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## Article

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## Exploring knowledge sharing and hiding on employees' creative behaviors: A coopetition perspective

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### ABSTRACT

Employees are encouraged to share their knowledge to stimulate creativity and innovation. However, individuals may hide their knowledge to pursue personal interests. Drawing on the coopetition perspective, this study investigates how individual-level knowledge sharing and hiding behaviors jointly influence employees' creative behaviors, as well as the knowledge sharing-hiding interaction mechanisms. We adopt a mixed-method design combining qualitative and quantitative analyses. Two types of knowledge sharing are identified: Proactive and reactive, both of which promote employees' creative behaviors. A follow-up empirical test shows that knowledge-hiding behaviors positively moderate the relationship between reactive knowledge sharing and employees' creative behaviors. However, knowledge-hiding behaviors demonstrate an inverted U-shaped moderating effect on the relationship between proactive knowledge sharing and employees' creative behaviors. This study makes a pioneering attempt to study the interplay between knowledge sharing and knowledge hiding and challenges the conventional notion regarding the role of knowledge hiding in employees' creative behaviors.

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### Introduction

Innovation is essential for superior business performance (Ngo & O'Cass, 2013), and stems from a firm's accumulated knowledge and skills (McDowell et al., 2018; Saunila, 2020). In a dynamic environment, knowledge is an important intangible resource for innovation and competitive advantage (Fernandes Crespo et al., 2021). As a mixture of information, experience, and value that facilitates innovation and pristine experience (Nguyen et al., 2018; Abubakar et al., 2019), knowledge also manifests in organizational culture, skills, reputation, and intuition (Abubakar et al., 2019). Sharing knowledge can lead to innovation based on the exchange of related information, insights, experiences, lessons learned, best practices, and common or common sense (Fait et al., 2023).

Employees, who are primary knowledge carriers (Huo et al., 2016), are encouraged to be creative for organizational efficiency and business performance. Employee creativity is widely practiced in traditional service industries, such as retail stores, banks, and hotels, to generate a shared understanding of customers and the design of the

service market (Cheung & Wong, 2011). A common measure to improve employee creativity is to promote knowledge sharing, which enables employees to obtain, organize, reuse, and transfer information and experiences to each other to pursue innovation (Hu & Zhao, 2016), particularly in knowledge-intensive industries such as banking and finance (Foss et al., 2009; Kumar Jha & Varkkey, 2018).

Sustaining intraorganizational knowledge sharing is challenging. Employees may strategically withhold critical knowledge to maintain their competitive status among peer colleagues, leading to the less-discussed issue of *knowledge hiding* (Peng, 2013; Bălău & Utz, 2017). Knowledge hiding describes employees' deliberate or intentional attempts to conceal their knowledge or experiences from coworkers (Chatterjee et al., 2021).

Knowledge sharing and hiding are two ubiquitous behaviors that affect employees' creative behaviors and corporate innovation. However, there are several gaps in the current knowledge management literature. First, existing studies are inconclusive regarding the role of knowledge hiding in individual and organizational performances. Knowledge sharing leads to positive outcomes in the workplace (Xiao & Cooke, 2019). Most studies assume that knowledge-hiding behaviors are detrimental to individual and organizational performance (Dodokh, 2019). However, employees' knowledge hiding is

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not entirely based on negative purposes (Connelly et al., 2012). For example, hiding knowledge may protect employees from being unfairly exploited by others in low-trust and uncertain working environments (Malik et al., 2019). Hence, the potential bright side of knowledge hiding is under-researched (Xiao & Cooke, 2019), and the effects of knowledge hiding remain unclear.

Second, the effects of diverse types of knowledge sharing have not been sufficiently explored. Knowledge sharing in nature is contextual, and sharing can occur in different scenarios, such as unconscious sharing, sharing based on requests from others, or routine sharing during meetings. Although attempts have been made to identify different types of knowledge sharing, such as solicited and voluntary knowledge sharing (Teng & Song, 2010), empirical tests on their distinctive impacts are lacking.

Third, extant knowledge management studies usually treat knowledge sharing and hiding separately; the former emphasizes cooperative efforts and common interests, whereas the latter is derived from private interests. However, these two phenomena may occur simultaneously within an organization, exhibiting paradoxical challenges for individuals. The paradoxical relationship between knowledge sharing and hiding is in line with coopetition (Bengtsson & Kock, 2000, 2014; Hoffmann et al., 2018), which highlights the simultaneity of contradictory yet interdependent cooperative and competitive behaviors. However, current studies are confined in the “competitive box” (Caputo et al., 2021), leaving the interplay between knowledge sharing and knowledge hiding behaviors, particularly from the coopetition perspective, largely unexplored.

In response to these gaps and aiming to unfold the mechanisms between knowledge sharing, knowledge hiding, and employees' creative behaviors, this study proposes the following research questions: (1) *How to distinguish knowledge-sharing behaviors in diverse conditions?* (2) *How does the interplay between different knowledge sharing behaviors and knowledge hiding behaviors act on employees' creative behaviors?*

Owing to the exploratory nature of the study, a case study of two banks is conducted using a mixed-method design. First, we conduct a qualitative study based on a field investigation of banks for theory building. Two types of knowledge-sharing behaviors are identified: Proactive and reactive. After the qualitative case study, we conduct an empirical test on the proposed hypotheses based on the existing literature and the case to verify and generalize the case findings. The results confirm that knowledge sharing enhances employees' creative behaviors, whereas knowledge-hiding behaviors exhibit both positive and negative aspects according to different sharing conditions when considering its moderating effects on the relationship between knowledge sharing and employees' creative behaviors.

This study contributes theoretically to the literature on knowledge management and coopetition. First, it pioneers the exploration of the interplay between knowledge sharing and hiding from the perspective of coopetition. Second, we reframe our conventional understanding of the impact of knowledge hiding, showing its potential benefits depending on the context of knowledge sharing. Third, this study bridges the knowledge management and coopetition literature and further enriches the intraorganizational and individual-level coopetition literature by investigating knowledge-sharing-hiding interactions (Chiambaretto et al., 2018; Hoffmann et al., 2018).

These results have important managerial implications. Managers should encourage proactive sharing by organizing routine sharing activities and providing appropriate rewards. Employees should be supported as agile learners across tasks, forming positive interpersonal interactions with colleagues to contribute to a benign organizational culture. Knowledge hiding should not be viewed as an entirely negative factor for employees' creative behaviors; when properly combined with knowledge sharing, it can boost employee performance and creativity. Managers can maximize employee performance by setting specialized reward and sanction rules, providing

feedback, and designing tasks or activities to leverage the synergies between knowledge sharing and hiding.

## Literature review

### *Knowledge sharing and hiding as coopetition between individuals*

Knowledge sharing can be defined as the activity of transferring or disseminating knowledge from one person, group, or organization to another (Lee, 2001). Knowledge sharing is often viewed as employees' altruistic and initiative behavior and is a crucial factor in improving individual performance and the innovation capacity of organizations (Fait et al., 2023; Xiao & Cooke, 2018). First, individuals need knowledge or information to improve their creative processes, such as novel ideas, professional knowledge or skills, and job-related insights or inspirations (Černe et al., 2014). Second, knowledge sharing can reduce individuals' psychological barriers, foster interpersonal trust and cooperation (Wang et al., 2013), and contribute to positive interpersonal connections within organizations (Gilson et al., 2013). Third, knowledge is the core source of innovation. Innovation is the result of collaborative efforts (Al-Omouh et al., 2022), in which all participants benefit from each other and create value together.

Conversely, when pursuing personal rewards or a prominent status relative to colleagues, employees may withhold their knowledge and be reluctant to share it, although they are strongly encouraged to do so (Toma & Butera, 2009; Connelly & Zweig, 2015; Siachou et al., 2021). This results in knowledge-hiding behaviors: The intentional behavior to withhold or conceal knowledge when facing knowledge requests from others. Knowledge hiding can be categorized into three dimensions: Playing dumb (pretending not knowing or unclear about the knowledge), evasive hiding (giving partial/some other knowledge or trying to delay providing help or even promising others), and rational hiding (providing reasons for the failure of knowledge sharing, such as the intention to protect the third party's interests) (Connelly et al., 2012). Some researchers have claimed that knowledge hiding is an obstructive factor in some areas. For example, studies have demonstrated that knowledge hiding directly or indirectly impedes individual creativity (Bogilović et al., 2017; Malik et al., 2019) and job performance (Nguyen et al., 2022). Moreover, these hiding behaviors may damage the interpersonal relationship and form a distrust loop causing further negative outcomes (Černe et al., 2014; Černe et al., 2017). It has been largely assumed that hiding knowledge is related to negative consequences (Siachou et al., 2021).

Recent studies regard knowledge hiding as a multidimensional construct (Khoreva & Wechtler, 2020) that does not necessarily harm an individual or organization (Connelly & Zweig, 2015). Scholars suggest considering the context that knowledge requests arise (Connelly et al., 2019), as knowledge hiding occurs in the context of dyadic interactions between the “knowledge seeker and hider” (Shrivastava et al., 2021). Moreover, some previous studies argue that knowledge hiding and sharing do not occur in isolation in organizations, but instead coexist (Ford & Staples, 2008; Peng, 2013). However, the interplay between knowledge sharing and hiding in organizations remains under-researched and under-theorized (Hadjielias et al., 2021; Siachou et al., 2021).

The coexistence of knowledge sharing and hiding is largely in line with the notion of coopetition, that is, simultaneous cooperation and competition (Brandenburger & Nalebuff, 1996; Bengtsson & Kock, 2000). The coopetition concept has developed into a compelling strategy and is recognized as one of the most complex and demanding phenomena that can emerge at the individual, intraorganizational, and inter-organizational levels (Raza-Ullah et al., 2014; Devece et al., 2019; Gernsheimer et al., 2021). Coopetition at the individual and interpersonal levels is inherent when two or more employees decide to share knowledge. Knowledge sharing allows individuals to gain and integrate knowledge, which may create

synergies and generate new creative knowledge. Meanwhile, individuals face competitive value appropriation concerns because their competitors have both the motivation and the ability to absorb valuable knowledge from them (Estrada et al., 2016). Hence, knowledge sharing and hiding can be understood as cooperation and competition, respectively. Cooperative aspects are behaviors that seek joint benefits through the collective use of shared knowledge, allowing the achievement of a common goal (Gast et al., 2019). However, competitive aspects refer to exploiting shared knowledge, hiding one's own core knowledge, appropriating partners' non-shared knowledge, outperforming partners, and pursuing private interests (Tsai, 2002). Additionally, research has revealed that cooperation helps reinforce innovation (Corbo et al., 2023) and promotes knowledge-based capabilities (Albort-Morant et al., 2018).

In summary, the existing literature on knowledge management and cooperation reveals several gaps. First, although knowledge sharing and hiding coexist, most studies treat them as separate behaviors. Second, the current research does not fully explore different types of knowledge sharing that occur in moderate organizations, nor does it mention the interplay of different knowledge-sharing types and knowledge hiding from the cooperation perspective. Third, mainstream cooperation research focuses on cooperation between competing firms at the inter-organizational level (Devece et al., 2019; Xu et al., 2021), with limited attention given to cooperation at the individual and intraorganizational levels.

#### *Knowledge sharing, knowledge hiding, and employees' creative behaviors*

Creative behaviors refer to employees taking the initiative to contribute to new processes, products, markets, or combinations in the organization (Kim & Lee, 2013). Creative employees are more likely to find customers' hidden needs (Çekmecelioglu & Günsel, 2011), promote product design or service procedures, and increase customer satisfaction (Teng et al., 2019). In line with the service-dominant logic, customer-linking capability stresses maintaining and promoting relationships according to the current customer base; furthermore, it tries to establish and create new relationships (Lin et al., 2015). Hence, it is necessary to hire creative employees to utilize their knowledge and skills to empower positive changes in organizations (Yasmeen et al., 2020). Employees' creative behavior is viewed as a critical performance facilitator and a striving goal for contemporary organizations (Cerne et al., 2017; Zaitouni & Ouakouak, 2018). The burst of creativity is often not the result of a single person's efforts but emerges during inter-personal interactions (Çekmecelioglu & Günsel, 2011), particularly knowledge exchange interactions.

In a knowledge-supportive culture, employees are encouraged to share knowledge, gain new knowledge, and convert knowledge into value-creation opportunities (Imran et al., 2018). It is well recognized that knowledge sharing can promote individuals' potential creativity and creative behaviors (Akturan & Çekmecelioglu, 2016). Accordingly, a lack of knowledge-sharing limits individuals' capacity to leverage their experiences and expertise (Carmeli et al., 2013). Previous research has shown that most employees acknowledge the importance of knowledge sharing, and share knowledge with good intentions expecting something in return (Pereira & Mohiya, 2021).

Conversely, knowledge hiding is often deemed counterproductive (Serenko & Bontis, 2016). Nevertheless, when faced with complex decision-making tasks, employees must efficiently integrate unique, related, and diverse information. Less knowledge-redundant groups benefit more from sharing information than those knowledge-redundant groups (Mesmer-Magnus & Dechurch, 2012). A group may fail to pool and leverage members' diversified knowledge because the discussion is usually dominated by common information or the information fits most members' existing preferences (Stasser & Titus, 1985). Overemphasis on a common knowledge base may stifle

creative ideas, and excessive team communication may inhibit innovation, as members cannot fully exert their cognitive ability and diversity (Emich, 2012).

Scholars have acknowledged the underrepresentation of knowledge hiding in extant knowledge management and business research (Serenko & Bontis, 2016). Although some studies have noticed the importance of knowledge hiding (Wang et al., 2018), the bright side of knowledge hiding has not received much attention. Particularly, little is known about the potential impact of knowledge hiding on employees' creative performance (Fong et al., 2018), and the black box of the interplay between knowledge-sharing and hiding behaviors is yet to be unveiled.

#### **Method and research context**

To address the limitations of the existing literature, this study adopts a case study approach, which helps understand expert knowledge and experiences in a specific context-dependent system (Pereira & Mohiya, 2021). We select commercial banks in China as a case study and employ a mixed-method design.

We selected two large commercial banks as research subjects for three main reasons. First, the banking industry is accelerating into a new era of digitalization and servitization, and financial services are undergoing major transformations. A "bank" is no longer just a physical location for financial activities, but represents a ubiquitous service to meet the changing customer demands and market services. Hence, bank employees are encouraged to be creative to improve their organizational performance.

Second, in the banking industry, knowledge not only refers to tangible book knowledge but also intangible skills and working experiences. Particularly, banks' workplaces involve a wide range of knowledge, and new knowledge—policy changes, dynamic market information, and new customer relationships—are constantly needed.

Third, employees' work performance is highly correlated with their information acquisition, and they must incorporate new knowledge to support their daily work. This situation is strongly associated with the banking industry in China, where employees are required to create value for customers through service innovation and other means of creative behavior, in addition to their daily routine work, to cope with a market with high velocity and complex needs.

Fourth, banks have both team as well as individual performance appraisals, and the employees are involved in a cooperative working environment: They cooperate to improve the business unit and team performance while striving to stand out in the individual competition for promotions or bonuses. This provides a suitable setting for the theory-building purposes of this study.

Through a qualitative study based on semi-structured interviews with key informants from banks, we distinguish knowledge sharing types, the interplay of knowledge sharing, and hiding behaviors under different contexts and propose key findings that extend knowledge management scholarship. In addition to qualitative analysis, we conduct a survey of employees to test the proposed hypotheses based on the literature and case findings. Qualitative and quantitative methods can jointly explain the complex relationships between conceptual variables in the research context, verify data, and obtain maximal values and meanings (Onwuegbuzie & Leech, 2005). Mixed-method designs, such as combining semi-structured interviews and qualitative techniques, have been widely adopted in innovation and knowledge studies for theory building and comprehensive understanding (Arora & Stoner, 2009; Hu et al., 2021; Windsari et al., 2022; He et al., 2023).

#### **Qualitative data collection and analysis**

The primary data source is in-depth interviews with 25 key informants from the two selected banks, including top managers,

**Table 1**  
Summary of interviews.

Group	Interviewees	Coding	Number	Duration	Interview Themes
1	Top managers	TM	5	300mins	1. Work environment, changes, and related feelings under digitalization and servitization;
2	Middle-level managers	MM	8	400mins	2. Knowledge sharing activities in daily work;
3	Employees	EM	12	500mins	3. Knowledge sharing and hiding opinions, and feelings; 4. Job requirements, team- and individual-work approach, performance evaluation; 5. Creative behaviors opinions, personal reflections.

middle managers, and employees. Table 1 provides an overview of the interviews and the main themes discussed with key informants.

We also collect secondary data such as (1) official website information; (2) published papers or books; (3) bank annual reports, archives, and documents; (4) traditional media (paper or electronic newspapers, magazines); and (6) other social media (WeChat tweets, Weibo, etc.). Following triangulation rules (Yin, 2014), we transcribed all interviews and kept notes and records of our observations and participation in seminars. The data analysis processes include the comparison and interpretation of interview transcripts, records of observations, meetings, and seminars, and secondary data from archives and documents. Coding starts with a description of small parts of the data, such as lines, sentences, paragraphs, or words (Deterding & Waters, 2021). All data are coded and analyzed using thematic analysis (Raja et al., 2018; Sklyar et al., 2019), and emerging nodes and concepts can gradually be incorporated into the analysis. The data are obtained after saturation is achieved. Finally, we discuss and check the coding to ensure that all authors agree with the coding results (Miles & Huberman, 1994). Fig. 1 depicts the coding structure, and Table 2 presents representative quotes of the main themes.

*Qualitative analysis findings*

Based on coding, we find that: First, knowledge sharing is contextual and can be divided into two types: Reactive and proactive. However, both types of knowledge sharing may promote innovative behavior among employees.

*Reactive sharing* refers to employees sharing knowledge only when they receive requests from colleagues, such as answering questions or providing knowledge based on requests from the organization. As illustrated by the interviewees, we found that employees support that reactive sharing is common at work; it is helpful to improve interpersonal relationships, forming long-term positive interactions, and stimulating more creative behaviors. The following quote illustrates this:

“We have different knowledge-sharing activities that are helpful, such as ‘helping each other.’ The Q&A knowledge interactions help enlarge the scope of our knowledge, and favorable interactions could also improve our colleague relationships. In this pleasant work environment, we would like to exert our potential and creativity to achieve good performance” (EM1).

Conversely, *proactive sharing* means that employees share knowledge of their initiatives without requests from others. Proactive sharing in the banking industry can occur in voluntary or involuntary (regulated/mandatory) settings. As addressed by the middle manager:

“In our internal organizations, there are several knowledge sharing activities. We encourage knowledge sharing activities and already organized some sharing seminars or professional skill courses in the daily work and also have the rewards for proactive sharing” (MM3).

Moreover, proactive sharing is believed to contribute to achieving a win-win situation. When employees share knowledge proactively, they are expected to receive recognition, useful information, or knowledge from others. The following two interviewees said:

“Particularly for new employees, we arrange senior employees to help them adapt to the environment as soon as possible. Senior

employees would be willing to proactively share their knowledge, information, or even show the co-workers some experience, which promotes mutual progress and achieves a win-win situation” (TM3);

“In the regulated sharing contexts like regular work meetings, I want to share some knowledge/information I know proactively. Then, I am looking forward to receiving information from others and showing my good sharing performance with my superiors” (EM10).

Regarding the relationship between knowledge sharing and creative behavior, we found that sharing interactions is beneficial for enhancing creative behavior. The following managers confirm this point.

“During the process of getting a new business, employees all need to use their knowledge/working experience to be creative and try to earn more profits for the banks, such as discovering customer needs and helping customers solve problems to enhance customer loyalty” (MM6);

“Leaders are satisfied with the staff who can work creatively, and we almost all try to perform better than others. In my daily work, I pay attention to obtaining new and useful knowledge from others and external organizations” (EM3).

“We encourage knowledge acquisition, both for internal and external aspects, which are helpful for individuals’ performance, mutual trust, and friendly co-worker relationships. The purpose of knowledge sharing is to improve one’s creative behaviors and experience when dealing with problems or emergency circumstances” (TM4).

Second, knowledge sharing and hiding behaviors are confirmed to be coexisting, and a certain degree of knowledge hiding is acceptable, as employees need to improve their personal performance to gain salary raises, bonuses, or promotions, and everyone has his/her own way to acquire and maintain customers to gain new businesses. The staff do not treat knowledge hiding as an entirely destructive factor. Knowledge-hiding behavior is salient particularly when it comes to vital information, as it is essential for maintaining individual advantages. As illustrated by the interviewees:

“Yes, knowledge hiding exists, we encourage knowledge sharing and organize diverse knowledge sharing activities, however, we can understand knowledge hiding” (TM1);

“I think a certain degree of knowledge hiding is acceptable; after all, employees need to maintain some individual advantages” (MM3).

Third, when referring to different knowledge-sharing conditions, the interplay between sharing and hiding behaviors seems to generate different outcomes. In reactive knowledge sharing, although the sharer deliberately hides some knowledge, the questioner still has a good impression of the sharer because he/she responds to the question and expresses their willingness to help others. However, we should realize that sharing all information creates a stronger sense of pressure on employees about their own competitiveness and value. Representative quotes for reactive knowledge sharing and hiding from interviewees are as follows:

“If I ask questions and hope to obtain knowledge from others, I cannot judge whether my colleague hides his/her knowledge from me, however, as long as he/she is patient and friendly, I feel touched. In the future, if he/she needs help, I would like to share my knowledge or experiences in return” (EM8);

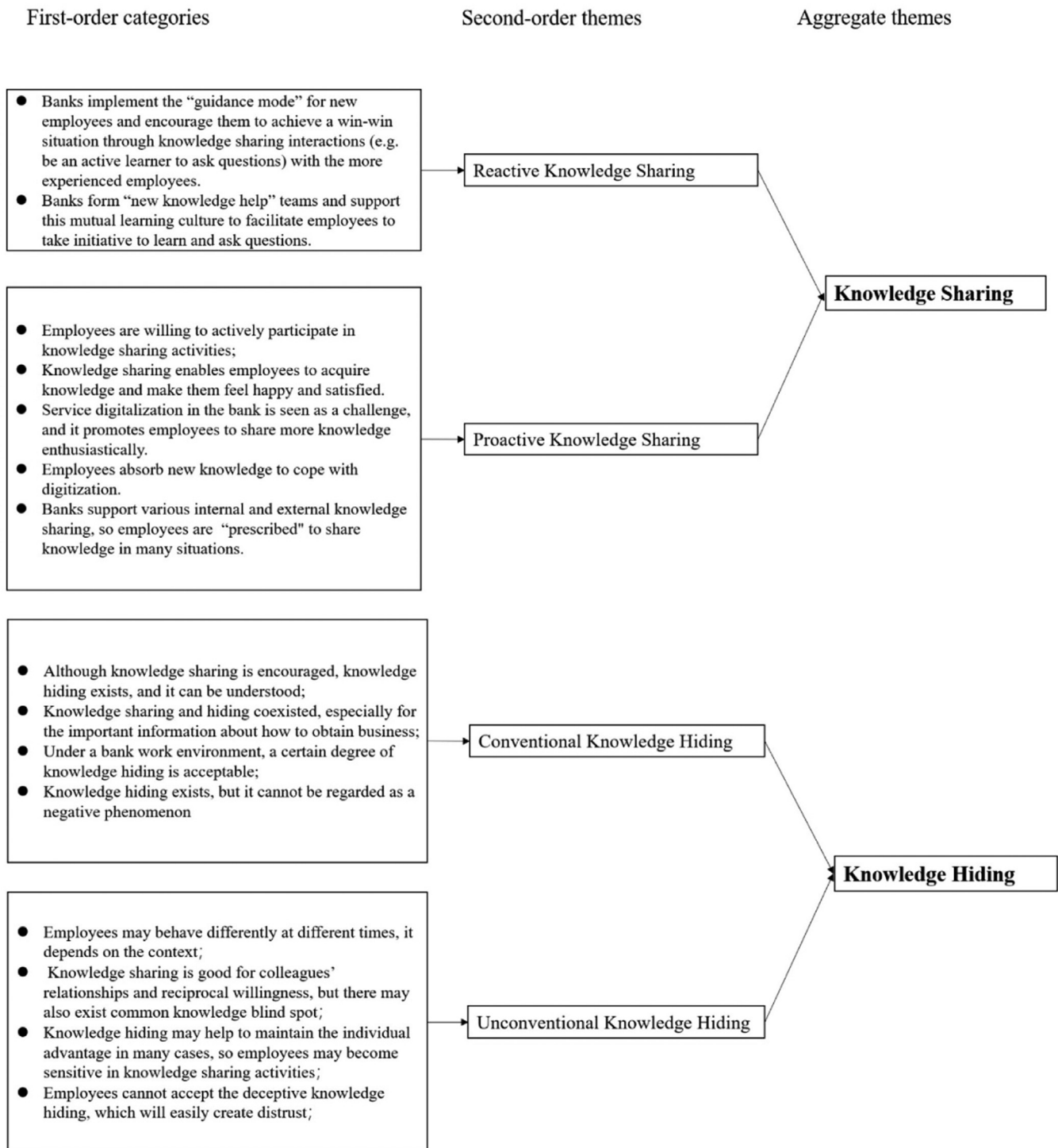


Fig. 1. Interview coding.

“I think it depends on what the question is, if it is general, I am willing to share what I know. However, if there is special information, such as customer relationship maintenance, I think I will retain some information. Otherwise, others may know more than I do if they retain the core information. I am not the only one who thinks this way” (EM1);

“Indeed, I would feel good and competitive if I attain some knowledge, while others do not” (EM10);

“No one discloses all the information they know, at least for me. I feel stressed about this because I am afraid that I may lose my major

advantage. However, if I answer others’ questions but retain some core knowledge (if it exists), I could maintain my key advantage, but I still have the opportunity to learn something from others”.

For proactive sharing, the relationship between employees becomes subtler and more sensitive because of the importance, degree of shared information, and attitude of the sharers. Therefore, the results produced under knowledge hiding are more uncertain. Representative quotes illustrate this potential problem:

“I pay attention to my colleagues’ attitudes and the changes during the knowledge sharing processes. If I perceive that he/she is

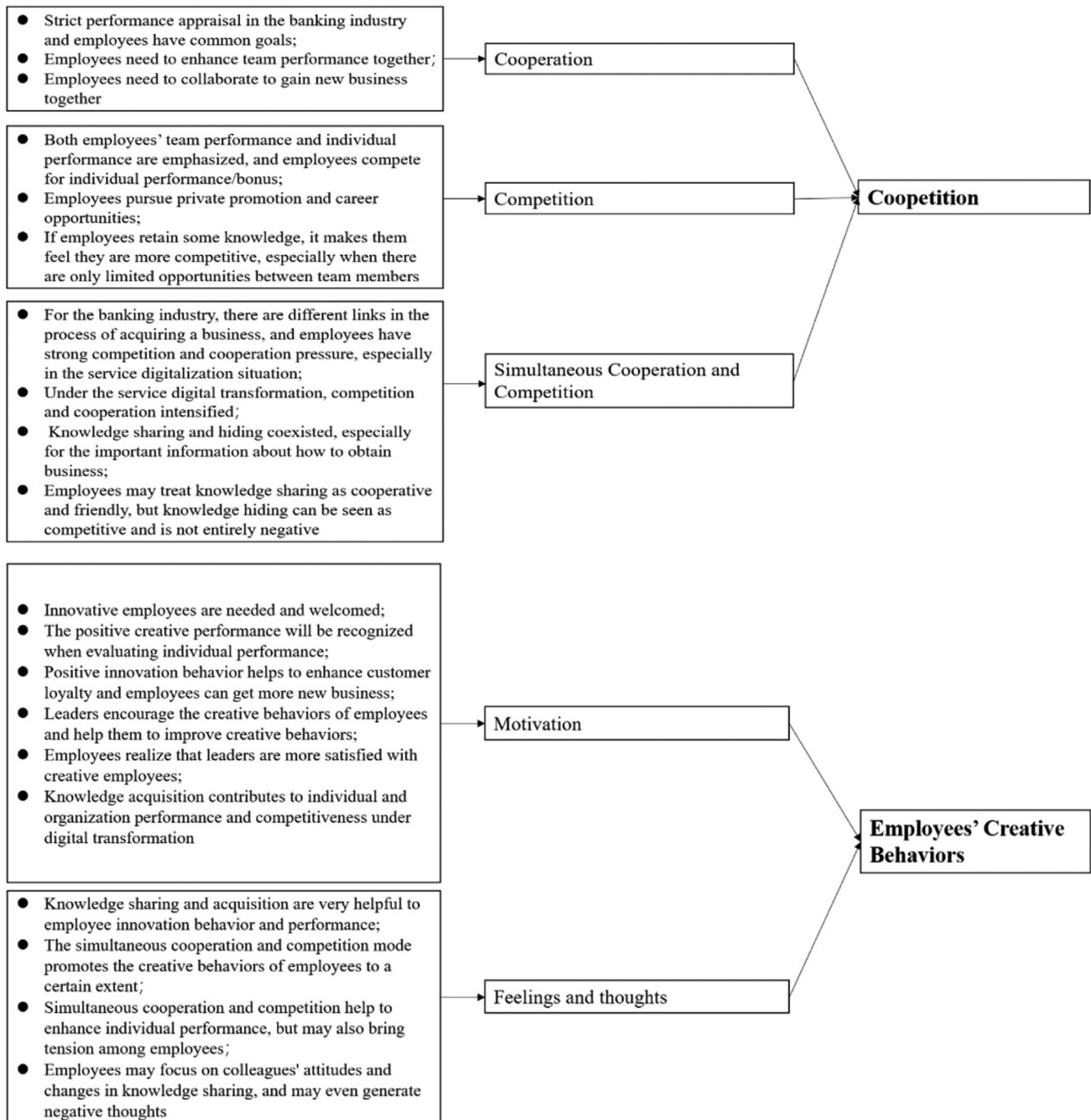


Fig. 1. Continued.

suddenly secretive, I feel that he/she is not willing to share knowledge and may even generate some negative thoughts; maybe I treat this as a kind of potential competition" (EM5);

"I feel uncomfortable if I find the sharers fail to share or retain important information when it comes to key issues that are also important to me, whether he/she intentionally or not" (EM8);

"I do not know if you can understand this feeling if you find your co-worker shares more information/experience about an important issue with another colleague. Whether he/she meant it or not, you feel hurt and uncomfortable. You may wonder if he/she treats you as a competitor." (EM9).

### Hypotheses and quantitative data analysis

We summarize the case findings and propose theoretical hypotheses in dialog with the extant literature for further empirical testing.

### Knowledge sharing and employees' creative behaviors

In response to the first research question, how to distinguish knowledge-sharing behaviors in diverse conditions, the qualitative case analysis reveals two types of knowledge sharing: Reactive and proactive. Reactive sharing means that one responds to whatever others ask, which focuses more on respondents' attitudes, response

**Table 2**  
Themes and representative quotes.

Theme	Representative quotes
<b>Reactive knowledge sharing</b>	Actually, daily knowledge sharing is context-based. You can't expect colleagues to share a lot of knowledge proactively, but you can ask questions by yourself, and others will answer (EM4)
<b>Proactive knowledge sharing</b>	For the technology aspect, new technologies such as artificial intelligence and big data have been applied. Employees need to constantly acquire and learn new knowledge, which is also a new challenge for employees. We encourage employees to take the initiative to share knowledge proactively, such as to give rewards (TM1).
<b>Conventional Knowledge hiding</b>	Employees have to work hard to get more business (get more customers) to have better performance. It is indeed vital to maintain existed customers or new customers' acquisition information, and a certain degree of knowledge hiding in regards to own customer networks and own skills of maintaining customers is also acceptable (TM4).
<b>Unconventional Knowledge hiding</b>	However, I cannot accept the deception, if I recognize this kind of behavior from my colleagues, it could be hard for me to trust the co-worker in the future work or for cooperation (EM7).
<b>Cooperation</b>	In the context of service digital transformation, we know consumers pursue differentiation and individuation, and customers increasingly emphasize their experience with services. As a result, employees are under growing pressure to acquire customers. Therefore, knowledge and information sharing and cooperation among employees must be strengthened (MM7).
<b>Competition</b>	The fact is that the organizations not only need interunit knowledge sharing to enhance the economies of scope but also encourage internal competition to achieve efficiency, which can facilitate greater progress and market expansion (TM3).
<b>Simultaneous cooperation and competition</b>	I want to refer to the pressure issue, especially in the digital context, the bank business operations usually are classified into various processes but linked to each other, therefore the employees need to cooperate and compete with each other (MM6). Simultaneous cooperation and competition are encouraged in the work because of both the organizational and individual performance evaluation pressure. Especially under the digital transformation, we need to change to customer perspective, and also adapt to the new pattern, learn new knowledge, and connect more closely with customers. However, we have to admit that competition and cooperation bring us pressure (EM7).
<b>Motivation</b>	I appreciate the employees with high creativity for completing the tasks effectively as every branch of the bank gets the overall working goals annually and the bank performance is considered and evaluated as one of the aspects of the managers' performance (MM4).
<b>Feelings and thoughts</b>	In simultaneous cooperation and competition environment, although pressure is generated, individuals are also encouraged to perform well and improve themselves. However, it is undeniable that sometimes tension arises between me and other colleague (EM11).

speed, and so on. Unlike reactive sharing, proactive sharing means that employees share their knowledge, information, experience, or skills without request.

Understanding creativity is inherently tied to knowledge (Akturan & Çekmecelioglu, 2016). Learning new knowledge not only boosts creative performance but also opens up opportunities for career advancement. Furthermore, favorable interpersonal interactions enabled by knowledge sharing create an environment of trust and mutual understanding (Akturan & Çekmecelioglu, 2016). This, in turn, encourages more sharing and creative output from employees (Islam et al., 2012).

The case findings also reveal that regardless of the knowledge-sharing activities employees engage in, there is a high probability that sharing activities may stimulate their knowledge assimilation and absorption behaviors, further leading to creative outcomes. Previous research also supports the idea that knowledge-sharing has a positive impact on job performance (Haider et al., 2022).

Based on existing literature on knowledge management which highlights the positive impact of knowledge sharing on employees' creative behaviors (Akturan & Çekmecelioglu, 2016; Ipe, 2003) as well as the case findings, we propose two hypotheses considering the impact of the two distinct knowledge sharing types:

- H1a:** Reactive sharing has a positive effect on employees' creative behaviors.  
**H1b:** Proactive sharing has a positive effect on employees' creative behaviors.

*Knowledge hiding*

The case findings indicate that knowledge hiding is not always detrimental. Interestingly, managers and employees in the banking industry accept a certain amount of hidden knowledge.

Each employee has his own way of expanding the business, gaining new customers, and maintaining loyal customers. During these processes, employees do not share core information and experiences with others, because this knowledge is key to

maintaining their competence in the organization. This confirms the rationalized knowledge-hiding notion (Connelly et al., 2012), which does not necessarily harm workplace relationships (Connelly & Zweig, 2015).

In addition, group members tend to focus on common knowledge rather than unique information known to individuals (Galinsky & Kray, 2004; Wittenbaum et al., 2004), leading to reduced levels of diversity and creativity, which are crucial for creativity (Yang & Konrad, 2011; Berry, 2014). In certain contexts, knowledge hiding can improve efficiency by increasing diversity and reducing redundant information. As previous studies suggest, withholding knowledge may also generate benefits, such as saving time and resources and avoiding unnecessary misunderstandings (Strick et al., 2021).

*The interplay of knowledge sharing and hiding on employees' creative behaviors*

According to the cognitive evaluation theory, creativity arises from the interaction between an individual's thoughts and their sociocultural environment, emphasizing the role of context (Whitelock et al., 2008). As our qualitative analysis suggests, knowledge sharing is contextual and can take different forms, namely reactive and proactive sharing. The two types of sharing differ in terms of employees' sharing intentions and behaviors. Having recognized the co-existence of knowledge-hiding behaviors and how sharing, particularly different types of sharing behaviors, interacts with knowledge hiding, is a key question to be answered in this study.

*Reactive sharing and knowledge hiding*

When it comes to the critical knowledge and information related to individual performance, promotion, or new career opportunities, the knowledge sharing atmosphere may be sensitive among employees, because knowledge is viewed as a central resource, a source of power, and an indispensable tool by the employees (Bilginoglu, 2019). Information or knowledge sharing based on social reciprocity is crucial for improving work performance as individuals accumulate

knowledge and skills exchanged and learned in the workplace, thereby harnessing their synergistic effects to enhance individual performance (Haider et al., 2022). Drawing on social exchange theory (Blau, 1986) and the norms of reciprocity (Gouldner, 1960), when reactive sharing occurs, even if the sharer hides knowledge, the questioner remains grateful and generate reciprocal willingness to the sharer.

The case findings show that sharing all information can make employees feel less competitive or creative than peer colleagues who withhold important knowledge or information. It echoes the idea that knowledge hiding increases in the presence of high distrust and competitiveness, as knowledge hiding is an approach through which individuals can preserve their competitive advantages and build their businesses based on this knowledge (Hadjielias et al., 2021; Luqman et al., 2023).

Individuals use knowledge for control or defense (Brown & Woodland, 1999). Particularly in a competitive environment, knowledge is treated as a valuable commodity and should not be casually shared (Andrews & Delahaye, 2000). As reflected by the interviewees, when employees strategically retain key information and appropriate external knowledge by communicating with others, they can not only form a positive relationship with other members but also have the advantage of combining heterogeneous knowledge for future innovation and creative activities. In other words, a higher degree of knowledge hiding from the person being asked questions is not only tolerated by colleagues but also enables the person to retain his/her core knowledge and competitiveness. Selective hiding can facilitate the acquisition of more knowledge during communication to promote creative behavior and improve core competitiveness. Here, we suggest that the lower the degree of knowledge hiding, the weaker the promoting effect of reactive knowledge sharing on employees' creative behavior, and the higher the degree of knowledge hiding, the stronger the promoting effect of reactive knowledge sharing on employees' creative behavior. In this context, we propose the following hypothesis:

**H2:** Knowledge hiding positively moderates the positive effect of reactive knowledge sharing on employees' creative behaviors.

#### *Proactive sharing and knowledge hiding*

Our findings reveal the nuanced role of intention and perception in proactive knowledge sharing. If colleagues sense that a sharer's attitude is changed or is not entirely altruistic, for example, giving vague answers or sharing more with a third person, particularly on important issues, the sharer may get a negative impression or even distrust. The sharer's hiding behaviors are viewed as a signal of competition and further harm colleagues' perceptions of the interpersonal relationships between the sharer and themselves. This echoes studies arguing that social exchange relationships are a major determinant of individuals' attitudes in the sharing activities (Bock et al., 2005). Reciprocity, or the mutual give-and-take of knowledge, can facilitate knowledge sharing. However, when interpersonal relationships are perceived as uncertain and insecure, employees are more reluctant to share knowledge (Ipe, 2003). In the case study, knowledge hiding behaviors are found to be more accepted when employees engage in reactive rather than proactive knowledge. Therefore, we propose that the moderation effect of knowledge hiding on the relationship between proactive knowledge sharing and employees' creative behavior depends on the degree of knowledge hiding and other colleagues' perceptions and expectations.

Once people obtain the required information from reactive sharers, they treat the sharer as friendly and grateful. However, for employees who often share knowledge proactively, it can produce a classic public good dilemma, which can be used by others regardless of whether they contribute in return (Bock et al., 2005). Others expect the proactive sharer to take the initiative in sharing information and become accustomed to easy access to information. Once the members

sense rejection or denial from the sharer, they may be non-cooperative or fight back in the "tit for tat" approach (Singh, 2019). As mentioned in previous studies, coopetition has two sides: Promoting innovation and performance on the one hand but may be detrimental owing to opportunism and misappropriation (Bouncken & Fredrich, 2012).

Under a low degree of knowledge hiding, if an individual employee's hiding behavior is not perceived by others, he/she can retain core knowledge/information while making a good impression on others. Retained knowledge can serve as a source of individual competitiveness and facilitate employees' creative behavior. However, as the degree of knowledge hiding rises, other colleagues may feel the "altruistic" individual—who usually proactively shares his/her knowledge—is not as trustworthy as they thought, and generates negative thoughts about the knowledge sharer.

Under conditions in which employees perceive resources as scarce or certain, they naturally believe that such resources are unavailable for equal distribution among colleagues. Knowledge serves as valuable capital to secure these limited resources, and withholding knowledge may be a rational strategy for individuals despite its potential negative impact on collaboration within an organization (Strik et al., 2021). Thus, even well-intended knowledge sharers may be perceived by their peer colleagues as potential opportunistic competitors. In other words, as knowledge can potentially leverage competitive advantages, it would be irrational for individuals to share valuable resources that potentially aid competitors in achieving their objectives (Poortvliet & Darnon, 2010). Knowledge hiding damages interpersonal relationships in organizations (Connelly et al., 2012; Connelly & Zweig, 2015). While distrust can lead to knowledge hiding, it can also be a consequence of hiding owing to reciprocal loops (Singh, 2019). These factors can easily cause a "distrust loop" among employees and harm their creative behaviors (Černe et al., 2014).

Hence, we assume that the lower the degree of knowledge hiding, the stronger the promoting effect of proactive knowledge sharing on employees' creative behaviors. As the degree of knowledge hiding increases, the effect of proactive knowledge sharing on employees' creative behaviors weakens. In other words, it had an inverted U-shaped moderation effect. In this context, we propose the following hypothesis:

**H3:** The moderation effect of knowledge hiding on the positive relationship between proactive knowledge sharing and employees' creative behavior exhibits an inverted U-shape. Medium and high levels of knowledge hiding foster the negative relationship between proactive knowledge sharing and creative behaviors, while a low level of knowledge hiding fosters a positive relationship between proactive knowledge sharing and creative behaviors.

The model and hypotheses are depicted in Fig. 2.

#### **Survey**

We conducted a quantitative survey analysis to test the hypotheses developed from the case findings and extant literature. We distributed questionnaires in proportion to the overall number of employees at the two investigated banks to test the hypotheses generated from the qualitative case analysis. With this mixed-method design, we aimed to propose a comprehensive understanding of the interaction effects of knowledge sharing and knowledge hiding on employees' creative behavior.

#### *Sample*

After interviews with executives and managers from the two case banks, we presented our initial findings, and they agreed to a follow-up survey to grasp employees' knowledge-sharing and hiding situations. The participants were informed that the questionnaires would be anonymous. They were instructed to recall their latest experiences

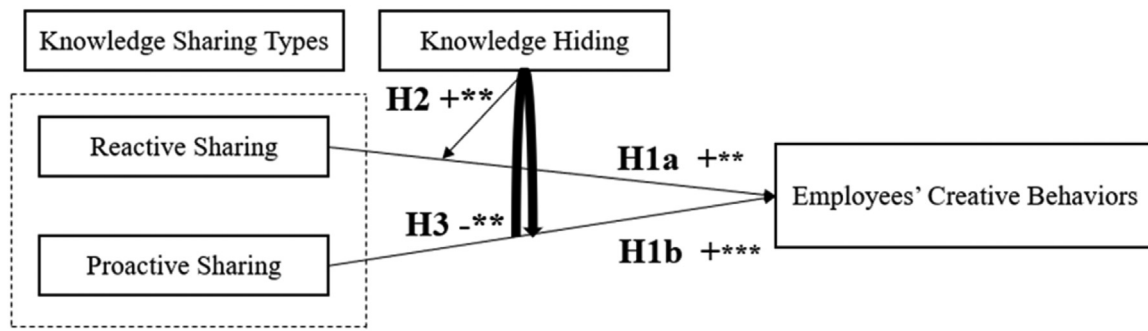


Fig. 2. Research Model.

when their colleagues asked for knowledge from them and the knowledge-sharing scenarios of their colleagues and themselves. Employees' creative behavior in this context is more likely to be a self-referential variable and individuals have a more intuitive evaluation of themselves. Hence, we allowed employees to self-evaluate. To alleviate the common method variance concern, we kept the questionnaire items simple, specific, and concise, including the reverse questions. We sent 300 questionnaires to the employees of the two banks with the help of top executives: 120 from one bank and 180 from the other. Finally, we received 240 questionnaires, one of which was 99 and the other was 141. Excluding those with missing answers, 203 questionnaires were valid: 89 from one bank and 141 from another, yielding effective response rates of 74 % and 63 %, respectively. Table 3 describes the demographic variables.

#### Descriptive statistics and measurement

Demographic attributes (gender, age, educational level, and working years) are used as control variables in the correlation test. The independent variables are reactive and proactive knowledge sharing and the moderator variable is knowledge hiding. The dependent variable is employees' creative behavior. We adopt two measurement scales to ensure robustness. In addition, we apply Harman's single-factor test, and the results indicate that the total variance extracted by the factor analysis was 23.9 %, which is less than the threshold of 50 % (Podsakoff et al., 2003). Table 4 presents the descriptive statistics, reliability, and correlations. Every variable has an acceptable internal consistency coefficient (above 0.70). The results of the measurements and validity assessments are presented in Table 5.

#### Results

The results are presented in Tables 6 and 7. Both reactive and proactive sharing are positively related to employees' creative behaviors ( $\beta = 0.213, p < 0.01$ ;  $\beta = 0.371, p < 0.001$ ), and the regression coefficient of the interaction item (reactive knowledge sharing \* knowledge hiding) is significantly positive ( $\beta = 0.243, p < 0.01$ ), which supports H1a, H1b, and H2. Meanwhile, the regression coefficient of the quadratic interaction item (proactive knowledge sharing \* knowledge hiding) is significantly negative ( $\beta = -0.345, p < 0.01$ ), supporting H3. All the hypotheses are supported.

Fig. 3 illustrates the moderation effects of reactive knowledge sharing and knowledge hiding on employees' creative behaviors. The graph depicts that knowledge hiding positively moderates the effects of reactive knowledge sharing on employees' creative behavior. While Fig. 4 illustrates the moderation effects of proactive knowledge sharing and knowledge hiding on employees' creative behavior, the graph indicates the quadratic moderation effect of knowledge hiding on the relationship between proactive knowledge sharing and

Table 3

The demographic variables description.

Variables	Attribute	Frequency	Percentage
Gender	Female	127	62.6
	Male	76	37.4
Age	21–30	105	51.7
	31–40	25	12.3
	41–50	56	27.6
	51–60	17	8.4
Educational Level	Junior college	82	40.4
	Undergraduate	116	57.1
Working Years	Postgraduate	5	2.5
	Less than 10 years	142	70
	10–15 years	6	2.9
	More than 15 years	55	27.1

Table 4

Descriptive statistics, reliabilities, and correlations.

	M	SD	1	2	3	4	5
1. Reactive Knowledge Sharing	5.44	0.98	(0.77)				
2. Proactive Knowledge Sharing	5.85	0.90	0.36**	(0.85)			
3. Knowledge Hiding Behaviors	2.80	1.16	-0.04	-0.44**	(0.91)		
4. Employees' Creative Behaviors (1)	3.86	0.56	0.18*	0.32**	0.05	(0.92)	
5. Employees' Creative Behaviors (2)	3.78	0.57	0.23*	0.27**	0.08	0.80**	(0.87)

Notes: N = 203, \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ , Two-tail test; Cronbach's alphas are shown on the diagonal in parentheses.

employees' creative behavior. Only when the degree of knowledge hiding is low, knowledge hiding positively moderate the positive effects of proactive knowledge sharing on employees' creative behaviors. When the degree of knowledge hiding intensifies, it negatively moderates the positive effects of proactive knowledge sharing on employees' creative behavior.

#### Robustness checks

To ensure robustness, we replaced the measurement of the dependent variable with another commonly adopted measurement scale, shown as employees' creative behavior (2) in Table 5 (Zhang et al., 2016). Robustness check results are presented in Tables 8 and 9, reactive and proactive knowledge sharing remain positively related to employees' creative behaviors ( $\beta = 0.261, p < 0.001$ ;  $\beta = 0.043, p < 0.001$ ), moreover, both the two interaction items: RSKHB (reactive knowledge sharing \* knowledge hiding) and Quadratic PSKHB (proactive knowledge sharing \* knowledge hiding) are significant ( $\beta = 0.166, p < 0.05$ ;  $\beta = -0.296, p < 0.05$ ).

**Table 5**  
Measurement and validity Assessment.

Variable	Measurement	Loading
<b>Reactive Knowledge Sharing</b> (Connelly et al., 2012)	Reactive Knowledge Sharing ( $\alpha = 0.77$ , CR = 0.85, AVE = 0.53)	1 Looked into the request to make sure my answers were accurate. 0.703
		2 Explained everything very thoroughly. 0.834
		3 Answered all his/her questions immediately. 0.759
		4 Told my coworkers exactly what she/he needed to know. 0.720
		5 Went out of my way to ensure that I understood the request before responding. 0.617
<b>Proactive Knowledge Sharing</b> (Lu et al., 2006)	Proactive Knowledge Sharing ( $\alpha = 0.85$ , CR = 0.94, AVE = 0.65)	1 In daily work, I take the initiative to share my work-related knowledge with my colleagues. 0.755
		2 I keep my work experience and never share it out with others easily. (R). 0.922
		3 I share with others useful work experience and know-how. 0.737
		4 After learning new knowledge useful to work, I promote it to let more people learn it. 0.758
		5 I never tell others my work expertise unless it is required in the company. (R). 0.927
		6 In the workplace, I take out my knowledge to share with more people. 0.793
		7 I actively use IT sources available in the company to share my knowledge. 0.794
		8 So long as the other colleagues need it, I always tell whatever I know without any hoarding. 0.719
<b>Knowledge Hiding</b> (Connelly et al., 2012)	Playing Dumb ( $\alpha = 0.88$ , CR = 0.93, AVE = 0.76)	1 Pretended that I did not know the information. 0.944
		2 Said that I did not know, even though I did. 0.919
		3 Pretended that I did not know what she/he was talking about. 0.931
		4 Said that I was not very knowledgeable about the topic. 0.660
	Evasive Hiding ( $\alpha = 0.91$ , CR = 0.84, AVE = 0.79)	5 Agreed to help him/her but never really intended to. 0.915
		6 Agreed to help him/her but instead gave him/her information different from what he/she wanted. 0.880
		7 Told him/her that I would help him/her out later but stalled as much as possible. 0.921
		8 Offered him or her some other information instead of what he or she really wanted 0.842
	Rationalized Hiding ( $\alpha = 0.77$ , CR = 0.86, AVE = 0.61)	9 Explained that I would like to tell him/her, but was not supposed to. 0.540
		10 Explained that the information is confidential and only available to people on a particular project. 0.811
		11 Told him/her that my boss would not let anyone share this knowledge. 0.875
		12 Said that I would not answer his/her questions. 0.840
<b>Employees' Creative Behaviors (1)</b> (George & Zhou, 2001)	Employee Creative Behaviors(1) ( $\alpha = 0.92$ , CR = 0.92, AVE = 0.50)	1 Suggests new ways to achieve goals or objectives. 0.784
		2 Comes up with new and practical ideas to improve performance. 0.846
		3 Searches out new technologies, processes, techniques, and/or product ideas. 0.747
		4 Suggests new ways to increase quality 0.765
		5 Is a good source of creative ideas 0.621
		6 Is not afraid to take risks 0.789
		7 Promotes and champions ideas to others 0.695
		8 Exhibits creativity on the job when given the opportunity to 0.659
		9 Develops adequate plans and schedules for the implementation of new ideas 0.712
		10 Often has new and innovative ideas 0.646
		11 Comes up with creative solutions to problems 0.632
		12 Often has a fresh approach to problems 0.593
		13 Suggests new ways of performing work tasks 0.561
<b>Employees' Creative Behaviors (2)</b> (Zhang et al., 2016)	Employee Creative Behaviors(2) ( $\alpha = 0.87$ , CR = 0.91, AVE = 0.58)	1 I always look for opportunities to improve work approaches and processes. 0.754
		2 I always try to find new ways to solve problems at work. 0.829
		3 I always think about things from different angles. 0.740
		4 I will not miss any opportunity to learn and discover problems. 0.878
		5 I often suggest promoting new working methods in the company 0.682
		6 I often take risks to support new ideas or ideas. 0.504
		7 I will often introduce some new working methods to my colleagues. 0.861
		8 I often test the effectiveness of new working methods. 0.753

## Discussion and conclusions

### Summary of findings and discussion

This study investigates knowledge sharing types, knowledge hiding, and their interplay on employees' creative behaviors through a case study of the banking industry with a mixed-method design. As service digitalization is promoted in the banking industry, employees are expected to achieve both organizational and individual business performance. Within an organization, individuals are required to cooperate and create outstanding common team performances through creative behaviors, as well as stand out in individual competition to ensure bonuses, promotions, and career development, which create tensions driven by the conflict between cooperation and competition.

Cooperative behavior is in line with common value creation and creates joint interests, whereas competitive behavior is connected to value appropriation, leading to private benefits (Arslan, 2018; Hoffmann et al., 2018). Knowledge exchange behaviors are a type of

individual strategy from this perspective; employees need to absorb new knowledge, experiences, and skills to enlarge their knowledge pool, and their divergent thinking may be activated and motivated through knowledge sharing. Sharing activities bring valuable, heterogeneous, and complementary information to members and provide them with the opportunity to build on others' contributions (Dong et al., 2017). However, individuals can strategically hide knowledge by seeking a competitive advantage over their peers (Cho et al., 2007; Ogunlela, 2018).

A highlight of this study is that coopetition—simultaneous knowledge sharing and knowledge hiding could be regarded as a ubiquitous and win-win strategy, but the underlying conflicts need to be carefully treated (Gnyawali & Park, 2011). We found that knowledge sharing can either be reactive or proactive. For reactive knowledge sharing, that is, the individual only shares knowledge and responds based on a request, the questioner appreciates the responder, regardless of whether the responder hides the knowledge or not. In this situation, the hider can retain important knowledge and information, and achieve a more creative performance. However, when it comes

**Table 6**

Moderation effect analysis of knowledge hiding on the relationship between reactive knowledge sharing and employees' creative behaviors (1).

Independent Variables	Employees' Creative behaviors (1)		
	Step 1	Step 2	Step 3
Gender	−0.106	−0.126	−0.142 *
Age	−0.004	0.006	0.010
Education Level	−0.04	−0.034	−0.054
Working Years	0.190	0.208	0.193
Reactive Knowledge Sharing		0.213 **	0.260 ***
Knowledge Hiding Behaviors RSKHB			−0.060 0.243 **
F	2.685 *	4.178 **	4.897 ***
Adjust R <sup>2</sup>	0.032	0.073	0.119
ΔR <sup>2</sup>	0.051	0.044	0.054

Note: \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ ;  $n = 203$ .

**Table 7**

Quadratic Moderation effect analysis of knowledge hiding on the relationship between proactive knowledge sharing and employees' creative behaviors (1).

Independent Variables	Employees' Creative behaviors (1)		
	Step 1	Step 2	Step 3
Gender	−0.106	−0.154 *	−0.112
Age	−0.004	0.028	0.009
Education Level	−0.04	−0.037	−0.035
Working Years	0.190	0.207	0.202
Proactive Knowledge Sharing		0.371 ***	0.538 ***
Knowledge Hiding Behaviors Quadratic Knowledge Hiding Behaviors PSKHB			−0.143 0.190 *
Quadratic PSKHB			0.006 −0.345 **
F	2.685 *	8.915 ***	9.009 ***
Adjust R <sup>2</sup>	0.032	0.164	0.263
ΔR <sup>2</sup>	0.051	0.133	0.111

Note: \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ ;  $n = 203$ .

to individuals that usually share knowledge proactively, their altruistic behaviors have set up a “reference point” for their colleagues: The fellows have high expectations toward the sharer based on past experiences, and they pay attention to sharer's attitudes or changes of behaviors carefully. If a sharer's behavior deviates from colleagues' expectations (e.g., demonstrating a certain degree of knowledge hiding), others capture the changes and generate negative feelings or thoughts toward the sharer. When a proactive sharer's hiding behavior is not sufficiently salient to be detected, his/her competencies are retained. However, increased knowledge-hiding behaviors may be perceived and bring about tension in relationships between colleagues. In such situations, employees may lose the balance of cooperation; that is, competition levels increase between employees and stimulate more knowledge-hiding behaviors. Hence, the sharers' creative behavior also suffers and declines. Therefore, under this condition, knowledge hiding exerts an inverted U-shaped effect on the relationship between proactive knowledge sharing and employees' creative behaviors.

These findings may be related to the emerging market context of China. The powerful growth momentum of digitalization and servitization has brought great changes to financial services in recent years and has greatly emphasized both cooperation and competition between individuals. Hence, the individuals' abilities to acquire and use knowledge are critical. Facing a rapidly changing environment, the competitive cooperative view describes a novel approach to gain

advantages, however, it requires enterprises/individuals to establish effective cooperative ways to reach a winning end.

### Theoretical contributions and managerial implications

This study contributes theoretically to the literature on knowledge management and cooperation in the following ways: First, it enriches the concept of knowledge sharing by distinguishing between proactive and reactive knowledge sharing. In contrast to a previous study (Teng & Song, 2010), for proactive sharing, we emphasize both voluntary and regulated aspects, as organizations in certain sectors may arrange seminars to urge employees to share their knowledge/skills/experiences without other employees' requests. Reactive sharing focuses on situations in which employees face knowledge requests. Different sharing patterns are associated with different peer expectations and perceptions, which in turn exhibit different impacts on sharers' creative behaviors. This distinction is helpful for better understanding knowledge-sharing concepts.

Second, most previous studies treat knowledge sharing and hiding as independent phenomena and often regard knowledge-hiding behaviors as entirely negative factors that deteriorate organizational performance. However, in our study, we found that knowledge sharing and knowledge hiding co-exist, while knowledge hiding has a positive side in some conditions. Cooperation is a dynamic multilevel phenomenon (Maria; Bengtsson & Raza-Ullah, 2016) and most research has focused on the inter-organizational level (Chiambaretto et al., 2018; Navio-Marco et al., 2021). This study focused on individual-level cooperation within an organization and enriches the existing literature on cooperation and knowledge-hiding.

Third, employees' creative behaviors are important for organizations, however, the literature on whether the interplay of knowledge sharing and hiding influences employees' creative behaviors is inadequate. Informed by the notion of cooperation, we made a pioneering attempt to explore diverse knowledge-sharing types, knowledge hiding, and their interplay with employees' creative behaviors to fill this gap.

This study also sheds light on managerial practices in terms of intraorganizational knowledge management. First, while promoting knowledge sharing among employees has become a common business practice, managers should be aware of different types of sharing to cultivate a sharing culture of fairness, openness, affiliation, and innovation. Furthermore, managers should encourage employees to proactively share their knowledge to let them know that their ideas are heard and respected, which helps employees increase their self-confidence and creativity (Wong & Pang, 2003). Similarly, establishing a “mutual learning” work atmosphere is pivotal for organizational knowledge management. Second, knowledge hiding is inevitable, and it is not necessary to treat it as an entirely negative phenomenon. Well-balanced sharing and hiding can promote employees' creative behavior. In the process of knowledge management, both managers and employees should have the mindset of cooperation in human resource design, such as providing the employees with a certain degree of freedom, independence, and discretion in carrying out the job tasks to increase their self-confidence, motivation to ultimately generate a higher level of creativity and performance (Çekmecelioğlu & Günsel, 2011). Correspondingly, reward and sanction rules, staff training, and performance appraisals must facilitate positive knowledge acquisition and utilization.

### Future research

This study investigated the interactive effects of knowledge sharing and hiding on employees' creative behaviors from a cooperation perspective. Nevertheless, this study has some limitations. First, the cases and samples adopted pertain solely to the digital transformation environment of China's banking industry. As knowledge

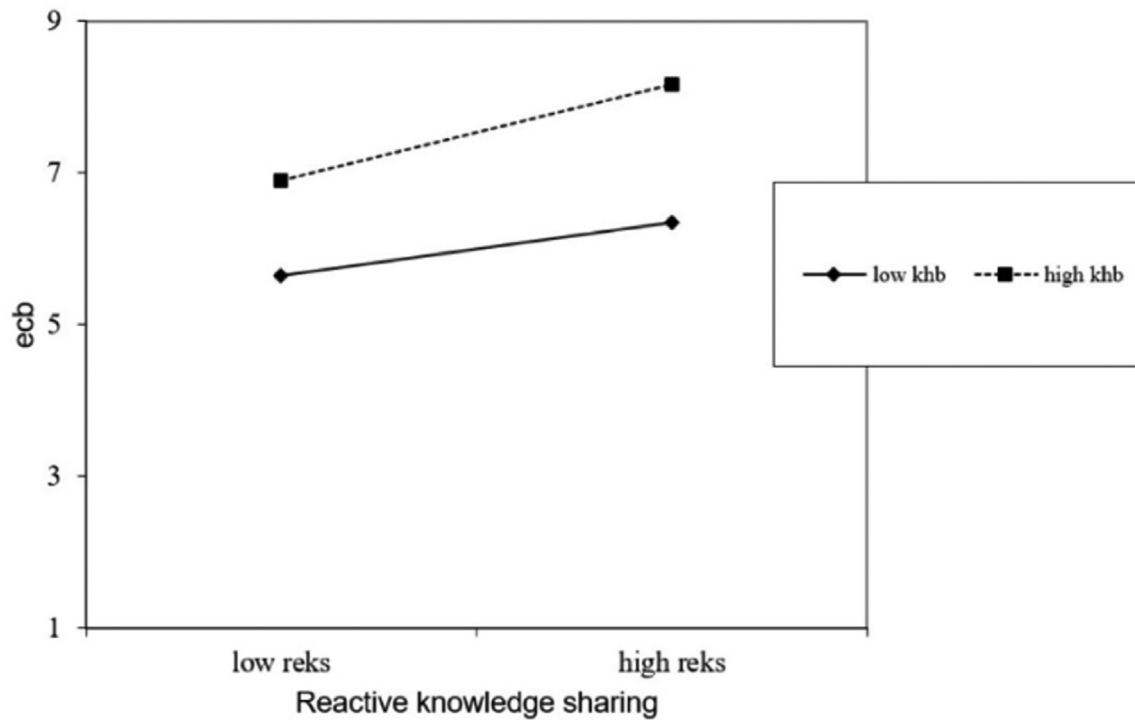


Fig. 3. Decomposing the interaction effects of reactive knowledge sharing and knowledge hiding on employees' creative behaviors.

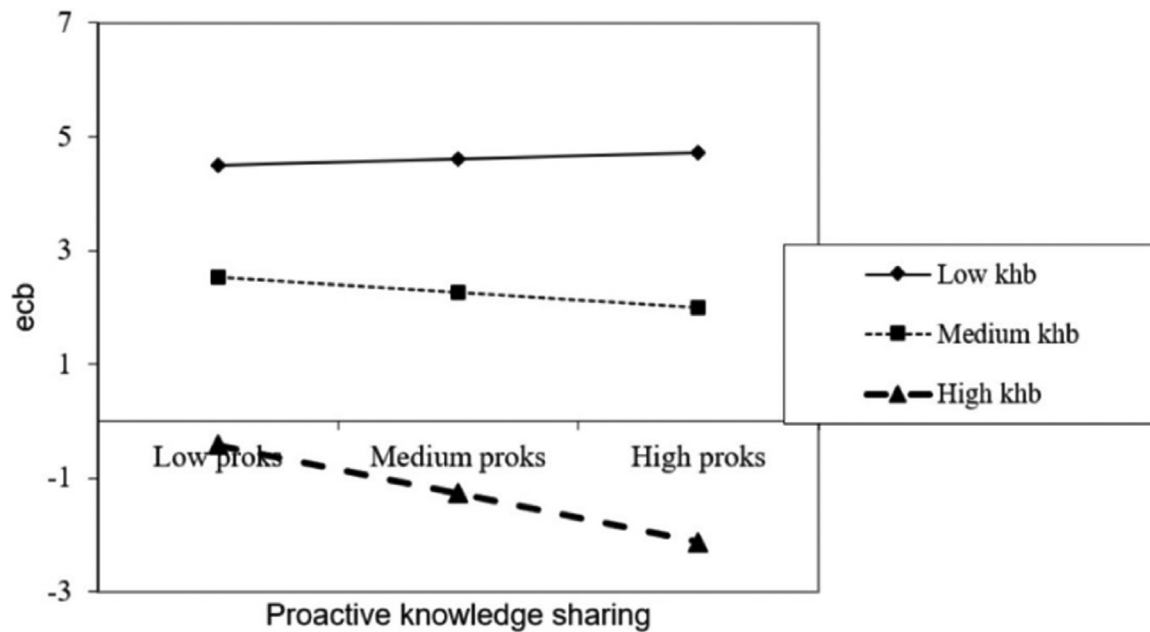


Fig. 4. Decomposing the interaction effects of proactive knowledge sharing and knowledge hiding on employees' creative behaviors.

management and cooperative relationships are strongly related to social scenarios and cultural factors, the generalizability of the findings may be limited. Second, the reliance on questionnaires as the main data source may be associated with biases, with employees potentially overestimating or underestimating creative performance. Third, because of bank regulations and confidentiality requirements, the sample size was restricted.

This case study paves the way for future research in this field. First, future studies can generalize these findings by examining other industries. Second, considering that individuals perceive cooperation and recognize the need to share resources in response to external

competition (Seran et al., 2016), it would be valuable to investigate the impact of knowledge-sharing and hiding interactions on team performance within organizations. Third, knowledge sharing and hiding are related to the characteristics of organizational and individual factors, such as personality factors, social interactions, and incentives (Anaza & Nowlin, 2017), future research can further investigate the impact of these factors. Finally, innovation activities are inseparable from knowledge creation; however, knowledge has uncertainties and risks (Rosaria et al., 2014). In the banking industry, when knowledge sharing and hiding co-exist, it is easy to generate information asymmetry between individuals or organizations. This makes it

**Table 8**  
Moderation effect analysis of knowledge hiding on the relationship between reactive knowledge sharing and employees' creative behaviors (2).

Independent Variable	Employees' Creative behaviors(2)			
	Step 1		Step 3	
Gender	-0.123	-0.148 *	-0.155 *	
Age	-0.018	-0.006	-0.008	
Education Level	-0.073	-0.065	-0.077	
Working Years	0.152	0.174	0.162	
Reactive Knowledge Sharing		0.261 ***	0.293 ***	
Knowledge Hiding Behaviors			-0.006	
RSKHB			0.166 *	
F	2.314	4.936 ***	4.426 ***	
Adjust R <sup>2</sup>	0.025	0.089	0.106	
ΔR <sup>2</sup>	0.045	0.067	0.026	

Note: \**p* < 0.05, \*\**p* < 0.01, \*\*\**p* < 0.001; *n* = 203.

**Table 9**  
Quadratic Moderation effect analysis of knowledge hiding on the relationship between proactive knowledge sharing and employees' creative behaviors (2).

Independent Variable	Employees' Creative behaviors(2)		
	Step 1	Step 2	Step 3
Gender	-0.123	-0.163 *	-0.121
Age	-0.018	0.009	-0.002
Education Level	-0.073	-0.070	-0.064
Working Years	0.152	0.166	0.156
Proactive Knowledge Sharing		0.043 ***	0.459 ***
Knowledge Hiding Behaviors			-0.142
Quadratic Knowledge Hiding Behaviors			0.237 **
PSKHB			-0.010
Quadratic PSKHB			-0.296 *
F	2.314	6.237 ***	7.450 ***
Adjust R <sup>2</sup>	0.025	0.115	0.223
ΔR <sup>2</sup>	0.045	0.092	0.121

Note: \**p* < 0.05, \*\**p* < 0.01, \*\*\**p* < 0.001; *n* = 203.

difficult for managers inside and outside a project to properly evaluate and monitor projects. Future research should explore and expand upon this concern.

**Author contributions**

The authors contributed in the following ways: conceptualization, G.Y. and H. Z. Y.H.; Data curation, G.Y. Y.H.; formal analysis, G.Y., X.J.; funding acquisition, H.Z.; methodology, G.Y. H.Z. Y.H. and X.J.; project administration, H.Z. and Y.H.; resources, H.Z.; Supervision, H.Z. and Y. H.; validation, Y.H.; writing—original draft, G.Y., H.Z. and Y.H.; writing—review and editing, G.Y. and Y.H.

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**Declaration of Competing Interest**

The authors declare no conflicts of interest.

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