Performance Gap and Innovation Ambidexterity: A Moderated Mediation Model

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Abstract: Innovation ambidexterity has become a crucial strategic action for creating sustainable competitive advantages. This research provides novel insights by establishing a connection between performance gaps and innovation ambidexterity. We employ the organization’s resource acquisition and management perspective to construct and empirically assess a moderated mediation model that sheds light on the underlying process—through the dual-mediating path of network broadening (NB) and network deepening (ND) and the moderating role of resource orchestration capabilities. Using subjective surveys and objective-matched data from 362 Chinese listed firms, we confirm the positive-performance-gap-combined innovation ambidexterity relationship, and we find that NB and ND play a parallel mediating role between performance gap and balanced and combined innovation ambidexterity, with ND playing a stronger mediating role than NB. Furthermore, resource orchestration capabilities play a moderating role between NB and balanced and combined innovation ambidexterity, as well as between ND and balanced and combined innovation ambidexterity. These results contribute to the research on social network and ambidexterity literature and provide guidance on how to overcome firms’ performance dilemmas. However, our study has certain methodological limitations that constrain the implications of our results, offering intriguing opportunities for future research.

Keywords: performance gap; network broadening; network deepening; resource orchestration capability; balanced innovation ambidexterity; combined innovation ambidexterity

1. Introduction

According to the behavioral theory of the firm, when an organization falls short of its predetermined performance goals, decision-makers are likely to take risky, problem-oriented actions in order to get back on track [1]. Innovation, in particular, is a crucial strategic action for firms, as it has a substantial impact on ensuring sustainable growth and facilitating above-industry-average performance [2–4]. However, the process of innovation requires a continuous investment of resources and can be difficult to yield returns in the short term. When performance exceeds expectations, a firm may have the competitive and ample resources necessary to invest in innovative projects. Conversely, when performance falls short of expectations, the firm may experience declining competitiveness in terms of resources. This raises the question of whether businesses will continue to invest in innovation-related activities in an effort to resolve the performance gap. Some scholars believe that firms will intensify their efforts in innovation to overcome their disadvantage [5–7], while others argue that performance gap leads to a state of loss, which ultimately results in a reduction in innovation activities in order to conserve resources [8]. Additionally, there is contention for an inverted U-shaped relationship between performance gap and future investment [9]. However, a consistent conclusion has yet to be reached in the existing literature.

The relationship between performance gap and innovation is subject of debate in academic literature, as pointed out in this paper. This is due to two main reasons: Firstly,
innovation is often treated as a holistic concept in existing research [7], however, it can manifest in multiple dimensions of organizational behavior. Xu et al. (2019) highlights that changes in the gap between performance and expectations can alter a firm’s strategic motivations and resource capabilities, which in turn prompts the firm to engage in various risky behaviors [10]. Therefore, viewing innovation as a one-dimensional, undifferentiated concept may lead to erroneous conclusions [11]. Secondly, current research on performance gaps tends to conflate historical expectations and industry expectations [12,13]. However, historical expectations models focus on the internal aspects of an organization, while industry expectations models focus on the external aspects. This results in different explanations for performance gaps based on these two types of expectations [6], and thus different mechanisms for guiding future strategic decisions and actions of firms. In some cases, the historical expectations gap and the industry expectations gap may even be in conflict, leading to confusion and misdirection in management decisions.

Based on the preceding analysis, we make two adjustments in order to clarify the relationship between performance gap and firm innovation. Firstly, innovation is classified. According to research on innovation ambidexterity, the success of a firm lies in the balance and combination of exploratory and exploitative innovation, as both play a joint role in creating sustainable competitive advantage [14,15]. As a result, we will examine both balanced and combined innovation ambidexterity. Secondly, we endeavor to differentiate between industry expectations and historical expectations. These two benchmarks are inherently different as they focus on different performance criteria [16]. In addition, historical expectations may become irrelevant if there is a significant deviation in firm performance, while industry expectations can accurately reflect the intangible pressure exerted by peer competitors. Thus, we separate industry expectations from historical expectations and focus on the former to analyze the impact of performance gaps on balanced innovation ambidexterity and combined innovation ambidexterity.

Performance gaps can disrupt an organization’s resource ecology [17]. However, balanced innovation ambidexterity emphasizes that exploration and exploitation often compete for organizational resources [18]. Combined innovation ambidexterity proposes that exploration and exploitation are interdependent activities [18]. Thus, we aim to advance our understanding of network strategy factors that can influence innovation performance, as the use of external sourcing of resources (i.e., open innovation platforms) is a fundamental aspect of innovation [19,20]. We present a theoretical model that establishes a connection between performance gaps and different dimensions of innovation ambidexterity—balanced and combined identifies two distinct mechanisms that explain this link. Specifically, based on the organization’s resource acquisition and management perspective, we argue that network broadening and network deepening play a dual mediating role in this relationship [21], while resource orchestration capabilities play a moderating role [22].

Through our study, we intend to make three key contributions: First, we examine whether performance gaps can be core antecedents of organizations’ innovation ambidexterity. Although innovation ambidexterity has been increasingly recognized as an instrumental factor in creating competition advantage [23], few prior works have empirically studied the value creation effect of innovation ambidexterity under performance gaps; Second, drawing on the organization’s resource acquisition perspective, we theoretically delineate and empirically validate the dual mediating evidence of network broadening and network deepening—through which performance gap influences both balanced and combined innovation ambidexterity. These findings add to the nascent academic literature by explaining the process through which firms can foster and manage their ambidexterity under the performance dilemma; Third, scholars have debated network resource orchestration for some time [22], and we extend the dialogue by exploring the moderating effect of resource orchestration capabilities on network strategies. By doing so, we provide a holistic perspective for resource management literature.

The research is organized as follows: Section 2 presents the literature review and hypothesis deduction. Sections 3 and 4 describe the methodology and key findings of the
research, respectively. A critical analysis of the findings is provided in Section 5. Section 6 discusses the study’s conclusion and limitations.

2. Literature Review and Hypothesis Deduction

2.1. Innovation Ambidexterity

Innovation ambidexterity can help businesses achieve long-term competitive advantages by balancing immediate gains with long-term development. As a result of its significance, scholars have paid increasing attention to this topic, leading to the emergence of three research perspectives. The first perspective is the balance perspective [23,24], which focuses on the competitive relationship between exploration and exploitation. This research examines the differences and contradictions between these two types of innovation and explains why they are balanced and separated at opposite ends of a continuum. The second perspective is the combination perspective [25,26], which explores the synergistic relationship between exploratory and exploitative innovation, explaining the path toward organic innovation ambidexterity. The third perspective, the balance-combination perspective [18,27,28], effectively integrates both balanced and combined perspectives. It views exploratory and exploitative innovation as competing but connected organizational activities. As an emerging study, the balance-combination perspective emphasizes dynamic management of the inherent tension between exploration and exploitation, enabling both balanced innovation ambidexterity through the balanced implementation of exploration and exploitation activities and combined innovation ambidexterity through the synergy between exploration and exploitation.

2.2. Performance Gap and Innovation Ambidexterity

Drawing from the behavioral theory of the firm, it is suggested that firms experience a sense of loss when faced with a performance gap, leading decision makers to take risky, problem-oriented search actions to restore satisfactory performance [1]. We argue that as a firm’s actual performance falls further below industry expectations, its product technology lags behind its competitors, making it increasingly difficult to compete. The corresponding organizational interest space is compressed continuously, and decision makers are more likely to disrupt existing product designs and adopt innovation ambidexterity strategies to improve performance and overcome competitive dilemmas.

Performance gaps and balanced innovation ambidexterity. A performance gap indicates that a firm’s current product technology is not meeting market demand [9], and sticking with the current product will not help the firm stand out in industrial competition [29]. Through exploratory innovation, firms can expand their knowledge search, incorporate unfamiliar knowledge into the organization [12], and apply that knowledge to innovative activities such as new products or processes, driving the leapfrogging in the development of the organization [26]. However, complete exploratory innovation may result in legitimacy and differentiation pressures outside the organization, as well as forced resource and performance pressures within the organization [30]. Exploitative innovation, on the other hand, with its focus on existing products or services, helps firms meet the demands of the existing market environment, which drives them to develop short-term competitive advantages [31]. However, complete exploitative innovation can make a firm vulnerable to environmental threats. Balancing the development of exploratory and exploitative innovation enables firms to control and reduce the performance threats arising from a single innovation, obtain long- and short-term gains, create sustainable competitive advantages, and ultimately reverse competitive distress. Thus, balanced innovation ambidexterity may be an appropriate choice for firms facing a performance gap.

Performance gaps and combined innovation ambidexterity. Problem-based searching is a firm’s primary approach to addressing performance gaps, motivated by the need to utilize resources effectively and take efficient strategic action in response to the organizational and industry pressures generated by performance gaps. Combined innovation ambidex-
terity helps firms transform the competitive tensions of exploration and exploitation into mutually supportive and reinforcing motivations that increase the effectiveness of resource use [32]. Additionally, combined innovation ambidexterity enables firms to gain additional competitive advantage and achieve high performance beyond the level of single innovation performance. Therefore, firms are more motivated to improve their performance through combined innovation ambidexterity during a performance gap.

The following hypotheses are proposed in this paper:

**H1a.** As the performance gap widens, firms will implement balanced innovation ambidexterity to a greater extent.  

**H1b.** As the performance gap widens, firms will implement combined innovation ambidexterity to a greater extent.

### 2.3. The Mediating Role of Network Strategies

The preceding analysis demonstrates that performance gaps can motivate firms to implement balanced and combined innovation ambidexterity. Nevertheless, the effective implementation of innovation ambidexterity in situations of performance gaps depends on the appropriate use and integration of resources by the organization [33]. Previous research has revealed that a performance gap, where actual performance falls below industry expectations, indicates that the firm’s existing resources are not competitive in the marketplace [17] or that the organization lacks the critical resources to mobilize and leverage. Social network theory suggests that firms can utilize social networks to address resource constraints. Consequently, to reinforce the role of existing resources and reverse performance dilemmas, firms must acquire external resources through network connections for two objectives: First, to establish a new resource base and apply novel resource orchestration to enhance innovation or reconfigure the innovation path; Second, to utilize external resources to achieve resource binding, bridging the current performance gap confronted by firms. Thus, network strategy becomes a vital path to reduce the performance gap and promote innovation.

Parker et al. (2016) argue that firms, when faced with negative feedback, should expand their networks to acquire new social capital while also strengthening existing networks to make better use of the existing social capital [34]. In other words, firms should adopt a proactive network strategy, through both network broadening to establish new connections and access heterogeneous resources on a broader scale and network deepening to increase the strength of relationships with existing network subjects and gain more in-depth knowledge and other resources from them [21,35]. These strategies enrich the organizational resource pool, enabling firms to better address performance gaps. Therefore, network broadening and network deepening may be two mechanisms through which the performance gap drives firms to implement innovation ambidexterity.

Recently, the popularization of the concept of open innovation (OI) platforms has influenced many studies. It also contributes to the development of network strategies, especially the network broadening in our context. Numerous studies show that OI platforms support knowledge co-creation, and companies use them to accelerate internal innovation processes and knowledge outflows to expand innovation networks. The idea of the co-creation of knowledge and sharing innovation resources on OI platforms offers a feasible network solution for firms in short of resources under performance gaps [19].

#### 2.3.1. The Mediating Role of Network Broadening

Network broadening involves the extent to which firms are committed to contacting and understanding new network subjects, and it helps them establish extensive new network connections from which they can draw non-redundant information and resources. Moreover, under the influence of extensive network connectivity, firms can occupy a network economic position [36] and thus enjoy a plethora of potential advantages, such as resource control, structural autonomy, and economic benefits [37,38]. Based on the utility of network
broadening, we argue that it is an important part of the innovation ambidexterity formation process, which can facilitate the implementation of balanced and combined innovation ambidexterity in firms facing a performance gap.

First, firms are more motivated to implement network broadening in the face of a performance gap. The behavioral theory of the firm suggests that the larger the performance gap, the more likely a firm is to take risky strategic actions. In this process, organizations facing resource constraints are more inclined to create extensive new network connections to access resources [39]. By broadening their networks, firms can gain access to a wide range of information and perspectives across multiple domains, which can stimulate decision-makers to reinterpret business problems from a new perspective and generate novel solutions. In addition, network broadening can help reduce operational costs by investing only a small amount of resources in maintaining network relationships [40]. Thus, the performance gap drives firms to actively adopt network broadening.

Second, network broadening can support firms in implementing both balanced innovation ambidexterity and combined innovation ambidexterity. Balanced innovation ambidexterity focuses on a balancing exploratory and exploitative innovation activities, as well as the interests of all parties. By building a wide range of network connections [41], firms can gradually establish a position in the network economy [36], which enables them to increase the size and diversity of their networks. Diverse network relationships can provide tangible and intangible resources to help firms grow [42,43], making network broadening a valuable resource platform to meet the conflicting needs of exploratory and exploitative innovation, and better coordinate the allocation of resources [44]. With network broadening, firms can access knowledge and information across organizational and even industrial boundaries, making it possible to make distributed decisions in different areas of innovation. This allows firms to build a platform for resource allocation and strategic decision-making that balances various vested functions and interests and achieve a balanced development of exploration and exploitation [44].

Combined innovation ambidexterity aims to achieve greater innovation scale and effectiveness by focusing on the complementary and synergistic effects of exploratory and exploitative innovation [44]. It emphasizes the effective use and sharing of resources across all types of innovation activities and the creation of complementary resource pools to overcome the limitation of resources. Network broadening provides a channel for obtaining a variety of abundant information resources, which can not only facilitate the mutual promotion of exploratory and exploitative innovation in firms but also enhance the level of both innovation activities in a two-way process. Traditionally, exploration and exploitation require different cultures, structures, capabilities, and resources [23], and are in competition. However, network broadening provides a heterogeneous vision and a way to solve problems, helping firms to move beyond the traditional dichotomy between exploration and exploitation and find new perspectives on their complementary relationship. This approach can lead to the formation of synergies between the two, enabling firms to balance the development of exploratory and exploitative innovation, while achieving complementarity and synergy between them.

Finally, the performance gap affects the implementation of balanced and combined innovation ambidexterity through network broadening. Firms facing a performance gap have more motivation to implement network broadening, as they are more likely to take risky strategic actions to access resources. Network broadening helps firms gain access to a wide range of information and perspectives, reducing operational costs and stimulating decision-makers to generate novel solutions. By broadening their networks, firms can leverage their resource and location advantages and access non-redundant resources to implement balanced and combined innovation ambidexterity. This allows firms to reverse their competitive disadvantages and improve their performance.

The following hypotheses are proposed in this paper:

H2a. Network broadening plays a mediating role in the relationship between performance gaps and balanced innovation ambidexterity.
H2b. Network broadening plays a mediating role in the relationship between performance gaps and combined innovation ambidexterity.

2.3.2. The Mediating Role of Network Deepening

Network deepening refers to the process of enhancing a firm’s relationships with its existing network partners. This involves active interaction and integration with the existing network, thereby increasing the level of network embeddedness [21,45]. Social network theory suggests that this increase in embeddedness enhances trust and reciprocity between network partners, resulting in the formation of high-quality relationships and facilitating the exchange of resources [46]. We posit that network deepening is a critical aspect of the formation of innovation ambidexterity, as it enables firms to address performance gaps by achieving a balanced and combined approach to innovation.

Firstly, when a firm experiences a significant performance gap, network deepening can serve as a strategy to reverse its competitive disadvantage. In such a scenario, the firm’s competitiveness and appeal in the market may be limited, and access to external resources may be hindered. In this context, decision-makers may choose to focus on existing networks and work to enhance the trust and reciprocity between network partners through increased interaction [47]. The close communication and mutual understanding facilitated by network deepening can increase partners’ willingness to share knowledge and resources, allowing the firm to access and utilize previously hidden resources. Additionally, it can foster collaboration on market opportunities and facilitate mutual growth. In conclusion, the magnitude of the performance gap can increase the motivation for firms to adopt network deepening as a strategy.

Secondly, network deepening can facilitate the attainment of both balanced and combined innovation ambidexterity within a firm. The evolution towards a balanced and synergistic approach to exploration and exploitation requires the support of deep network relationships. Network deepening provides a crucial means for firms to access market knowledge and technological resources [35], which forms the foundation for organizational innovation activities and helps to resolve the tension between exploration and exploitation. Moreover, network deepening provides opportunities for exchange and interaction between the firms and their network partners. Through these interactions, the firm’s decision-making team can gain insight into their partners’ innovation models, technological forms, and product trends, which can broaden the firm’s innovation horizons and promote conscious efforts to address any deficiencies in its own innovation practices. This can include the development of a supportive organizational culture and structure that promotes the coexistence of multiple innovation activities, leading to a balanced approach to exploratory and exploitative innovation efforts.

Through interaction and communication with existing network partners, firms can improve the quality and effectiveness of resource transferring by better understanding, assimilating, and utilizing knowledge, technology, and other network resources [40,48,49]. The process of resource absorption and assimilation enables firms to gain a deeper understanding of these resources and create an interface for the integration and synergy of exploratory and exploitative innovation activities. As a result, exploratory and exploitative innovation can complement each other, leading the firm to participate in combined innovation ambidexterity. In conclusion, network deepening has a positive correlation with both balanced and combined innovation ambidexterity.

Finally, the performance gap influences balanced and combined innovation ambidexterity through network deepening. Social network theory posits that high-trust, high-frequency network relationships are more valuable and effective. However, when a performance gap deteriorates a firm’s resource ecosystem [9,50], network deepening not only provides access to quality resources but also helps the firms better absorb and utilize them. This helps the firm overcome resource competitiveness challenges, facilitating the implementation of balanced and combined innovation ambidexterity, and, ultimately, transforms the industry’s competitive landscape.
The following hypotheses are proposed in this paper:

**H3a.** Network deepening plays a mediating role in the relationship between performance gaps and balanced innovation ambidexterity.

**H3b.** Network deepening plays a mediating role in the relationship between performance gaps and combined innovation ambidexterity.

2.4. The Moderating Role of Resource Orchestration Capabilities

According to resource orchestration theory, efficient integration of resources plays a critical role in enhancing an organization’s resource endowment and capabilities, thereby enabling the successful creation of resource value [22]. Furthermore, numerous studies have demonstrated that effective integration of resources can reinforce an organization’s resource and capability base, facilitating the implementation of strategic actions. As such, this study seeks to investigate the moderating impact of resource orchestration capabilities on the relationship between network strategy and innovation ambidexterity. Resource orchestration capabilities are an organizational competence that reflects the ability to identify and allocate resources, facilitating the selection and utilization of external networks, and the integration of these resources with internal resources to reconfigure the organization’s resource system.

2.4.1. The Moderating Role of Resource Orchestration Capabilities on the Relationship between Network Broadening and Innovation Ambidexterity

The impact of resource orchestration capabilities on the relationship between network broadening and balanced innovation ambidexterity is reflected in the following ways: Firstly, with strong resource orchestration capabilities, firms are able to proactively identify and acquire valuable heterogeneous resources from a diverse range of network relationships, aligned with the specific resource needs of their innovation ambidexterity [51], thereby reducing the conflicts between exploratory and exploitative innovation and promoting a dynamic balance between them. Secondly, strong resource orchestration capabilities enable firms to efficiently organize, allocate, and utilize internal and external resources [52], thereby enhancing the value of resources obtained from network expansion and improving the quality of resource portfolio construction. In other words, through the influence of resource orchestration capabilities, firms can upgrade their existing resource system, creatively combining newly acquired resources with their internal resources and balancing the resource allocation needs for exploratory and exploitative innovation [53,54]. This leads to enhanced efficiency in the allocation and exploitation of resources between these types of innovation and resolves the conflicts and contradictions between them.

The influence of resource orchestration capabilities on the relationship between network broadening and combined innovation ambidexterity is demonstrated in the following ways: Firstly, firms with strong resource orchestration capabilities are able to leverage network broadening more efficiently to identify and bundle available resources. This enables them to better acquire resources from external exchange relationships that align with the actual needs of the firm and enhance the efficiency of the internal resource structure for innovation. As a result, the firm’s internal resource structure is improved, allowing it to explore and draw on complementary resources, improve the flexibility of its resource and organizational structure, and facilitate the implementation of combined innovation ambidexterity. Secondly, under the influence of network broadening, extensive network connections and superior network locations create conditions for firms to access resources. If firms possess strong resource orchestration capabilities, they can efficiently allocate and integrate resources from different sources and structures and reconfigure them to form a new resource system that is suitable for strategic development. The process of flowing, matching, and fixing external resources within the firm facilitates the permeability between exploratory and exploitative innovation activities across boundaries [55]. This expansion of the cognitive schema of internal subjects enhances the complementarity and relevance of innovation ambidexterity and facilitates collaboration and dialogue between exploratory
and exploitative innovation-related resources. Ultimately, firms can discover the connection between exploratory innovation and exploitative innovation and enable synergy and interaction between the two.

The following hypotheses are proposed in this paper:

**H4a.** Resource orchestration capabilities positively moderate the relationship between network broadening and balanced innovation ambidexterity.

**H4b.** Resource orchestration capabilities positively moderate the relationship between network broadening and combined innovation ambidexterity.

### 2.4.2. The Moderating Role of Resource Orchestration Capabilities on the Relationship between Network Deepening and Innovation Ambidexterity

The impact of resource orchestration capabilities on the relationship between network deepening and balanced innovation ambidexterity is significant. While network deepening facilitates the establishment of a trust-based and reciprocal network relationship [35], it simultaneously places greater demands on the firm’s ability to screen, transfer, and absorb external hidden resources [42]. Firms equipped with strong resource orchestration capabilities can divest themselves of less valuable or useless resources to increase their organizational applicability [22] and allocate resources effectively to enhance coherence with organizational processes. Such capabilities enable firms to explore optimal allocation of resources during continuous interaction with external subjects, reconciling the contradictions between exploratory and exploitative innovation. Thus, in turn, minimizing competition and conflict between the two types of innovation and avoiding polarization between exploratory and exploitative development, promoting balanced development.

The impact of resource orchestration capabilities on the relationship between network deepening and combined innovation ambidexterity is significant. Firms with better resource orchestration capabilities can mobilize internal resources and capabilities flexibly, leverage external resources, and integrate both internal and external resources to promote corporate innovation. This fosters an atmosphere of cross-departmental or cross-unit cooperation and collaboration, driving joint efforts toward the overall goals of the firm [18]. A high level of resource orchestration not only facilitates the efficient exploitation of external network resources, but also strengthens the foundation of internal cooperation. Thus, in turn, stimulating synergies between exploratory and exploitative innovation, maximizing the efficiency of resource exploitation, and enhancing the combined innovation ambidexterity of the firm.

The following hypotheses are proposed in this paper:

**H5a.** Resource orchestration capabilities positively moderate the relationship between network deepening and balanced innovation ambidexterity.

**H5b.** Resource orchestration capabilities positively moderate the relationship between network deepening and combined innovation ambidexterity.

The research model is shown in Figure 1.
Figure 1. Research Model.

3. Research Design
3.1. Data and Sample

The research design of this paper employs a mixed-methods approach, combining secondary data and a questionnaire survey. The study focuses on financial indicators related to performance, which were gathered from the financial statements of listed firms on the main board of China’s Shanghai and Shenzhen stock exchanges in 2018. In addition to analyzing financial data, a questionnaire survey was conducted in the field to collect data on network strategies, resource orchestration capabilities, and innovation ambidexterity.

The objective data for this research was obtained from China Stock Market & Accounting Research Database (CSMAR) and Wind database. The initial sample was screened according to the following steps: Firstly, financial firms such as China Merchants Bank were excluded, as their characteristics such as monopoly and partial restrictions on product innovation were significantly different from conventional industries such as manufacturing; Secondly, ST and ST* firms, which have experienced financial problems and have been specially dealt with, were excluded to reduce noise and disturbance; Thirdly, firms with serious deficiencies in key indicator data were also excluded. In addition, we aimed to examine the performance gap from the perspective of industry expectations, which required clarification of industry standards. The existing industry classification standards include the China Securities Regulatory Commission (CSRC) (2012) Industry Classification and the Shenwan Hongyuan Group (SWS) Industry Classification, which are similar. However, as the CSRC plays a crucial role in the financial regulatory system, this study is based on the CSRC industry classification standards. Using the performance gap calculation method, the author obtained data from 801 listed firms that were facing a performance gap. These firms were carefully selected from the initial sample, which ensured the reliability and validity of the research findings.

The research process for this study was initiated in June 2019, targeting three types of senior executives: the chairmen, general managers, and deputy general managers of firms. These executives were selected because of their ability to understand the performances of the firms’ network strategies, resource orchestration capabilities, and innovation ambidexterity in day-to-day operations, and thus provides accurate evaluations through the questionnaire to ensure data quality. Since the research objects were located in central China, South China, North China, Northeast China, and other places, it was challenging to conduct the research independently. To ensure the questionnaires were distributed and collected centrally, we worked with the management consulting firm TZ, which was responsible for distributing and collecting the questionnaires. A PhD student from the author’s research team supervised the entire process. TZ, based in Shanghai, China, had previous dealings with some of the sample firms and could directly contact their executives to obtain their cooperation. For non-client sample firms, TZ actively communicated with them about
the research and implemented the questionnaire after gaining their consent. Finally, 81 firms did not respond or were unwilling to cooperate. To distribute questionnaires to the target firms, TZ employed three methods: field research, WeChat, and email. For firms that accepted institutional research, TZ arranged meetings in advance, arrived on-site as scheduled, and conducted face-to-face interviews to obtain data for the questionnaire. For firms that were not convenient to accept research at the time, TZ distributed questionnaires via email or WeChat. The research was finally conducted in September 2019. In four months, TZ distributed questionnaires to 720 firms and collected 395 questionnaires based on simple random sampling [56]. After eliminating invalid questionnaires missing key data or with the same rating for all questions, we obtained 362 valid questionnaires, resulting in a valid questionnaire rate of 50.28%.

The steps taken to match the subjective and objective data are as follows: the objective database is used for the main table, and the subjective database is used for the annexed table. A 1:1 match is made using the merge command with two criteria, namely stkcd and year. The resulting data with _merge = 3 are retained, indicating successful matches between the main table and the annexed table, while data with unsuccessful matches are deleted to form a new database that met the requirements of this study. Ultimately, 362 matches between subjective and objective data are formed. The sample characteristics are presented in Table 1.

### Table 1. Sample characteristics.

<table>
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<th>Category</th>
<th>Numbers</th>
<th>%</th>
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<td>Region</td>
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### 3.2. Measurement

Performance Gap (PG). Performance gap is a term used to describe the difference between a firm’s performance and the expected level within their respective industry. To calculate the performance gap, we drew upon Chen’s (2008) study [57] and employed a two-step process. The first step involved determining the expected level within the industry (IA). To do this, firms are categorized by industry, based on the two-digit industry code specified by the CSRC (2012) (2 digits). Next, the return on assets (ROA) of all firms within the same industry was calculated to characterize their performance. Then, the expected level was measured within the industry by taking the weighted average of the median industry level during two specific periods. Specifically, the median industry level during the period \((t - 2)\) was weighted by \(\beta\), and the median industry level during the period \((t - 1)\) was weighted by \(1 - \beta\). This is expressed mathematically in Equation (1):

\[
IAt = 0.6IPer_{t-1} + 0.4IPer_{t-2}
\] (1)

The expected level in the industry during period \(t\) can be represented by \(IAt\). Meanwhile, the median performance of the industry in which the firm was situated during period \((t - 1)\) is denoted by \(IPer_{t-1}\), while \(IPer_{t-2}\) represents the median performance of the industry in which the firm was situated during period \((t - 2)\).

The second step involved measuring the degree of the performance gap. In line with the definition of performance gaps, the actual performance of the firm was subtracted from the expected level in the industry. If the result was less than 0, it indicated that the firm was facing a performance gap. On the other hand, if the result was greater than or equal to 0,
it suggests that the firm was experiencing a performance surplus. Furthermore, in accordance with Ref & Shapira (2017) [9] and Tarakci et al. (2018) [6], we utilized a truncated dummy variable approach to deal with the data, represented by Equation (2), where Per denotes the actual performance of the firm during period t, and I is the dummy variable constructed in this study. If the result of subtracting the actual performance from the expected level in the industry was less than 0, I was assigned a value of 1 and retained the original value. Conversely, if the result is greater than or equal to 0, I was assigned a value of 0. Finally, given that PGt was a negative value less than zero, we adopted a reverse approach in the treatment of PGt to conform to positive thinking and intuitively explain the subsequent empirical results. The larger the absolute value, the greater the negative gap between the firm’s performance and the expected level in the industry.

\[ PG_t = I(Per_t - IA_t) \] (2)

Network broadening (NB). We adapted a six-item symbolization scale from Vissa (2012) [42] to measure network broadening.

Network deepening (ND). Eight items were adapted from Vissa (2012) [41] to measure network deepening.

Resource orchestration capabilities (RO). Drawing on the study by Dong et al. (2011), we used 13 questions to measure resource orchestration capabilities.

Innovation ambidexterity. We measured innovation ambidexterity with the scale developed by Jansen et al. (2006) [23]. Exploratory innovation and exploitative innovation were rated with seven items and six items, respectively. Further, drawing on Cao et al. (2009) [18], we adopted the formula \((5 - |\text{exploration} - \text{exploitation}|)\) to measure balanced innovation ambidexterity, and used the product of exploration and exploitation to characterize combined innovation ambidexterity.

Control variables. In this study, the following control variables were selected based on research related to performance gaps and innovation: (1) Firm size and age may influence managers’ responses to performance gaps [58]. Thus, firm size and age were controlled. The size was measured by the natural logarithm of the firm’s total assets, and the age was measured based on the firm’s IPO time; (2) Board members play an important role in organizational decision making as they play the supervision, resource provision, and advice-offering role [59]. Thus, it was necessary to control the board structure. The proportion of independent directors was selected to characterize the structure of the board of directors. The proportion of independent directors was measured by the number of independent directors divided by the total number of directors on the board of directors; (3) Remnant inventory plays an important role in the implementation of organizational changes [60]. Thus, the remnant inventory was controlled, and the current asset ratio was used to measure it; (4) Given the importance of the executive team, this paper controls for the two variables of the two-in-one role and the shareholding ratio of the executive team. The shareholding ratio of the chairperson concurrently serving as the general manager and the executive team was used to measure these variables, respectively; (5) Equity directly reflects the degree of convergence of the interests of the board of directors and shareholders and affects the strategic decisions of managers in the face of the performance gap. Thus, equity concentration was controlled, and the top ten shareholders’ shareholding ratio was used to measure it; (6) China is still a transitional economy, and the coexistence of the government and the market leads to a state-owned firm and a non-state-owned firm. Thus, the nature of property rights was controlled. If the firm was a state-owned firm, the value was assigned of 1, otherwise, it was assigned of 0; (7) The threat of bankruptcy can lead to many organizational problems in the firm, which seriously affect decision-making. Therefore, we controlled the threat of bankruptcy, and Altman’s Z-score measurement is used.

3.3. Reliability and Validity Tests

Table 2 presents the reliability and validity test results of the variables. In terms of reliability, the Cronbach’s \(\alpha\) coefficient and CR values of all variables are greater than 0.7,
satisfying statistical requirements and indicating good reliability of the scales. In terms of validity, the factor loading values of all five variables exceed 0.5 and the AVE is greater than 0.5, indicating strong convergent validity of the scales. The goodness-of-fit indicators of all variables meet the statistical requirements in the validation factor analysis results shown in Table 3, indicating that the scale of each variable has good discriminant validity.

Table 2. Reliability and Validity Tests.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Cronbach’s α</th>
<th>CR</th>
<th>Factor Loading Values</th>
<th>AVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>NB</td>
<td>0.932</td>
<td>0.946</td>
<td>0.830–0.915</td>
<td>0.747</td>
</tr>
<tr>
<td>ND</td>
<td>0.827</td>
<td>0.894</td>
<td>0.629–0.795</td>
<td>0.516</td>
</tr>
<tr>
<td>RO</td>
<td>0.948</td>
<td>0.957</td>
<td>0.738–0.822</td>
<td>0.629</td>
</tr>
<tr>
<td>ELI</td>
<td>0.928</td>
<td>0.942</td>
<td>0.833–0.865</td>
<td>0.710</td>
</tr>
<tr>
<td>ERI</td>
<td>0.919</td>
<td>0.936</td>
<td>0.818–0.867</td>
<td>0.698</td>
</tr>
</tbody>
</table>

Table 3. Validation Factor Analysis.

<table>
<thead>
<tr>
<th>Variables</th>
<th>$\chi^2$/df</th>
<th>GFI</th>
<th>NFI</th>
<th>CFI</th>
<th>RMSEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>NB</td>
<td>1.617</td>
<td>0.986</td>
<td>0.990</td>
<td>0.996</td>
<td>0.041</td>
</tr>
<tr>
<td>ND</td>
<td>0.934</td>
<td>0.990</td>
<td>0.935</td>
<td>0.966</td>
<td>0.051</td>
</tr>
<tr>
<td>RO</td>
<td>2.095</td>
<td>0.945</td>
<td>0.958</td>
<td>0.977</td>
<td>0.055</td>
</tr>
<tr>
<td>ELI</td>
<td>2.113</td>
<td>0.983</td>
<td>0.987</td>
<td>0.993</td>
<td>0.056</td>
</tr>
<tr>
<td>ERI</td>
<td>2.108</td>
<td>0.977</td>
<td>0.983</td>
<td>0.991</td>
<td>0.055</td>
</tr>
</tbody>
</table>

3.4. Common Method Variance

To minimize potential common method variance in the research data, we take the following measures in this study: First, ex ante control. During the questionnaire design stage, we conducted interviews to ensure that the research questions were clear and concise. We collected data in two stages. Second, an ex-post test—Harman’s single-factor test. An exploratory factor analysis was performed on all questionnaire items, and the unrotated factor analysis showed that the first factor accounted for 34.33% of the variance, which was below the 40% research threshold. Third, an ex-post test—a single-method latent factor test. A common method variance effect was included in the structural equation and treated as a latent variable. The results indicated that the model including the common method variance latent variable had a lower goodness-of-fit index ($\chi^2$/df = 2.698, GFI = 0.830, NFI = 0.848, CFI = 0.898, RMSEA = 0.069) than the theoretical model of this study ($\chi^2$/df = 2.028, GFI = 0.853, NFI = 0.885, CFI = 0.938, RMSEA = 0.053). In other words, the overall model fit does not improve with the inclusion of the latent variable. In summary, common method variance does not pose a serious threat to the results of this study.

4. Empirical Analysis

4.1. Descriptive Statistics and Correlation Analysis

Table 4 presents the correlation coefficient matrix, which reports the descriptive statistics and correlation coefficients of the variables. The data show that performance gap is positively correlated with balanced innovation ambidexterity and combined innovation ambidexterity, respectively, while network broadening and network deepening are significantly and positively correlated with balanced innovation ambidexterity and combined innovation ambidexterity, respectively. These results are consistent with the expected hypotheses. It is important to note that the correlation coefficients of balanced innovation ambidexterity and combined innovation ambidexterity exceed 0.7 due to the calculation method. Nevertheless, as they do not appear in the same model, this discrepancy does not affect the reliability of the findings. Moreover, all other correlation coefficients are considerably smaller than the critical value of 0.7, indicating that multicollinearity is not a severe issue in this study.
Table 4. Correlation Coefficient Matrix.

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIA</td>
<td>0.981 **</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIA</td>
<td>0.112 *</td>
<td>0.363 **</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PG</td>
<td>0.150 **</td>
<td>0.154 **</td>
<td>0.255 **</td>
<td>0.864</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NB</td>
<td>0.343 **</td>
<td>0.336 **</td>
<td>0.452 **</td>
<td>-0.004</td>
<td>0.718</td>
<td></td>
</tr>
<tr>
<td>ND</td>
<td>-0.477 **</td>
<td>-0.432 **</td>
<td>-0.322 **</td>
<td>-0.198 **</td>
<td>-0.396 **</td>
<td>0.793</td>
</tr>
<tr>
<td>RO</td>
<td>3.903</td>
<td>16.23</td>
<td>0.131</td>
<td>3.095</td>
<td>3.433</td>
<td>3.907</td>
</tr>
<tr>
<td>AVE</td>
<td>3.903</td>
<td>16.23</td>
<td>0.131</td>
<td>3.095</td>
<td>3.433</td>
<td>3.907</td>
</tr>
</tbody>
</table>

Std Error 0.975 6.01 0.132 0.747 0.639 0.974

Note: N = 362, * indicates p < 0.05, ** indicates p < 0.01, double tailed, diagonal value is the square root of AVE.

4.2. Main and Mediation Testing

We employ the Hayes’ PROCESS Model 4 (dual mediation) to estimate regression coefficients and use 5000 bootstrapped samples to estimate 95% bias-corrected confidence intervals for specific and total indirect effects.

Table 5 displays the results of the mediation testing. The findings indicate that the indirect effects of the performance gap on BIA via network broadening are significant (M1 = 0.034, 95% CI = [0.008, 0.075]), as are the indirect effects of performance gap on BIA via network deepening (M2 = 0.091, 95% CI = [0.049, 0.154]). These results confirm the dual mediation process and support H2a and H3a. Using the same approach, the analysis also shows a positive indirect relationship between performance gap and CIA via network broadening (M3 = 0.028, 95% CI = [0.002, 0.067]) and network deepening (M4 = 0.070, 95% CI = [0.031, 0.125]). These findings confirm the hypothesized dual mediation and support H2b and H3b.

Table 5. Path analysis and mediation results.

<table>
<thead>
<tr>
<th>Variables</th>
<th>NB</th>
<th>Control</th>
<th>95%CI</th>
<th>ND</th>
<th>Control</th>
<th>95%CI</th>
<th>BIA</th>
<th>Control</th>
<th>95%CI</th>
<th>CIA</th>
<th>Control</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PG</td>
<td>0.253 ***</td>
<td>[0.143, 0.363]</td>
<td>0.389 ***</td>
<td>[0.289, 0.490]</td>
<td>0.060</td>
<td>[−0.066, 0.228]</td>
<td>0.203 ***</td>
<td>[0.092, 0.314]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NB</td>
<td>0.133 **</td>
<td>[0.029, 0.236]</td>
<td>0.110 **</td>
<td>[0.009, 0.211]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ND</td>
<td>0.233 ***</td>
<td>[0.120, 0.347]</td>
<td>0.180 ***</td>
<td>[0.069, 0.291]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Indicator R² = 0.129, F = 3.227 R² = 0.247, F = 7.116 R² = 0.290, F = 7.724 R² = 0.327, F = 9.181

Effect BootSE LLCI ULCI
M1: PG—NB—BIA 0.034 0.017 0.008 0.075
M2: PG—ND—BIA 0.091 0.027 0.049 0.154
(C1) NB minus ND −0.057 0.031 −0.121 −0.002
Indirect effect of PG on BIA Effect BootSE LLCI ULCI
M3: PG—NB—CIA 0.028 0.016 0.002 0.067
M4: PG—ND—CIA 0.070 0.024 0.031 0.125
(C1) NB minus ND −0.042 0.027 −0.099 0.008

Note: ** indicates p < 0.05, *** indicates p < 0.01.

To obtain further insights, we conducted a comparison of the two indirect effects and revealed that network deepening played a more important role than network broadening in mediating the relationship between performance gap and BIA (NB minus ND = −0.077, 95% CI = [−0.121, −0.002]). However, there was no significant difference between network deepening and network broadening in mediating the relationship between performance gap and CIA (NB minus ND = −0.042, 95% CI = [−0.099, 0.008]).

Following our research approach, we checked the direct effect to gain a better understanding of the types of mediation involved in this research. Regarding BIA, although the dual mediated effect exists, there is no significant direct effect of performance gap on BIA (coef. = 0.060, p > 0.1, 95% CI ∈ [−0.068, 0.228]), signaling the full mediation effect. As for CIA, the direct effect of performance gap on CIA is significant (coef. = 0.203, p < 0.01, 95% CI ∈ [0.092, 0.314]), signaling the partial mediation effect. These results indicate that H1b is supported, but H1a is not.
4.3. Moderating Effects Test

In testing the moderating effect of resource orchestration capabilities, we adopt the Bootstrap method using the templates model with a sample size of 5000 and a 95% confidence interval. Tables 6 and 7 illustrate the results of the moderating analysis with balanced and combined innovation ambidexterity as the dependent variable, respectively.

Table 6. Moderation Test of RO, BIA as the Dependent Variable.

<table>
<thead>
<tr>
<th>Variables</th>
<th>NB Coefficient</th>
<th>95%CI</th>
<th>ND Coefficient</th>
<th>95%CI</th>
<th>BIA Coefficient</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control variables</td>
<td>Control</td>
<td></td>
<td>Control</td>
<td></td>
<td>Control</td>
<td></td>
</tr>
<tr>
<td>PG</td>
<td>0.253 ***</td>
<td>[0.143, 0.363]</td>
<td>0.389 ***</td>
<td>[0.289, 0.490]</td>
<td>0.092 *</td>
<td>[−0.005, 0.188]</td>
</tr>
<tr>
<td>NB</td>
<td>0.165 ***</td>
<td>[0.057, 0.273]</td>
<td>−0.474 ***</td>
<td>[−0.592, −0.357]</td>
<td>0.021 **</td>
<td>[0.011, 0.032]</td>
</tr>
<tr>
<td>RO</td>
<td>−0.140 **</td>
<td>[0.032, 0.249]</td>
<td>0.119 **</td>
<td>[0.024, 0.215]</td>
<td>0.065 ***</td>
<td>[0.039, 0.096]</td>
</tr>
<tr>
<td>NB × RO</td>
<td>0.037 *</td>
<td>[−0.005, 0.109]</td>
<td>0.070</td>
<td>[0.037, 0.103]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Indicator

<table>
<thead>
<tr>
<th>Moderator</th>
<th>RO Effect</th>
<th>BootSE</th>
<th>LLCI</th>
<th>ULCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>NB</td>
<td>−1.082</td>
<td>0.031</td>
<td>0.020</td>
<td>0.047</td>
</tr>
<tr>
<td>ND</td>
<td>0.986</td>
<td>0.053</td>
<td>0.024</td>
<td>0.058</td>
</tr>
</tbody>
</table>

Index of Moderated Mediation

<table>
<thead>
<tr>
<th>Moderator</th>
<th>Effect</th>
<th>BootSE</th>
<th>LLCI</th>
<th>ULCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>NB</td>
<td>0.030</td>
<td>0.013</td>
<td>0.008</td>
<td>0.060</td>
</tr>
<tr>
<td>ND</td>
<td>0.080</td>
<td>0.020</td>
<td>0.047</td>
<td>0.122</td>
</tr>
</tbody>
</table>

Note: * indicates p < 0.1, ** indicates p < 0.05, *** indicates p < 0.01.

Table 7. Moderation Test of RO, CIA as the Dependent Variable.

<table>
<thead>
<tr>
<th>Variables</th>
<th>NB Coefficient</th>
<th>95%CI</th>
<th>ND Coefficient</th>
<th>95%CI</th>
<th>CIA Coefficient</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control variables</td>
<td>Control</td>
<td></td>
<td>Control</td>
<td></td>
<td>Control</td>
<td></td>
</tr>
<tr>
<td>NB</td>
<td>0.083 *</td>
<td>[−0.013, 0.179]</td>
<td>0.021 **</td>
<td>[0.018, 0.026]</td>
<td>0.215 ***</td>
<td>[0.117, 0.308]</td>
</tr>
<tr>
<td>ND</td>
<td>0.144 **</td>
<td>[0.002, 0.218]</td>
<td>0.070</td>
<td>[0.037, 0.103]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RO</td>
<td>−0.403 ***</td>
<td>[−0.520, −0.286]</td>
<td>0.037</td>
<td>[0.011, 0.062]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NB × RO</td>
<td>0.037 *</td>
<td>[−0.005, 0.109]</td>
<td>0.070</td>
<td>[0.037, 0.103]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ND × RO</td>
<td>0.046 **</td>
<td>[0.011, 0.082]</td>
<td>0.062</td>
<td>[0.036, 0.092]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Indicator

<table>
<thead>
<tr>
<th>Moderator</th>
<th>RO Effect</th>
<th>BootSE</th>
<th>LLCI</th>
<th>ULCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>NB</td>
<td>−1.082</td>
<td>0.031</td>
<td>0.020</td>
<td>0.047</td>
</tr>
<tr>
<td>ND</td>
<td>0.986</td>
<td>0.053</td>
<td>0.024</td>
<td>0.058</td>
</tr>
</tbody>
</table>

Index of Moderated Mediation

<table>
<thead>
<tr>
<th>Moderator</th>
<th>Effect</th>
<th>BootSE</th>
<th>LLCI</th>
<th>ULCI</th>
</tr>
</thead>
<tbody>
<tr>
<td>NB</td>
<td>0.029</td>
<td>0.013</td>
<td>0.007</td>
<td>0.057</td>
</tr>
<tr>
<td>ND</td>
<td>0.083</td>
<td>0.020</td>
<td>0.048</td>
<td>0.123</td>
</tr>
</tbody>
</table>

Note: * indicates p < 0.1, ** indicates p < 0.05, *** indicates p < 0.01.
4.3.1. Moderation Analysis with Balanced Innovation Ambidexterity as the Dependent Variable

As shown in Table 6, the interaction between network broadening and resource orchestration capabilities is significantly and positively related to balanced innovation ambidexterity (coef. = 0.119, \(p < 0.05, 95\% CI [0.024, 0.215]\)). We find that the mediating effect of network broadening gradually increases with the increase in resource orchestration capabilities at three different levels of low, medium, and high values, which supports the notion that resource orchestration capabilities play a crucial role in mediating the “performance gap-network broadening-balanced innovation ambidexterity” path, with a moderated mediating effect of 0.030 and a Bootstrap confidence interval of [0.008, 0.060] corrected for 95% variance. Thus, H4a is supported.

The same approach showed that resource orchestration capabilities also positively moderate the relationship between network deepening and balanced innovation ambidexterity (coef. = 0.205, \(p < 0.01, 95\% CI [0.109, 0.301]\)). Our analysis indicates that resource orchestration capabilities play a significant moderated mediating role in the “performance gap-network deepening-balanced innovation ambidexterity” path.

The moderating effects of resource orchestration capabilities are illustrated in Figures 2 and 3.

![Figure 2. Moderating effects of RO on NB and BIA.](image)

![Figure 3. Moderating effects of RO on ND and BIA.](image)

4.3.2. Moderation Analysis with Combined Innovation Ambidexterity as the Dependent Variable

As shown in Table 7, the interaction between network broadening and resource orchestration capabilities is significantly and positively correlated with combined innovation ambidexterity (coef. = 0.114, \(p < 0.05, 95\% CI [0.018, 0.209]\)). Furthermore, the mediating effect of network broadening gradually increased as the enhancement of resource orches-
The purpose of this study was to investigate the underlying process between perform-
ance gap and innovation ambidexterity. Drawing on network resource acquisition
and management perspective, we developed a framework that provided a more nuanced
understanding. Based on matched survey subjective and objective data from 362 listed firms
in China, we demonstrated that network broadening and network deepening jointly ex-
plained the mediating effects that were at play, along with the moderated effect of resource
orchestration capabilities. The moderated mediating effect of resource orchestration capabilities
is 0.029, with a Bootstrap confidence interval of [0.007, 0.057] corrected for 95% variance,
indicating that resource orchestration capabilities play a significant moderated mediating
role in the “performance gap-network broadening-combined innovation ambidexterity” path. Thus, H4b is supported.

The interaction between network deepening and resource orchestration capabilities is
significantly and positively related to combined innovation ambidexterity (coef. = 0.213,
$p < 0.01, 95\% CI \in [0.117, 0.308]$). The mediating effect of network deepening increases
with the improvement of resource orchestration capabilities. The moderated mediating
effect of resource orchestration capabilities is 0.083, with a Bootstrap confidence interval of
[0.048, 0.123] corrected for 95% variance, indicating that resource orchestration capabilities
play a significant moderated mediating role in the “performance gap-network deepening-
combined innovation ambidexterity” path. Thus, H5b is also supported.

The moderating effects of resource orchestration capabilities are illustrated in Figures 4
and 5.

![Moderating effects of RO on NB and CIA](image1)

**Figure 4.** Moderating effects of RO on NB and CIA.

![Moderating effects of RO on ND and CIA](image2)

**Figure 5.** Moderating effects of RO on ND and CIA.

5. Discussion

The purpose of this study was to investigate the underlying process between perfor-
mance gap and innovation ambidexterity. Drawing on network resource acquisition
and management perspective, we developed a framework that provided a more nuanced
understanding. Based on matched survey subjective and objective data from 362 listed firms
in China, we demonstrated that network broadening and network deepening jointly ex-
plained the mediating effects that were at play, along with the moderated effect of resource
orchestration capabilities.
Through comparing the differential mediating effect of two mechanisms, we found that, for building balanced and combined innovation ambidexterity, network deepening appears to be significantly more important than network broadening under a performance gap. This result contradicts the long-standing view that scholars have emphasized, which is that "weak ties are more important". One possible explanation is that network researchers need to take into account the specific context of the deployed network [21]. In a complex and fast-changing institutional context, such as China, strong ties generated by network deepening are often more sufficient and reliable (compared to weak ties generated by network boarding) in providing valuable information and technology to support balance and combination between exploitative and exploratory innovation [61].

Furthermore, the results of the direct effect test show that there is a positive relationship between the performance gap and combined innovation ambidexterity. Interestingly, H1a, which proposed a positive correlation between the performance gap and balanced innovation ambidexterity, was not supported. We suggest that the following explanation may account for this pattern of results. First, balancing the gap between exploratory and exploitative innovation requires firms to continuously focus on existing products while also developing and experimenting with new products, which necessitates significant resource support. However, the performance gap worsens the resource ecosystem of firms [62]. Consequently, despite a strong incentive to balance exploration and exploitation, firms are compelled to postpone or abandon strategic actions due to resource constraints.

Second, the abilities required for exploratory innovation and exploitative innovation differ [63]. The former involves cutting-edge technology and requires high-level organizational capabilities, such as search, flexibility, and risk-taking. The latter emphasizes optimizing production processes and improving marginal benefits, which rely on low-level organizational capabilities, such as refinement, selection, efficiency, and implementation. Although these high- and low-level abilities are closely related [64], it remains an open question (or a tricky decision) about how to balance the development of both, especially for firms facing performance gaps. Therefore, based on a comprehensive consideration of resources and capabilities, the mechanism of the performance gap on balanced innovation ambidexterity requires further exploration. Moreover, the mediating role of network broadening and network deepening also highlights the importance of resources for balanced innovation ambidexterity.

Next, we discuss the findings’ implications to theory and managerial practice.

5.1. Theoretical Implications

This research offers contributions to several streams of research.

First, within the framework of the Behavioral Theory of the Firm, some studies suggest that performance gaps drive organizational innovation [7], while others argue that performance gaps weaken a firm’s aspiration and ability to innovate [9]. To reconcile these theoretical contradictions, this study examines the influence of performance gaps on balanced–combined innovation from the perspective of innovation ambidexterity. In our specific context, the analysis yielded a significant positive influence on combined innovation ambidexterity, but not on balanced innovation ambidexterity. Therefore, we not only introduce a balanced–combined perspective into the framework of performance gaps and innovations, but also verify the key role of performance in organizational innovation. This study opens a new and holistic avenue for future research to recognize the differential effects of balanced innovation ambidexterity and combined innovation ambidexterity.

Second, this study expands the literature on the organization’s network resource acquisition perspective by addressing how network strategies embedded within a firm can enhance its innovation outcomes. Specifically, we provide theoretical arguments and empirical evidence that two network strategies—network broadening and network deepening—serve as dual mediating mechanisms linking performance gap and innovation ambidexterity (i.e., balanced and combined). Thus, this research highlights the importance of the indirect process from performance gap to innovation ambidexterity. While previous literature has
helped to make internal social capital prominent as a means for understanding the process and outcomes of various organizations’ endeavors, this paper attributes innovation outcomes to mechanisms related to a firm’s external social network. By doing so, we respond to the call to expand the social network theory.

Third, our study highlights the significant role of network deepening in mediating the relationship between performance gap and innovation ambidexterity, compared to network broadening. This result further supports the traditional Chinese belief in guanxi, which is unique and critical in China’s transitional economic system. Unlike western countries, strong ties of network deepening are more critical in China. Moreover, these findings complement the recent cocoon hypothesis that closure is not always a disadvantage. Firms in a closed network of connected organizations can enjoy higher returns [65].

Four, prior studies have indicated that little is known about the role of network resource orchestration in management practices while internal resource orchestration within an organization has a positive effect on innovation. Baert et al. (2016) [66] have also called on scholars to pay more attention to network resource management. Responding to this call, we find that network broadening and network deepening can generate better innovation outcomes when aligned with high levels of resource orchestration capabilities. Thus, our findings not only provide new insights into resource orchestration capabilities but also expand the scope of resource orchestration theory.

Five, the literature on ambidexterity is characterized by a central debate on the conceptualization of ambidexterity, leading to different research logic for current studies, either “exploration first” or “exploitation first”. This separation between the concepts needs to be addressed. Thus, we extend the work on innovation ambidexterity by paying attention to balancing, combining, and identifying how blending the balance and combination can promote ambidexterity. Our findings not only add to the evidence that ambidexterity can be viewed as a blend of balanced innovation ambidexterity and combined innovation ambidexterity, but also answer recent calls for a better understanding of the antecedents associated with the balanced and combined approaches to manage ambidexterity [67].

5.2. Managerial Implications

Our findings offer several implications for managers.

First, in terms of the direct effect of performance gap, our results suggest that firms must break through resource constraints and seize opportunities for innovation ambidexterity and value creation. During uncertain periods, “black swan” and “gray rhino” incidents may occur at any time, which makes it inevitable for firms to experience a performance gap. Although the performance gap disrupts the organization’s resource ecology, our findings demonstrate that it also brings innovation opportunities. Therefore, it is recommended that firms should aim to reduce their vulnerability when facing a performance gap and seek out opportunities for innovation ambidexterity and value recreation.

Second, performance gaps have been identified as a crucial factor that can influence innovation ambidexterity through different network strategies. This finding provides valuable insights for corporate-level managers who make critical decisions regarding innovation ambidexterity and value creation. To effectively incorporate these insights, firms must prioritize the motivation of network broadening and cultivation of network deepening, which are the key routes through which the performance gap influences innovation ambidexterity. Creating and nurturing an organizational ecology that facilitates network action at all levels is a salient consideration. Managers should allocate resources to develop social networks, integrate weak ties, and build high-quality strong ties. Overall, our results suggest that developing a strategy to boost innovation ambidexterity requires a deep understanding of these network mechanisms.

Third, the results of this study support the notion that resource orchestration capabilities have a moderating effect. Firms need to recognize that identifying valuable resources and managing network resources can be the pathway to achieving innovation ambidexterity. Our findings indicate that a viable strategy to stimulate the development of innovation ambidex-
terity is to pay more attention to capabilities related to network resource orchestration. In particular, for firms with high levels of network broadening and network deepening, managers should strive to improve resource orchestration capabilities and dispose of redundant network resources.

6. Conclusions

This study aims to answer the research question, “How does performance gap drive innovation ambidexterity in China?” Consistent with Cao et al. [18], we focused on two types of innovation: balanced and combined. Using a network resource acquisition and management perspective, we introduced the concepts of network strategy (network broadening and network deepening) and resource orchestration capabilities into our research framework. Our findings suggest that network deepening is more effective than network broadening in mediating the relationship between performance gap and balanced and combined innovation ambidexterity. Additionally, resource orchestration capabilities strengthen the roles of network broadening and network deepening in driving balanced and combined innovation ambidexterity.

To the best of our knowledge, this study is the first to explore the role of performance gaps on driving network broadening and network deepening towards achieving better balanced and combined innovation ambidexterity. The framework we have validated can serve as the foundation for future research aimed at investigating the changing role of performance gaps in enhancing network broadening and network deepening, which can contribute to improved innovation and value recreation.

This study has certain limitations that suggest avenues for future research. Firstly, our focus on performance gaps in business performance limits our understanding of performance as a multidimensional concept. Future researchers should consider other measures of performance (such as growth, flexibility, etc.) to develop a more comprehensive measurement system. Secondly, we were unable to explore the differential impact of the persistence of performance gaps due to the limitations of matched subjective and objective data. Incorporating time dynamics into the performance gap research framework based on data support could be a promising direction for future research. Thirdly, although we have made significant efforts in collecting and processing subjective and objective data, the data are still essentially cross-sectional and unable to reflect changes in independent and dependent variables at different stages. Collecting relevant data continuously to construct panel data that reveal the dynamics of the variables could be a fruitful direction for future research.

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