Background: CSR performance is significantly affected by the degree of knowledge exchange. As Chinese firms have increasingly engaged in CSR activities, significant attention has been paid to how groups of stakeholders share and exchange knowledge resources strategically to increase their CSR performance. A guanxi network is an important facilitator in the mobilization of knowledge in CSR activities. This study explores how stakeholders strategically leverage their guanxi and structural holes to affect the efficacy of knowledge exchange to increase CSR performance.

Methods: A mixed-methods research approach was employed to gather data from the stakeholders of a Chinese digital firm iStone. Specifically, 325 questionnaires and social network analyses were collected as well as 55 semi-structured interviews were conducted to test the hypotheses.

Results: As a result, structural holes impede knowledge exchange among stakeholders in their guanxi network, but guanxi moderates this impeding effect. In addition, knowledge exchange promotes CSR performance.

Conclusion: By developing a mechanism to reveal how stakeholders' structural hole filling behavior influences their CSR performance, our study places an emphasis on reciprocal resource exchange which generates several implications for CSR performance enhancement. In addition, by demonstrating how structural hole controllers' become 'structural hole fillers' under the moderating influence of guanxi, this study recognizes the cultural contingency that conditions the effect of structural holes on knowledge exchange. This study also suggests stakeholders to cultivate guanxi with their network members who own yet-to-be-filled structural holes to fill their holes and increase firms sustainable performance by giving *renqing*, returning *renqing*, earning *mianzi* and giving *mianzi*.

Keywords: structural holes, *guanxi*, knowledge exchange, CSR performance, a stakeholder network

Introduction

Corporate social responsibility (CSR) is defined as context-specific organizational actions and policies that take into account stakeholders' expectations and the triple bottom line of economic, social, and environmental performance.¹ From the process view of knowledge management (KM), CSR implementation implies a novel way of working within the organization and with its wider set of stakeholders, during the process of which knowledge exchange occurs for the benefit of both sides, because critical decisions requiring idiosyncratic knowledge must be made where this knowledge is located.^{2,3} Hence, CSR performance, "a snapshot of a firm's overall social performance at a particular point in time", is significantly affected by the degree of knowledge exchange.^{4,5}

As Chinese firms have increasingly engaged in CSR activities, significant attention has been paid to how groups of stakeholders share and exchange knowledge resources strategically to increase their CSR performance.⁶⁻⁸ Guo and Miller (2010) identified a *guanxi* network as an important facilitator in the mobilization of knowledge in CSR activities.⁹

From a network perspective, a CSR activity needs the joint involvement of multiple stakeholders. These stakeholders, including suppliers, customers, partners, investors, employees, local communities, and external CSR experts, form

a *guanxi* network, but widely dispersed structural holes in this network socially separate network members from each other, which hinder the exchange of knowledge.

Burt (1992) first proposed the concept of structural holes.¹⁰ As Figure 1 demonstrates, when a hub actor C connects two disconnected individuals A and B, C occupies a structural hole. From the perspective of resource mobilization, dispersed structural holes in a network can lead to the issues of poor communication and coordination, limited information flow, mismatched strategies, amplified value incompatibility, and intensified expertise heterogeneity, thereby increasing the difficulty of network stakeholders in exchanging knowledge through their network.

From the viewpoint of culture, structural holes theory is grounded in Western individualistic culture, highlighting that an actor who holds a nodal position in a network and connects two or more otherwise isolated individuals, each with access to complementary information, has more information and control benefits than those individuals without occupying such a position.¹⁰ This theory embraces the view of “a hub in networks”, and suggests that more structural holes can bring bigger advantages.¹¹

This is particularly true in Western individualistic culture, but the collectivistic value embedded in Chinese Confucian culture can restrain structural hole owners from achieving their information and control benefits.¹² Specifically, Chinese brokers cannot totally achieve their personal information benefit, because the communal-sharing value obliges them to attribute a more significant share of the pie to the group contribution but a smaller proportion to themselves. In addition, the Chinese generally perceive brokers as unethical, since they manipulate “accurate, ambiguous, or distorted information” skillfully to maximize their personal benefit.¹³ Thus, structural holes may increase the risk of brokers to diminish collective interest and tarnish personal reputation, all of which decrease their motivation to span structural holes and exchange knowledge through their network.¹⁴

Therefore, given the increasing enthusiasm of Chinese firms in CSR engagement, alleviating the impeding effect of structural holes on knowledge exchange to increase CSR performance is worthy of exploration.^{6,8} In Chinese culture, the inhibiting impact of structural holes is likely to be moderated by *guanxi*.^{15,16} Developing and maintaining *guanxi* is a dynamic process during which an outsider gradually becomes an insider. Under the moderating influence of *guanxi*, hub actors who own yet-to-be-filled structural holes are willing to fill these holes and bring otherwise isolated individuals into an ingroup, where valuable knowledge resources can flow in the form of “renqing giving, renqing returning, mianzi earning and mianzi giving”, and thus, alleviating the damage arising from structural holes.

Although previous studies have explored the moderating effect of *guanxi* on structural holes, none have perceived it as a means to increase CSR performance.^{15,16} Additionally, since CSR has primarily been studied at macro than micro

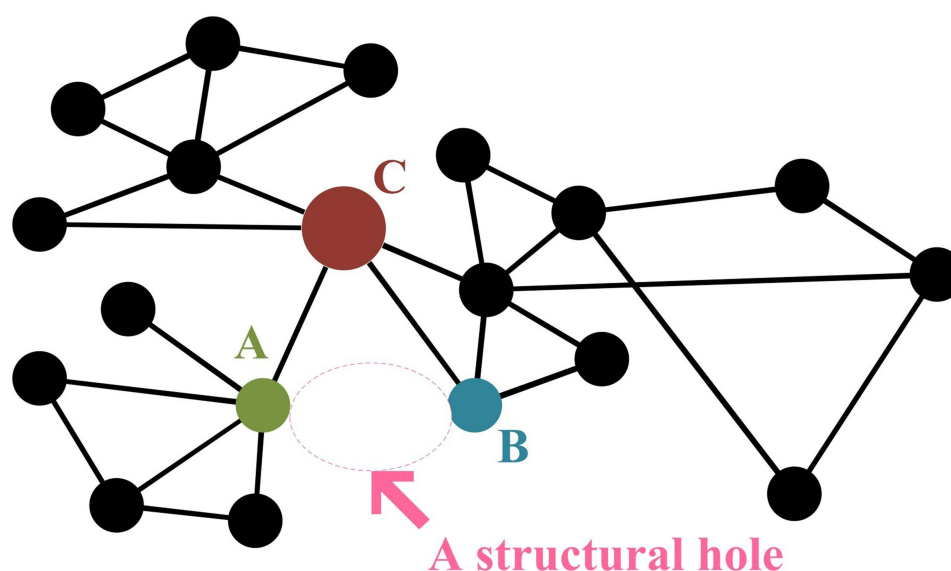


Figure 1 A representation of C's *guanxi* network.

level,^{17,18} there has been growing interest in the linkages between micro-foundations of CSR and firm's sustainable performance.^{19–21} To fill this gap, this study explores how stakeholders strategically leverage their *guanxi* and structural holes to affect the efficacy of knowledge exchange to increase CSR performance, and addresses the following research questions:

RQ1. What is the relationship between structural holes and knowledge exchange among stakeholders in their *guanxi* network?

RQ2. How does *guanxi* affect the relationship between structural holes and knowledge exchange among stakeholders in their *guanxi* network?

RQ3. What is the relationship between knowledge exchange and CSR performance?

We examined the moderating effect of *guanxi* on the relationship between structural holes and knowledge exchange from the Chinese stakeholders, because they share a strong collectivistic value embedded in Confucian culture,^{12,22} which makes them a proper object for managerial research, and thus offers an ideal context for testing the cultural contingency that conditions the effect of structural holes on knowledge exchange in CSR settings.

By developing a mechanism to reveal how stakeholders strategically leverage their *guanxi* and structural holes to affect the efficacy of knowledge exchange to increase CSR performance, we identify the key factors that drive firm's sustainable performance, thereby contributing to the literature of CSR and knowledge management. In addition, by illustrating how stakeholders' structural hole filling behavior influences their CSR performance, our study places an emphasis on reciprocal resource exchange which generates several implications for CSR performance enhancement. Moreover, by demonstrating how "structural hole controllers" become "structural hole fillers" under the moderating influence of *guanxi*, we recognize the cultural contingency that conditions the effect of structural holes on knowledge exchange. Finally, our study suggests stakeholders to cultivate *guanxi* with their network members who own yet-to-be-filled structural holes to fill their holes and increase firm's sustainable performance by giving *renqing*, returning *renqing*, earning *mianzi* and giving *mianzi*.

The rest of this study is organized as follows: in the next two sections, we integrate diverse bodies of literature to develop our hypotheses and build our research model. Then, by using a mixed-methods research approach, we adopt questionnaires and a social network analysis to test the hypotheses, and semi-structured interviews to add depth to quantitative results. Furthermore, we present our discussion of the results and articulate our contributions along with their associated theoretical and practical implications. Finally, we acknowledge our limitations and propose avenues for future research.

Literature Review

CSR Definition

As a broad, meta-construct, many scholars have defined CSR from different angles.^{23–30} To shift the diverse definitions toward greater clarity, Rupp and Mallory (2015) based on the research of Dahlsrud (2008) summarized five dimensions within CSR which are referenced by the most government, corporate and scholarly definitions.^{25,31} Specifically, these five dimensions include stakeholder obligation (organizations should be responsible to all parties connected to them), social obligation (organizations should impact society positively), economic obligation (organizations should be profitable for their shareholders), voluntariness (organizations should engage in CSR on a voluntary basis), and environment (organizations should prioritize, protect, and preserve the environment).²⁵

CSR from the Process-Oriented View of Knowledge Management (KM)

Preuss and Co'rdoba-Pachon (2009) used a KM-based approach to study CSR.² According to their research, a process view of KM places an emphasis on the stakeholder dialogue created for organizational members to determine the CSR priorities and integrate those into corporate strategy.^{32,33} To be more specific, the process-oriented view of KM can encourage organizational members to engage in an open dialogue on CSR topics where they have an opportunity to voice their opinions on and concerns about the CSR issues, exchange their ideas freely, and brainstorm solutions to occurring problems. Through top-down and bottom-up communication, they work beyond the formal boundaries of the organization and communicate with not only critical external stakeholders,

but also “marginal stakeholders who are not usually represented at the negotiation table”.^{2,34} Such a dialogue enables the exchange of knowledge resources among stakeholders which facilitates the integration of social and environmental externalities into corporate strategy design and implementation. In addition, as the flow of CSR knowledge is promoted, collective reflection and discussion on a certain societal topic may trigger more interests in other CSR activities regarding the organizational role in society and its contribution to local communities, which can offer a new entry point for CSR practices.²

Stakeholders and Their *Guanxi* Network: Structural Holes and *Guanxi*

In the CSR literature, scholars who studied the means to channel the diffusion of CSR strategies have highlighted the importance of stakeholders’ network relationships, as well as their connections and contacts.^{35–39} According to the research of these scholars, stakeholders with established personal networks and relationships can help them obtain access to an abundance of social and cognitive resources to better implement CSR activities. In China, stakeholders place a particularly important emphasis on their “*guanxiwang*” (*guanxi* network), which “refers to an aggregation of *guanxi* ties possessed by an individual”,⁹ as a potent means to obtain social capital and overcome information asymmetry. More specifically, this study sets structural holes and *guanxi* as the essential elements that constitute a *guanxi* network.

By definition, a structural hole is the gap between two contacts who are both independently connected with a third person, and according to structural holes theory, this third person has both information and control advantages.¹⁰ Information advantage refers to obtaining timely access to non-redundant information and referral sources, while control advantage means playing actors against each other in the competition for resources.

Structural holes theory is rooted in Western individualistic culture,^{10,13,40,41} indicating that an individual with more structural holes possesses bigger advantages. However, the validity of this theory in Chinese Confucian culture has been questioned by Xiao and Tsui (2007),¹² to the effect that Chinese brokers can achieve little benefit from spanning structural holes, because the collectivistic value embedded in Chinese Confucian culture prevents them using the bridging function of structural holes to maximize their own personal benefit.

Guanxi is a unique Chinese cultural phenomenon grounded in Confucian philosophy. The Chinese phrase “*guanxi*” consists of two parts. The first, “*guan*” represents a gate and the second, “*xi*” refers to a connection; hence, in literal terms, *guanxi* means “pass the gate and get connected”.⁴² Scholars have studied *guanxi* through a variety of relational constructs. For example, Yen et al used *ganqing* (affection), *renqing* (favour), and *xinren* (trust) to measure *guanxi*,⁴³ while Hwang (1987) adopted *mianzi* (face) as a construct to measure the quality of *guanxi*.⁴⁴ In this study, we assess *guanxi* via *renqing* and *mianzi*.

The word “*renqing*” combines “*ren*” referring to a human being, and “*qing*” which means affection and sentiment, and reflects the reciprocity rooted in Confucian culture.⁴⁵ In this regard, *renqing* is a lubricant for the economic and emotional exchange of favours in the pursuit of relational longevity.⁴⁶ Stakeholders who have *guanxi* with each other must adhere to social obligations of reciprocity,⁴⁷ which, in turn, promotes the exchange of favours to secure healthy *guanxi*. Refusing to reciprocate a previously received favour will severely damage personal credibility, leading to a humiliating loss of *mianzi*.⁴³

In Chinese culture, *mianzi* is a social currency. Hwang (1987) defined it as a form of self-image and emphasized the importance to the Chinese of instilling a favourable image of oneself in the minds of others.⁴⁴ Thus, to earn *mianzi*, stakeholders are willing to give a favour to someone in need; rejecting such a request will hurt the feelings of the person who asks for help and cause them to be embarrassed. Given that *mianzi* is vital to everyone, saving others’ face is also important. Therefore, ensuring others not to be embarrassed in public is crucial to maintain a harmonious relationship, while causing a stakeholder to lose *mianzi* will damage *guanxi*.⁴³

Overall, this study draws out the key elements of a *guanxi* network to explore how stakeholders take advantage of their *guanxi* and structural holes to affect the efficacy of knowledge exchange to increase CSR performance.

Hypothesis and Research Model Development

The Relationship Between Structural Holes and Knowledge Exchange Among Stakeholders in Their *Guanxi* Network

From the perspective of culture, most studies highlighting the information and control benefits that accrue to the brokers occupying structural holes have restricted their scope to Western contexts,^{10,13,40,41} but the collectivistic value embedded in Chinese Confucian culture can restrain brokers from achieving such benefits,¹² thereby decreasing their motivation to span structural holes and exchange knowledge through their network in a CSR activity.

From the perspective of resource mobilization, dispersed structural holes in a stakeholder network can lead to the issues of poor communication and coordination, limited information flow, mismatched strategies, amplified value incompatibility, and intensified expertise heterogeneity, thereby increasing the difficulty of network stakeholders in exchanging knowledge through their network. Hence, this study assumes that structural holes impede knowledge exchange among stakeholders, which will be explained in detail below.

First, structural holes create barriers to the knowledge flow, which result in a decreased efficacy of stakeholders in exchanging knowledge through their network, because the information quality diminishes as it transfers from one stakeholder to the next in a chain of intermediaries.^{48,49}

Second, structural holes obstruct communication among stakeholders who barely know each other in a CSR activity. Wegner's (1986) transactive memory theory asserts that knowledge of "who knows what" such as knowing who possesses knowledge,⁵⁰ who requires it, and how it is delivered,⁵¹ will be conducive to knowledge sharing through a network. Any form of restricted communication hinders collective learning and inhibits the exchange of knowledge.

Third, structural holes in a network may induce a further mismatch of strategies as a reflection of dispersed, vague, and distorted information.⁵² Unfocussed strategies may aggravate the difficulty of network stakeholders in interpreting and exchanging mutual knowledge.⁵³

Fourth, structural holes may aggravate the incompatibility in the attitudes, behaviours, or values of network stakeholders, all of which can decrease the efficacy of knowledge exchange. If structural hole spanners manipulate information and relations to reap their personal benefit, the remaining separated individuals must incur additional costs that can, in turn, create negative perceptions toward one another, further suppressing network members' propensity to share knowledge with each other in a CSR activity.⁵⁴

Finally, a greater number of structural holes result in a higher level of knowledge heterogeneity; such an increased dissimilarity in network stakeholders' social and technical skills prevents them from developing shared understandings. In this way, an action problem occurs (Obstfeld; Gaur et al),^{55,56} which further impedes the exchange of knowledge. Thus, we propose our first hypothesis that:

H1. Structural holes impede knowledge exchange among stakeholders in their *guanxi* network.

The Impact of *Guanxi* on the Relationship Between Structural Holes and Knowledge Exchange Among Stakeholders in Their *Guanxi* Network

According to the research of Xiao and Tsui (2007), Liu et al and Liu and Zhu,^{12,15,16} *guanxi* may encourage structural hole owners to fill their structural holes and pull together otherwise disconnected individuals into an ingroup through *renqing* giving, *renqing* returning, *mianzi* earning and *mianzi* giving.

Specifically, as a motivator for favour exchange, *renqing* abides by the principle of reciprocity. When a favour is granted to someone, they owe *renqing* to the giver of that favour, and thus, have an obligation to return the favour at some later time.⁴⁶ In a stakeholder's *guanxi* network, when a stakeholder introduces a useful contact to another stakeholder who is in need, it implies the giving of a significant *renqing* that needs to be repaid. Equally, realizing the interconnection of resources and needs represents an obligation on the part of the recipient to return this *renqing* in the future.

Failing to return *renqing* can cause a recipient to lose face.⁵⁷ In China, *mianzi* is perceived as a social currency, and the Chinese strive to instill a positive image of themselves in others' minds.⁴⁴ Huang et al suggested that people can earn *mianzi* by showing their advantage, and connecting the appropriate need with the appropriate resource can provide a way

to demonstrate such an advantage.⁵⁸ On one hand, introducing one useful contact to one needed person for problem-solving is a positive indication of the capability and networking breadth that can help the introducer earn *mianzi*. Meantime, it also means taking care of the recipient's face, because if the request is rejected, their feelings will be hurt leading to face losing. On the other hand, asking others for help and inviting them to demonstrate their competence is giving them *mianzi*. Given that *mianzi* is vital to everyone, it is significant to take care of the face of not only one's own but also the others.

Overall, developing and maintaining *guanxi* is a dynamic process through which an outsider gradually becomes an insider, and where structural hole owners are willing to fill their structural holes and pull together otherwise disconnected individuals into an ingroup, so that personal controlling behaviour is inhibited, and collective information advantage is strengthened.

More specifically, in a *guanxi* network in which brokers are perceived as opportunistic,⁵² those stakeholders who care more about *renqing* and *mianzi* are less inclined to control the relationship between the two sides, with such behaviour being regarded as socially distasteful. In traditional Confucian culture, when encountering a structural hole, stakeholders are more comfortable performing the role of "filler" than "controller". Thus, a fertile buffer zone may emerge,^{15,16} through which knowledge flows abundantly in the form of *renqing* giving, *renqing* returning, *mianzi* earning, and *mianzi* giving.

By exchanging *renqing* and preserving *mianzi*, more cognitive resources can flow freely through the network. Thus, network stakeholders have more opportunities to inspire critical reflection, facilitate perspective-taking and enhance sense-making of such knowledge diversity. This strong accommodation between one another's perspectives can generate an "optimal cognitive distance",⁵⁹ in which network members' knowledge bases demonstrate sufficient complementarity for them to learn from each other, while also maintaining effective communication through reciprocal understanding.⁶⁰ With extended ties being thus, connected to a breadth of experiences, competencies, and skills, this optimal cognitive distance can decrease the stickiness of the knowledge flow,⁶¹⁻⁶³ thereby promoting knowledge exchange among stakeholders in their *guanxi* network. Thus, we propose our second hypothesis that:

H2. *Guanxi* can moderate the inhibiting effect of structural holes on knowledge exchange among stakeholders in their *guanxi* network.

The Relationship Between Knowledge Exchange and CSR Performance

From the process-oriented view of KM, CSR implementation implies a new way of working with both internal and external stakeholders.^{32,33} During this process, organizational members have an opportunity to participate in a stakeholder dialogue on CSR topics, where they can communicate with not only key external stakeholders but also marginal stakeholders to determine the CSR priorities, and integrate those social and environmental externalities into corporate strategy design and implementation.²

Such an open dialogue can promote the exchange of knowledge among stakeholders. This knowledge includes both explicit and tacit knowledge that organizational members need to use when they design and implement their CSR strategies.² On one hand, explicit knowledge refers to the technical knowledge of CSR practitioners, external CSR know-how and elements of CSR knowledge that reside in different departments including supply chain, marketing, external affairs, and human resource management; on the other hand, tacit knowledge concerns the political skills, experiences, managerial insights, ethical values, feelings, subconscious mind, and accumulated judgment of CSR staff.²

Such knowledge involves considering social and environmental externalities of current CSR actions, assessing potential risks, coordinating stakeholder priorities, designing and implementing CSR strategies, and envisioning desired CSR consequences.⁶⁴ Effectively sharing, exchanging, absorbing, and using this knowledge can help stakeholders achieve a full picture of organizational operating environment, determine stakeholder priorities, mitigate the risks of dark CSR issues, and find untapped CSR opportunities in the future.³² As a result, facilitated knowledge exchange among stakeholders can not only promote employees' self-development, but also contribute to local community satisfaction, which results in increased CSR performance.² Thus, we propose our final hypothesis that.

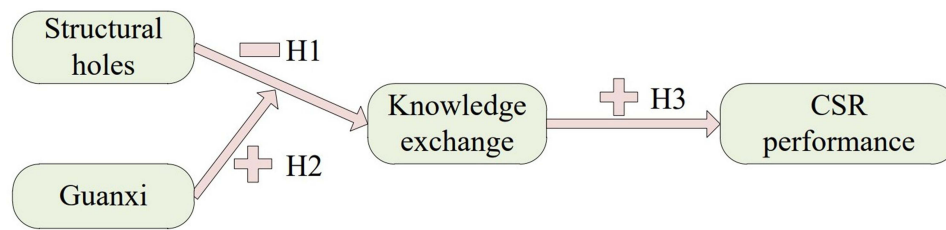


Figure 2 Research model.

H3. Knowledge exchange can promote CSR performance.

Our research model is shown in Figure 2. Overall, this study proposes three hypotheses to explore the relationships between structural holes, *guanxi*, knowledge exchange, and CSR performance among stakeholders in their *guanxi* network.

Methods

Our study used a mixed-methods research approach involving questionnaires, a social network analysis, and semi-structured interviews. According to the research of Zachariadis et al, Leech et al, Denscombe, and Doyle et al, mixed-methods research approach is generally used to develop a more systematic and comprehensive account of a phenomenon, and thus, it is appropriate to use such an approach to answer our research questions.^{65–68} Specifically, we adopted quantitative questionnaires and a social network analysis to test our three hypotheses and estimate their impacts, which were then discussed in conjunction with our qualitative results. Concurrently, the qualitative analysis of our semi-structured interviews allowed us not only to explicate the hypotheses but also to make additional sense of the quantitative results.

Research Site

We selected a Chinese digital firm (called as “iStone” on a confidential basis) who had taken on its CSR and made concerted efforts to prevent and control the COVID-19 epidemic in Wuhan, as our research site. Since the epidemic period, iStone has devoted all its efforts to this battle. Specifically, it not only donated RMB 10 million to Wuhan, but also donated scarce medical materials to the areas in need through coordinating its overseas branches to purchase related materials. Furthermore, it created a particular IT service team with an attempt to offer full support to the governments and agencies. By coordinating a diversity of resources, it quickly and precisely connected the appropriate resources with the appropriate needs to provide free solutions, such as community guards, telecommuting and business collaboration. Overall, iStone has delivered a good example of firms who take CSR as their goal to help “people, planet and profit” develop better.

Quantitative Research

In the quantitative part of the research, our sampling frame included both internal and external stakeholders of iStone who have contributed to winning the epidemic prevention and control battle, and who had a general need to exchange knowledge during the process of CSR implementation. Specifically, we collected data from the internal stakeholders who came from different departments in iStone such as human resource management, marketing, supply chain, and external affairs, and collected data from the external stakeholders such as external CSR experts and local communities. To collect the most reliable data available, we requested questionnaire responses from those key informants who had a large *guanxi* network, who frequently leveraged their personal connections to exchange knowledge resources and who were able to make informed comments on the quantitative variables. We distributed 380 questionnaires from the period of January 2021 to March 2021, and deemed 325 of the responses usable for the quantitative analysis, representing an appropriate response rate of 85.5%.

Table 1 Demographic Characteristics of the 325 Respondents

Characteristic	Division	Number	Percentage %
Job function	Human resources	37	11.4
	Production	82	25.2
	Marketing	54	16.7
	Sales	43	13.2
	Supply chain	68	20.9
	Management	41	12.6
Education	Doctoral	44	13.5
	Master's	133	40.9
	Bachelor	75	23.1
	Below bachelor degree	73	22.5
Industry experience	Less than five years	87	26.8
	Five to ten years	138	42.5
	More than ten years	100	30.7

To alleviate common method bias, we conducted a series of steps. Specifically, in the research design phase, we ensured the anonymity of the questionnaire and the confidentiality of the data. In addition, prior to questionnaire distribution, we conducted a comprehensive pretest to enhance the understandability of the questionnaire items. Finally, we used *t*-tests to evaluate non-responses bias in the questionnaires on the basis of Armstrong and Overton,⁶⁹ and found no significant differences between early and late responses. Table 1 shows the overall demographic characteristics of the respondents.

Quantitative Measures

Structural Holes (SH)

To measure the number of structural holes that each respondent owns in their *guanxi* network, we used a social network analysis by adopting Burt (1992)'s name-generator method.¹⁰ First, we asked each respondent (*ego*) to list the names of the members (*alters*) in their network. Explicitly, there were eight questions regarding (1) property-based resource assistance, (2) knowledge sharing (3) risk assessment, (4) priority negotiation, (5) CSR strategy design, (6) CSR strategy implementation, (7) environmental assessment, and (8) social assessment. For example, one question took the form: "Please point to three contacts whom you will ask for help when you need environmental assessment". Afterwards, we put together the names created by the eight name-generating questions to assemble a *guanxi* network for the respondent. Then, we asked the respondent to clarify the strength of all ego-alter and alter-alter ties within their network. We used a range of 0 to 3 to measure the strength of these ties,¹² with 3 indicating very close, 2 indicating close, 1 indicating less close, and 0 indicating distant. A representation of X's *guanxi* network is presented in Figure 3.

We used Burt's (1992) constraint (c) to measure the number of structural holes.¹⁰ Specifically, first, we measured the degree to which the ego (*i*) is constrained by an alter (*j*) via the multiplication of "i's investment in j" and "the lack of structural holes around j":

$$C_{ij} = (P_{ij} + \sum_q P_{iq} P_{qj})^2 \text{ for } q \neq i, j$$

where P_{ij} refers to the proportion of *i*'s relations invested in contact *j* and $\sum_q P_{iq} P_{qj}$ refers to the proportion of *i*'s relations invested in contact *q* who are in turn invested in contact *j*. Second, we used $\sum_j C_{ij}$ to measure the degree to which the ego's network lacked structural holes. Lastly, we measured the number of structural holes by using "1-c".¹²

As a result, the average number of names from each of the networks was: 2.1 for property-based resource assistance; 3.4 for knowledge sharing; 1.8 for risk assessment; 1.1 for priority negotiation; 3.2 for CSR strategy design; 2.7 for CSR strategy implementation; 1.9 for environmental assessment; 3.3 for social assessment. Together, the eight questions

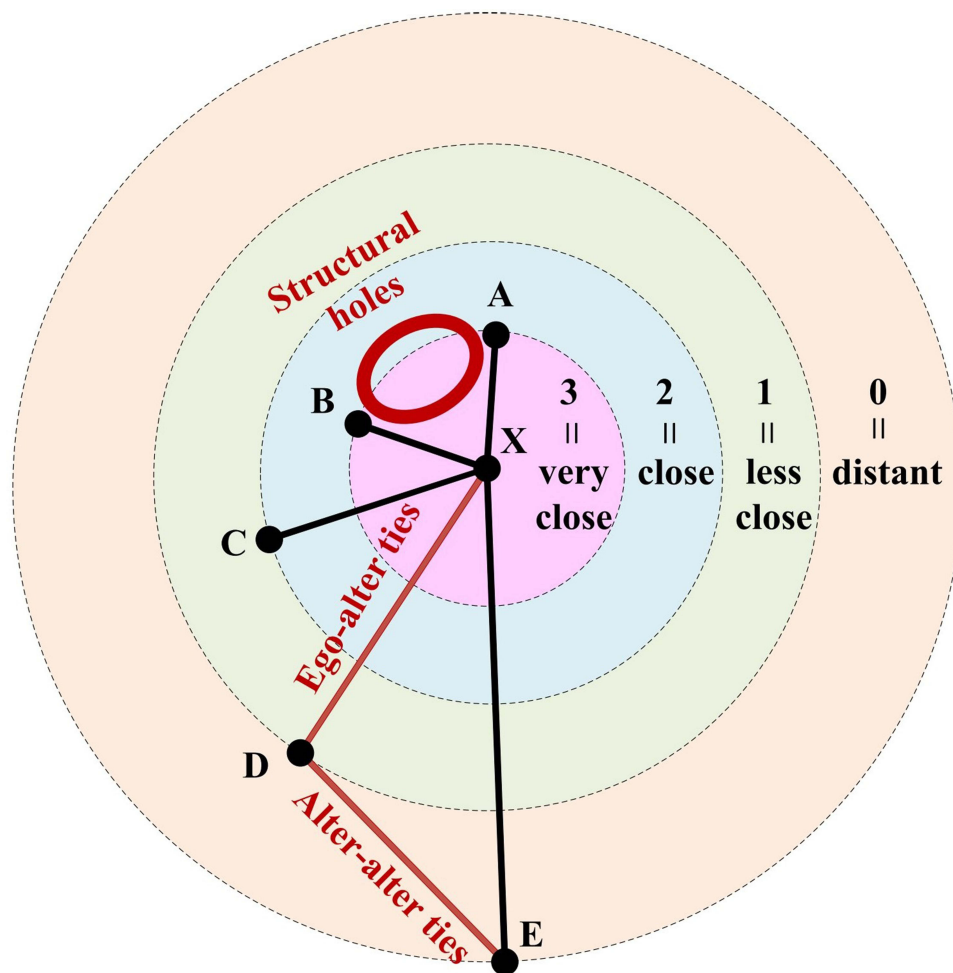


Figure 3 Representation of X's *guanxi* network.

generated an overall *guanxi* network for each stakeholder that involved an average of 19.5 contacts, with a range from 8 to 24.

Guanxi (GX)

For *guanxi* measurement, we used two constructs of *renqing* and *mianzi*. First, we used the items of Yen et al,⁴³ which focus on favour exchange, to measure the construct of *renqing*. In detail, we adopted three items in the questionnaire: “I am willing to provide help when my network members ask a favour”; “I am obliged to repay the favour to those network members who helped me before”; “Giving and returning favours plays a vital role in cooperative relationship maintenance among network members”. In addition, we used three items from Hwang (1987) to measure the construct of *mianzi*,⁴⁴ implemented as: “I am proud when I provide help to my network members”; “I feel ‘you mianzi’ (mianzi-earning, honoured) when I introduce a useful contact to a member in need”; “I feel ‘mei mianzi’ (mianzi-losing, embarrassed) when I cannot repay the benefactor”.

Knowledge Exchange (KE)

To measure knowledge exchange, we used the items from the research of Dhanaraj and Parkhe (2006) to measure the extent to which knowledge is shared, absorbed, and used.⁶³ First, we adopted two items to measure to what extent knowledge is shared from a source to a recipient: “I am able to explain my prior experiences related to CSR implementation to my network members clearly”; “I am willing to explain useful social assessment skills to my network members”. Second, we used two items to measure to what extent the recipient absorbs the knowledge shared from the

source: “I am able to assimilate and understand those disseminated CSR advice”; “I am willing to receive and accept those disseminated creative ideas related to CSR strategy implementation”. Finally, we adopted two items to measure to what extent both knowledge sources and recipients use what they have learned to solve problems in the implementation of CSR strategy: “I am able to use the shared message, information and knowledge to enhance our CSR strategy”; “I am willing to learn from other network members and apply this for problem-solving during our CSR implementation”.

CSR Performance (CSRP)

Drawing on the research of Muller and Kolk (2009),⁵ Matten and Moon (2008) and Chapple and Moon (2005),^{70,71} we used three constructs of labour relations, community relations and environmental performance to measure CSR performance. All measures reflected performance for a certain period from January 2020 to December 2020. Specifically, we used the number of days of (1) vocational training per year per employee, and (2) absenteeism per year per employee to measure labour relations. In addition, we used (1) the number of effective solutions provided free to the community, (2) philanthropy as a share of profits, and (3) how the firm was organized for engaging the community to measure community relations. Finally, we used the number of days of environmental training related to the epidemic prevention and control per year per employee to measure environmental performance.

Control Variables. We controlled for three variables that might affect CSR performance: job function (JF), education (ED), and industry experience (IE). Regarding job function, six dummy variables were used as controls (0 for Human resources, 1 for Production, 2 for Marketing, 3 for Sales, 4 for Supply chain, and 5 for Management). For education, four dummy variables were used (0 for Doctoral, 1 for Master’s, 2 for Bachelor, and 3 for Below bachelor degree). Finally, a further three dummy variables were adopted in relation to industry experience (0 for less than five years, 1 for five to ten years, and 2 for more than ten years). Our questionnaire is presented in [Appendix 1](#).

Qualitative Research

To enrich the quantitative results, we also conducted 55 semi-structured interviews with those stakeholders of iStone who engaged in preventing and controlling the epidemic. Specifically, we selected 55 stakeholders from 325 questionnaire respondents who made informed comments on the questionnaire variables and who had a deep understanding of their *guanxi* network. Their demographic characteristics of these interviewees are listed in [Table 2](#). Each interview included 20 questions, and lasted appropriately 45–55 minutes. By referring to the research of Gugiu and Rodríguez-Campos,⁷² our interview protocol is presented in [Appendix 2](#).

To analyse the interview data, we adopted the NVivo software to code the transcripts according to social structure, content, and governance mechanisms of network dynamics.⁹ For social structure, we coded the configuration of a given *guanxi* network on the basis of whether or not its structural holes were “filled”. For content, we coded the qualitative data

Table 2 Demographic Characteristics of the 55 Respondents

Characteristic	Division	Number	Percentage %
Job function	Human resources	4	7.3
	Production	12	21.8
	Marketing	17	30.9
	Sales	6	10.9
	Supply chain	9	16.4
	Management	7	12.7
Education	Doctoral	7	12.7
	Master’s	22	40.0
	Bachelor	18	32.7
	Below bachelor degree	8	14.6
Industry experience	Less than five years	21	38.2
	Five to ten years	23	41.8
	More than ten years	11	20.0

according to the importance of structural holes to knowledge exchange, and the importance of knowledge exchange to CSR performance, respectively. For governance mechanisms, we coded the interview transcripts to identify the moderating effect of *guanxi* on the relationship between structural holes and knowledge exchange. During the process of moving back and forth between the original interview recordings and their transcripts, the relationships among structural holes, *guanxi*, knowledge exchange, and CSR performance progressively emerged.⁷³ Finally, we assigned a number to each interviewee to represent the qualitative result.

Empirical Results

In this section, we demonstrate our empirical results. First, we assessed the measurement model. Second, we tested our structural model. Last, we presented the qualitative results of interviews to explain our quantitative results in a complementary way.

Measurement Model Assessment

This subsection involves three parts. In the first part, we conducted an exploratory factor analysis of the three measures (GX, KE and CSRP), by using a principal-axis factoring analysis, the results of which are shown in Table 3. Specifically, the KMO measure of sample adequacy was 0.893, implying that the data were appropriate for factor analysis. In addition, the measures suitably represented the three factors, where all the primary loadings were above 0.674. Furthermore, all the CRs exceeded 0.7, indicating a high degree of convergent validity.⁷⁴ Finally, Cronbach's alpha was 0.886, which indicates that these measures demonstrate high reliability for the internal consistency.

In our second part, we performed a confirmatory factor analysis to evaluate the construct validity of the scales by using Amos software. Specifically, first, all data indicated a good model fit, where CMIN was 585.375 with 425 DF, CFI was 0.923, NFI was 0.876, and RMSEA was 0.032. Second, we examined the discriminant validity by using the AVE, and the result of bivariate correlations between all variables is presented in Table 4. All the square roots of the AVE on the diagonal of this correlation matrix were greater than those in the non-diagonal region, displaying distinctness in its discriminant validity.⁷⁵ Third, as also shown in Table IV, we found that a stakeholder's job function, education, and industry experience had little effect on the variables of structural holes, *guanxi*, knowledge exchange, and CSRP.

In our third part, we measured the interaction term by referring to the research of Conway et al and following a three-step procedure.⁷⁶ Specifically, in our first step, we standardized all the indexes for the independent variable structural

Table 3 Descriptive Statistics Result

Variable	Item	Loading	CR	Cronbach's α	KMO
<i>Guanxi</i>	GX1	0.812	0.704	0.906	0.893
	GX2	0.894			
	GX3	0.806			
	GX4	0.798			
	GX5	0.746			
	GX6	0.725			
Knowledge Exchange	KE1	0.739	0.728	0.863	
	KE2	0.721			
	KE3	0.834			
	KE4	0.674			
	KE5	0.786			
	KE6	0.808			
Corporate Social Responsibility Performance	CSP1	0.846	0.718	0.889	
	CSP2	0.829			
	CSP3	0.683			
	CSP4	0.792			
	CSP5	0.704			
	CSP6	0.727			

Table 4 Bivariate Correlation Matrix

Variable	Mean	SD	1	2	3	4	5	6	7
1. JF	0.031	0.305	1.000						
2. ED	0.029	0.241	0.019	1.000					
3. IE	0.022	0.174	0.014	0.012	1.000				
4. SH	4.365	1.108	0.064	0.038	0.019	1.000			
5. GX	4.797	1.021	0.114	0.076	0.023	0.346	1.000		
6. KE	4.126	1.019	0.021	0.025	0.017	-0.427	0.458	1.000	
7. CSR	3.274	0.936	0.047	0.016	0.038	-0.382	0.403	0.361	1.000

holes (SH) and moderator *guanxi* (GX). Second, we created the interaction term: *guanxi* \times structural holes (GX \times SH). In our final step, we fixed the measurement property for the interaction term. As a result, the data displayed a good model fit, where CMIN was 640.355 with 325 DF, CFI was 0.876, NFI was 0.904, and RMSEA was 0.028. To better control any multicollinearity, we mean-centered the paired component measures (GX and SH) before entering the interaction term (GX \times SH). Afterwards, we calculated the VIFs for all the variables in the model, and found that all the VIFs were less than 5.0, suggesting a well-controlled multicollinearity.⁷⁷

Structural Model Testing

In terms of the structural model, we conducted a linear regression analysis to test the hypotheses. Our overall results are presented in Figure 4, and we found that all the associations were significant, which support the three hypotheses.

Specifically, we used three models (M1, M2 and M3) to test Hypothesis 1 and Hypothesis 2, and the results are shown in Table 5. First, M1 shows that structural holes were negatively related to knowledge exchange ($\beta = -.462$, $p < 0.01$), which supports H1. Second, M2 added the variable *guanxi* as a moderator to M1: the coefficient of *guanxi* was positive and significant in relation to knowledge exchange ($\beta = 0.374$, $p < 0.05$), and the change in R^2 from M1 to M2 was significant ($\Delta R^2 = 0.026$, $\Delta F = 5.284$, $p < 0.01$), indicating that *guanxi* is not a pure moderator variable that affects the dependent variable. Third, M3 added the interaction term *guanxi* \times structural holes to M2: the interaction effect between *guanxi* and structural holes was positively related to knowledge exchange ($\beta = 0.534$, $p < 0.001$), and the ΔR^2 from M2 to M3 was significant ($\Delta R^2 = 0.021$, $\Delta F = 6.212$, $p < 0.001$), supporting H2. To further test the moderating effect of *guanxi* on the relationship between structural holes and knowledge exchange, we also used a simple slope test based on one SD above and below the moderator to plot the interaction, the result of which is shown in Figure 5. Consequently, we found that as the level of *guanxi* was strengthened, the impeding effect of structural holes on knowledge exchange ($\beta = -.37$, $t = -1.68$, $p < 0.01$) was transformed into a facilitating effect ($\beta = 0.14$, $t = 0.28$, $p < 0.001$), providing additional support for H2. Finally, as shown in Figure 4, the coefficient of knowledge exchange was positive and significant in relation to corporate social responsibility performance ($\beta = 0.486$, $p < 0.001$), supporting H3.

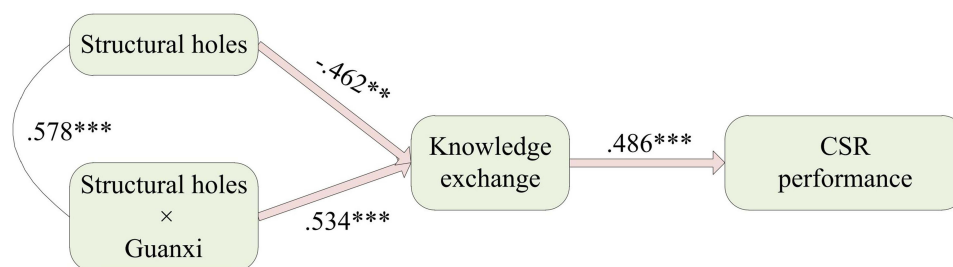


Figure 4 Hypothesis testing results ** $p < 0.01$, *** $p < 0.001$.

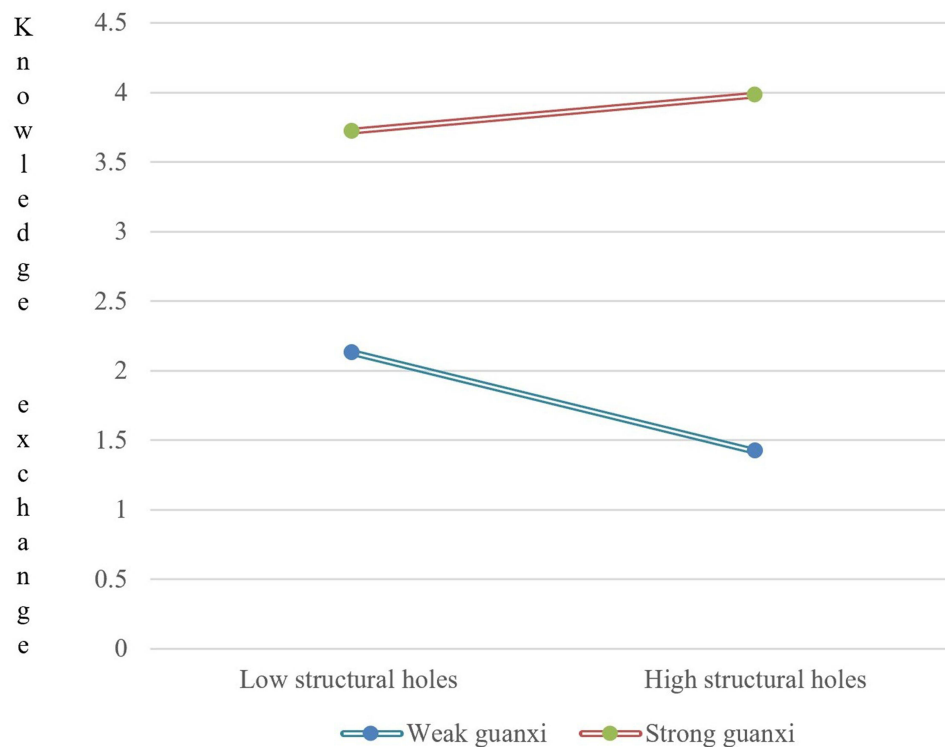
Table 5 Regression Analysis Results

Variable	Dependent Variable: Knowledge Exchange					
	M1		M2		M3	
	β	VIF	β	VIF	β	VIF
Independent variable Structural holes	-0.462**	1.367	-0.403	1.224	-0.416***	1.304
Moderator variable Guanxi			0.374*	1.126	0.357***	1.268
Interaction term Guanxi \times Structural holes					0.534***	1.212
Δ statistics						
R^2	0.135		0.161		0.182	
ΔR^2	0.135		0.026**		0.021***	
F	36.375		41.659		47.871	
ΔF	36.375		5.284**		6.212***	

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Qualitative Results: The Moderating Effect of *Guanxi* on the Relationship Between Structural Holes and Knowledge Exchange

Our quantitative result of hypothesis testing shows that *guanxi* can moderate the impeding effect of structural holes on knowledge exchange. In parallel, our qualitative results of semi-structured interview analysis explain in detail two internal mechanisms by which *guanxi* moderates the negative impact of structural holes presented in Figure 6, and by which *guanxi*

**Figure 5** Interaction between *guanxi* and structural holes in knowledge exchange.

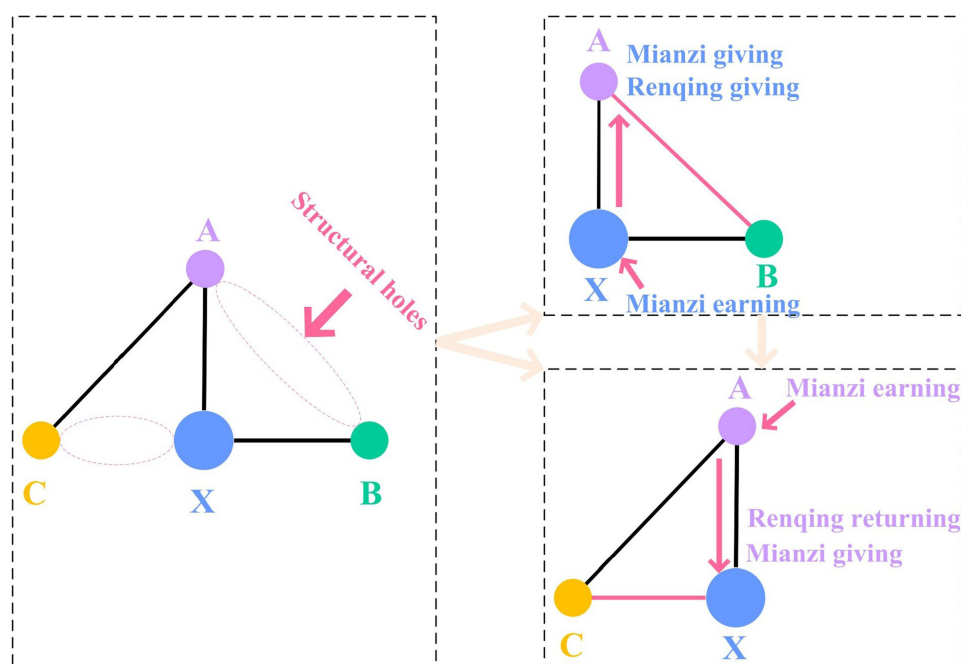


Figure 6 How *guanxi* moderates the negative impact of structural holes.

and structural holes interact to facilitate knowledge exchange among stakeholders in their *guanxi* network, which is shown in Figure 7.

First, Figure 6 demonstrates how *guanxi* moderates the negative impact of structural holes in the *guanxi* network of stakeholders. Specifically, most of the interviewees expressed that they were willing to abandon the benefits of having a big say in decisions that affect priority distribution among separated stakeholders, and instead to fill their structural holes to maximize overall network benefit. By introducing useful contacts or resources to the persons who were in need, these network stakeholders accumulated *renqing* and preserved *mianzi*. Taking the stakeholder X (male) as an example, A (female) is another stakeholder who needs some specific resources and asks him for help. X finds that B owns what A needed, and thus introduces B to A to know each other. At this moment, X gives A a big favour that implies a significant *renqing* giving, because it takes much time and energy of X. In addition to *renqing* giving, such a behavior also means giving A *mianzi*, since if X refuses A's request, A will feel embarrassed, humiliated, and hurt. To X himself, introducing B to A for problem-solving is a positive indication of his competence and networking breadth that can help him earn *mianzi*.

This was reflected in one interview with a CSR expert who was good at priority negotiation:

As an old proverb saying goes, 'Yu Ren Mei Gui, Shou Liu Yu Xiang', the roses in her hand, the flavor in mine. I rarely say no to the request of the others if I can help them, because I believe helping them is helping myself. In this epidemic prevention battle, I was responsible for coordinating our 11 overseas branches to purchase medical materials and donated them to areas in need. During this process, I took care of all of them [stakeholders], listened to their concerns, and ensured their needs to be satisfied. For example, when we purchased raw medical materials from the factories, I needed to consider the interests of our firm and theirs at the same time. As favours are given, I can develop *renqing* and maintain *guanxi* with many key industry stakeholders, who [I believe] will return me a bigger favour in the future by providing me access to more useful resources or opportunities. (No. 9)

Another stakeholder who worked in the IT service team added:

In the epidemic prevention and control period, I worked in our special IT service team to provide full support to the local government and agencies. My job is to operate an information platform where I can follow minutely the help seeking information from anyone in the epidemic area. After confirming its authenticity, I would use my *guanxi* network to search the appropriate contacts, and connect the appropriate resources with the appropriate needs quickly and precisely for

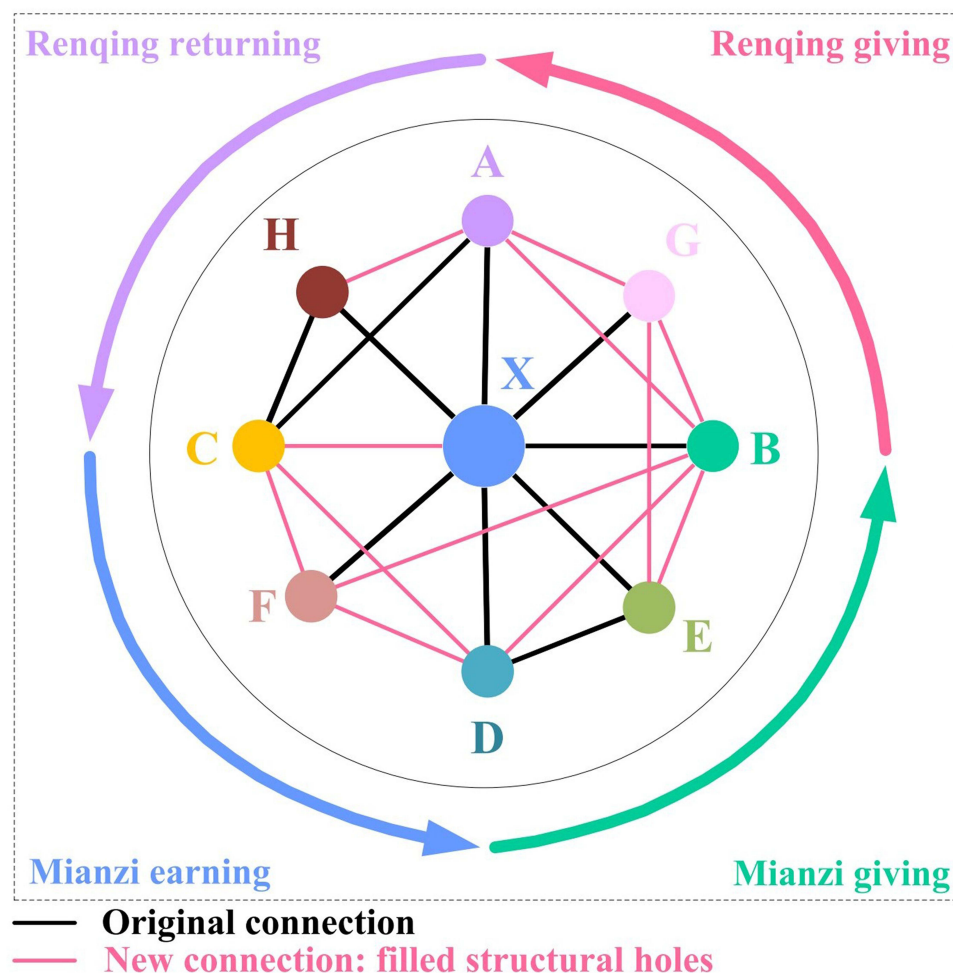


Figure 7 How *guanxi* interacts with structural holes to facilitate knowledge exchange.

problem-solving. In China, people take *mianzi* seriously. Introducing useful contacts or resources to another person for problem solving can demonstrate my strong competence and wide networking breadth. Therefore, it makes me feel proud and ‘you *mianzi*’ (*mianzi* earning, honored). At the same time, helping others to solve problems is also an indication of listening to their need, caring about their feeling, and thus giving them *mianzi*. (No. 13)

On the other hand, to A herself, being connected with B represents that she has owed a favour to X, and thus have the obligation to return this *renqing* at some later time. As Figure 6 illustrates, as A introduces C to X and fills the structural hole between C and X, it represents that A has returned that *renqing* to X. Furthermore, it also implies that A has taken well care of X’s face by satisfying his need. Finally, such a *renqing* returning by connecting C with X reflects a wide networking breadth of A thereby helping her earn *mianzi*.

This viewpoint was also clearly expressed in one interview with a Wuhan citizen:

As the Chinese proverb saying goes, ‘Di Shui Zhi En, Yong Quan Xiang Bao’, which means the grace of dripping water should be reciprocated by a gushing spring. In other words, little help can bring much return. If someone gives me a hand, I will remember this *renqing* and return a bigger favour at some later time, in order to save my face and maintain healthy *guanxi* between us. Even sometimes the help is not provided for me directly, if someone has done something good for our community, I will also show my appreciation. For example, when I heard that iStone donated RMB 10 million to Wuhan, I disseminated its philanthropic act in Weibo, and bought its software. I believed that it is a conscious firm and I want to support it through promoting its good reputation and buying its products. (No. 9)

Second, Figure 7 demonstrates how *guanxi* interacts with structural holes to facilitate knowledge exchange among stakeholders in their *guanxi* network. Overall, by connecting the appropriate contacts or resources with the appropriate needs, stakeholders filled their structural holes and pulled otherwise separated network members together. As a result, an abundance of resources pooled together and flowed in the form of *renqing* giving, *renqing* returning, *mianzi* earning, and *mianzi* giving, which promoted the generation of an “optimal cognitive distance” among network members, thereby facilitating the exchange of knowledge throughout the network.

Specifically, some stakeholders expressed that as they were introduced to know diverse professionals beyond the reach of their original personal contacts, they had more opportunities to communicate with each other, promote perspective-taking and increase sense-making of mutual knowledge. Such accommodation with one another's views produced an optimal cognitive distance among network members, where they had an adequate space for mutual learning without involving too much effort to understand. Such cognitive proximity helped reduce the sluggishness of knowledge to facilitate the sharing, assimilation, and application of knowledge within the network.

One of our interviewees corroborated this view:

In China, it is particularly significant for us to develop a strong *guanxi* network for our CSR implementation. However, connecting with more people does not mean a strong network. It is not enough, because it is just like connecting for the only purpose of connection, and people are a collection of points in the network without making any contribution. In my opinion, only when people communicate with each other, they start to add value for the network. As they freely exchange opinions, share ideas, and discuss problems, they can understand each other's thoughts and behavior gradually, which can facilitate the exchange of knowledge throughout the network. (No. 34)

Furthermore, some of the interviewees mentioned that this optimal cognitive distance also allowed them to have a full picture of each member's domain of expertise, so that they were able to know what they have already possessed, what they still need, who knows what and from whom they can achieve the needed knowledge. Such skills helped them track down the necessary knowledge quickly, and increased their collective sense-making, thereby facilitating knowledge exchange within the network.

This view was also reflected in an interview:

As we got familiar with each other, we also got familiar with their own expertise and competence. Thus, it became relatively easy for us to understand each member's need and anticipate their behavior accurately. If someone asked me for help regarding something, and I happened to know in my *guanxi* network who had the specific, needed resource or knowledge, I was very willing to share this information and introduce them to know each other. In fact, connecting the appropriate resource with the appropriate need for problem solving was a process of collective, reflective learning, where we engaged to exchange mutual information and come up with solutions, thereby promoting the diffusion, assimilation and use of knowledge. (No. 27)

Discussion and Implications

By developing a mechanism to reveal how stakeholders strategically leverage their *guanxi* and structural holes to affect the efficacy of knowledge exchange to increase CSR performance, this study thereby answers our three research questions. In terms of the first question, our results show that structural holes located in a stakeholder network can result in poor communication and coordination, restrain the information flow, cause mismatched strategies, amplify their incompatible values, and intensify their heterogeneous expertise, thereby impeding the exchange of knowledge among stakeholders throughout the network. As for the second research question, our findings demonstrate that by giving *renqing*, returning *renqing*, earning *mianzi*, and giving *mianzi*, *guanxi* can moderate the inhibiting effect of structural holes on knowledge exchange, with structural hole owners filling their holes and pulling otherwise disconnected individuals together to promote knowledge exchange through the network. Regarding the third question, our results find that a higher degree of knowledge exchange among stakeholders can lead to a higher level of CSR performance.

Taken together, we uncover a social network of dynamic relationships where *guanxi* interacts beneficially with structural holes, and thus, identify the key factors that drive firm's sustainable performance. By illustrating under the

moderating influence of *guanxi* how stakeholders' structural hole filling behavior affects the efficacy of knowledge exchange to increase CSR performance, we provide a theoretically defensible and empirically supported solution to the problem possibly faced by these stakeholders in increasing CSR performance. Consequently, this study contributes to the literature of both CSR,^{17,20,21} and knowledge management.^{61,78}

Reciprocal Resource Exchange by Connecting the Appropriate Resources with the Appropriate Needs: Implications for CSR Performance Enhancement

By developing a mechanism to reveal how stakeholders' structural hole filling behavior influences their CSR performance, our study places an emphasis on reciprocal resource exchange which generates several implications for CSR performance enhancement. First, our findings show that under the influence of *guanxi*, stakeholders who own structural holes are willing to fill their holes and pull otherwise socially unconnected individuals together, so that an abundant of social and cognitive resources can move, flow and pool together for all stakeholders located across the network in the form of favour exchange, *renqing* accumulation and *mianzi* preservation. This structural hole filling behavior of stakeholders helps connect the appropriate resources with the appropriate needs, which, in nature, is a means of mobilizing, sharing, exchanging, and utilizing resources, and plays a significant role in increasing their CSR performance. Hence, we echo the concept of "bridging" social capital (Dunne),⁷⁹ which emphasizes the resources achieved from knowing others, as a saying goes, "it's not what you know but who you know that matters". By bridging links between individuals who would not otherwise interact, stakeholders can obtain rapid access to useful information, knowledge, and resources, such as a vision of options otherwise unseen, which help them connect the appropriate resources with the appropriate needs precisely and quickly to solve problems occurred during their CSR implementation.

In addition, understanding the nature of stakeholder relationships allows them to recognize their places within stakeholder networks. By filling structural holes and bringing together socially separated stakeholders, they can identify who is in and who is out of their network scope, who benefits and who ought to benefit from this CSR implementation, as well as who holds the needed information and who is able to utilize available resources to solve problems. It therefore provides an implication for stakeholder priority coordination and negotiation in the design and implementation of CSR strategy.

Furthermore, our results find that since iStone made a great contribution to the epidemic prevention and control in Wuhan, it has won praise from all social circles. Specifically, its employees expressed that they were deeply impressed by the philanthropic act of the firm, and thus, more willing to trust and affiliate with the firm. Furthermore, iStone's CSR practices were also praised by local communities and customers. According to interviews, many Wuhan citizens were moved by iStone's generous donation. They disseminated its act of kindness online and purchased its software with an attempt to support iStone as a way of showing their appreciation.

Such stakeholder reactions to CSR are governed by reciprocity, which is defined by Gouldner (1960) as mutually contingent exchanges of gratifications.⁸⁰ This can be explained by social exchange theory that highlights individuals take part in different kinds of interactions based on a benefit-cost analysis.²⁰ When a firm engages in CSR activities that entail extra-role corporate behaviors to benefit a diversity of stakeholders, such as employees and local communities, it is perceived as trustworthy and responsible in the minds of these stakeholders, resulting in stronger employee identification with, higher attachment towards and stronger commitment to the firm.⁸¹ Following this logic,²¹ CSR can enhance the norm of reciprocity between firms and their stakeholders. Such a social norm of reciprocity also echoes our study that places an emphasis on *renqing* rooted in Chinese Confucian culture. Our study links *renqing* and *guanxi* to CSR, and stresses that as a part of *guanxi*, giving and returning *renqing* promotes the exchange of economic and emotional favours among stakeholders during the process of CSR implementation, which helps mobilize resource and enhance CSR performance.

It is worth noting that such a reciprocal, reward-induced behavior seems incompatible with an intrinsically driven motivation that holds a belief of altruism. We argue that on one hand, when iStone made donations to help prevent and control the epidemic in Wuhan, its managers believed that they were doing the right thing without expecting anything in return. On the other hand, the other stakeholders such as employees, customers and local communities were impressed by

the act of kindness, so that they expressed their sincere appreciation by doing something good to return the firm. In this case, we indicate that this reciprocal resource exchange behavior is not a motive, but a means to better enhance CSR performance.

“Structural Hole Controllers” or “Structural Hole Fillers”? Implications for Conditioning the Effect of Structural Holes on Knowledge Exchange in CSR Implementation

By demonstrating how “structural hole controllers” become “structural hole fillers” under the moderating influence of *guanxi*, we recognize the cultural contingency that conditions the effect of structural holes on knowledge exchange in CSR implementation.

In general, whether brokers can benefit from spanning structural holes or not depends heavily on culture. Specifically, structural holes theory is grounded in Western individualistic culture which prioritizes self-fulfillment above collective interests (Burt, 1992), attesting that a hub actor who connects two or more otherwise disconnected individuals within a network has more advantages than an actor who does not occupy such a nodal position. Therefore, being rooted in such culture which embraces brokerage, brokers tend to maintain and span their structural holes to benefit from achieving access to non-redundant information, and exercising control over “whose interests are served”.¹³

However, in collectivistic-oriented Confucian culture, the Chinese cannot benefit from structural holes as much as Western brokers because the cost of maintaining structural holes is much greater than the return from these holes.¹² To be more specific, the severe sanction mechanisms embedded in collectivistic culture restrain Chinese brokers from using the bridging function of structural holes to reap their personal benefit. These mechanisms decrease the material and intellectual gains from brokerage substantially, thereby reducing the returns to brokers from spanning structural holes. When brokers have to bear the high cost of maintaining structural holes while gaining a low return, they actually pay higher social costs. Thus, the collectivistic values make the Chinese less motivated to maintain and span their structural holes.

Although our study shows that the Chinese do not benefit from brokerage, we do not deny the importance of those structural hole owners who occupy an advantageous position in their *guanxi* network. On the contrary, we suggest that under the moderating influence of *guanxi*, those structural hole owners are willing to fill their structural holes, connect the two sides to create value for all members in the triad, and pull otherwise isolated individuals together. In this way, an abundance of resources flow in the form of *renqing* giving, *renqing* returning, *mianzi* earning, and *mianzi* giving throughout the network, thereby alleviating the constraining effect of Chinese Confucian culture on structural holes.¹²

Overall, by comparing social relationships that facilitate transactions between individuals lacking access to one another in Western individualistic culture with *guanxi* that values trust, reciprocity and reputation in Chinese collectivistic-oriented culture, this study has indicated a fundamental difference between the “market coldness” of the Western mindset of human relations,⁴⁵ and “Confucian affection-oriented ethics”.⁹ Being rooted in traditional Confucian culture valuing human affection, we highlight the role of *guanxi* in providing a buffer zone for Chinese stakeholders, where they tend to show respect for and comply with a tacit, subtle and everybody-does-it rule of favour exchange to oil the wheels of resource mobilization during the process of CSR implementation. As *guanxi* is identified to “fit the new structural needs of capitalism and even to provide Chinese capitalism with a competitive advantage”,⁴⁵ increasing Western CSR practices are moving in the direction of *guanxi*-type systems. Hence, we believe that our study might not only be unique to China, but also relevant to wider world by contributing a dynamic view of *guanxi* network in CSR activities.

Practical Suggestions for Increasing CSR Performance

Our results are also useful in supporting stakeholders to overcome environmental barriers and resource deficiency in their CSR implementation process by creating incentives for their network members who own yet-to-be-filled structural holes to fill these holes. Specifically, effective knowledge exchange and resource sharing is key to the enhancement of CSR performance, but dispersed structural holes in a stakeholder network socially separate network members from one another, hindering the exchange of knowledge. Under the moderating influence of *guanxi*, structural hole owners are

willing to fill their holes to promote the knowledge flow through the network, and this suggests stakeholders to cultivate *guanxi* with their network members owning structural holes to increase their commitment to the network by giving *renqing*, returning *renqing*, earning *mianzi* and giving *mianzi*.

To be more specific, *renqing* can be given and returned among network stakeholders via positive interactions in a collection of group events. As a member A introduces a useful contact to another member B, it implies a significant *renqing* giving to B that can help A earn *mianzi*, because it can reflect that A has a wide range of connections. Equally, such a behavior also saves B's *mianzi*, and avoids any feelings of rejection. When this *renqing* is granted, B will return it to A in the future to preserve *mianzi* and maintain healthy *guanxi* for both parties. Consequently, by giving and returning *renqing* as well as earning and giving *mianzi*, can stakeholders encourage their network members to fill structural holes and pull otherwise disconnected individuals together to facilitate the sharing of resource for enhancing their CSR performance.

Conclusion and Limitations of the Study

By developing a mechanism to reveal how stakeholders strategically leverage their *guanxi* and structural holes to affect the efficacy of knowledge exchange to increase CSR performance, we identify the key factors that drive firm's sustainable performance, thereby contributing to the literature of CSR and knowledge management. In addition, by illustrating how stakeholders' structural hole filling behavior influences their CSR performance, our study places an emphasis on reciprocal resource exchange which generates several implications for CSR performance enhancement. Moreover, by demonstrating how "structural hole controllers" become "structural hole fillers" under the moderating influence of *guanxi*, we recognize the cultural contingency that conditions the effect of structural holes on knowledge exchange. Finally, our study suggests stakeholders to cultivate *guanxi* with their network members who own yet-to-be-filled structural holes to fill their holes and increase firm's sustainable performance by giving *renqing*, returning *renqing*, earning *mianzi* and giving *mianzi*.

Our study has four limitations, which also provide some avenues for future research. First, the fact that we have not considered the issue of reverse causality represents a promising direction for future researchers to explore the reverse hypothesis. The behavior drives the outcome, but what about vice versa? We have corroborated that *guanxi* promotes the creation of more "structural hole fillers" thereby facilitating knowledge exchange in a stakeholder network, but does this causal relationship also go in the opposite direction? Specifically, *guanxi* is deeply embedded in the social activities of Chinese stakeholders. In traditional *guanxi*, gift-giving is not bribery in Western sense, but more about a reflection of the value placed on a relationship,⁴² and thus, traditional practices highlighting reciprocal exchange, such as gifting or banquets, are the major means to maintain *guanxi* in such a business environment. Buckley et al proposed a new form of *guanxi* maintenance that involves knowledge and information exchange.⁸² Specifically, frequent information sharing with key industry stakeholders allows firms to better adapt to their business routines and CSR practices. Meantime, the commitment to learn and adapt via knowledge exchange with key stakeholders is also a way of trust creation and *guanxi* maintenance. Hence, the question of interest is whether enhanced knowledge exchange promotes a stronger level of *guanxi* and the creation of a greater number of "structural hole fillers" among stakeholders in their *guanxi* network. We believe that examining the causal ordering among structural holes, *guanxi*, and knowledge exchange could improve the development of theories in relation to social network and knowledge management.

Second, our study illustrates how stakeholders strategically leverage their structural holes and *guanxi* to affect the efficacy of knowledge exchange to increase CSR performance, and thus recognizes the important role of the key actors in a stakeholder network. These key actors own yet-to-be-filled structural holes and can create critical added value for CSR strategy enhancement. However, we have not compared the relative importance of stakeholders in a given network, which represents the second limitation of our study, but presents an opportunity for future research to develop a more complete investigation to identify the most significant actors in a stakeholder network for their CSR performance enhancement. Indeed, who exactly are the most significant stakeholders of a CSR activity? Valeri and Baggio (2021) have recognized the significance of public stakeholders due to their core position and access to fundamental powers and resources.⁸³ Echoing their research, are private stakeholders less important than public stakeholders? Which public sectors of stakeholders are the most significant? How to manage these stakeholders during CSR implementation? How to

coordinate and negotiate the priority of these stakeholders to enhance CSR strategy? Hence, answering those questions might be a promising direction for future researchers.

Third, this study is limited due to a small size of the samples (325 questionnaires and 55 interviews). In addition, our study used a social network analysis to measure the number of structural holes that each stakeholder owns in their *guanxi* network. Besides the number of structural holes, other more structural features such as clusters, or some relatively qualitative features such as motivation should also be included to achieve a fuller picture of the characteristics of the stakeholder network. Hence, future research should diversify their methods to include case studies, multi-sited analysis, and auto-ethnography. Overall, this suggests that our study might show preliminary results as a foundation for conducting a better framed study with a larger sample leading to theory development in CSR research.

Finally, that we collected all data from just one set of stakeholders in one Chinese firm is our fourth limitation. Consequently, future studies should explore the relationships in two or more country contexts comparatively to obtain a more comprehensive understanding of how cultural factors affect the behavior of stakeholders to exchange knowledge through their network and increase their CSR performance.

Ethics Statement

The ethics committee of China Pharmaceutical University exempted this study for two reasons. First, this study is non-interventional in nature which does not involve any change in human behavior or organizational performance. Second, this study involves negligible risk because it does not involve any foreseeable risk of harm or discomfort, which means there must not be the possibility of anything more than inconvenience. The ethics committee of China Pharmaceutical University also confirmed that verbal informed consent was obtained from the study participants from the company iStone, and this consent procedure was approved. Overall, the ethics committee of China Pharmaceutical University confirmed that the guidelines outlined in the Declaration of Helsinki were followed by this study.

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Disclosure

The authors report no conflicts of interest in this work.

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