Audit-firm serving experience heterogeneity and audit knowledge integration: Evidence from the disclosure of key audit matters

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ABSTRACT

Audit practice is a team effort led by signing auditors. We examine the impact of the heterogeneity of signing auditors' audit-firm serving experiences on the disclosure of key audit matters (KAMs). Auditors with more heterogeneous serving experiences demonstrate more adequate KAM disclosure, as evidenced by more KAMs, longer texts and clearer attributions in their disclosures. This effect is influenced by the quality of audit knowledge that auditors accumulate from different serving experiences and the team- and audit-firm-level knowledge integration environment. Furthermore, signing auditors with more diverse service experience tend to improve audit quality, reduce the incidence of restatement or misconduct and enhance the informativeness of financial reports. Our findings enrich the KAM disclosure research and provide insights into audit firms' human resource allocation and internal management.
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1. Introduction

In 2016, China's Ministry of Finance mandated new audit report standards, introducing Key Audit Matters sections in listed companies' audit reports to bolster transparency and highlight financial statement risks through auditors' judgment (Chen et al., 2021). Studying the disclosure of key audit matters (KAMs) is pivotal for enriching the content of audit report information and nurturing capital market health (Reid et al., 2015; Wang et al., 2018; Li et al., 2019). Research predominantly examines the economic consequences of KAM disclosure (Wang and Li, 2019; Liu and Lei, 2020; Zhou et al., 2020b). Only a few studies investigate the

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determinants of KAM disclosure, with major focuses on client characteristics (Pinto and Morais, 2019; Li et al., 2020; Qian et al., 2022), individual auditor attributes (Cao, 2021; Chen et al., 2021), client–auditor relationships (Hu and Hu, 2021) and abnormal audit fees (Chen et al., 2022). Audit practice is inherently team work, with the leading signing auditors critically influencing team efficiency (Jiang and Tang, 2016; Yan et al., 2017). In the context of integrated management within accounting firms, exploring effective personnel allocation for audit teams is important for promoting the integration of internal resources within organizations and driving the audit market toward intrinsic, high-quality development. We investigate how the heterogeneity of signing auditors' audit-firm serving experience affects KAM disclosure from a team theory perspective.[1]

Auditing is a profession characterized by a relatively high turnover rate, with auditors often transitioning between audit firms (Hermanson et al., 2016). For instance, the Shanghai Institute of Certified Public Accountants announced that in September 2022, 122 certified public accountants in Shanghai handled issues related to transferring to other firms. The professional experiences gained in various firms have a profound impact on individual auditors' knowledge acquisition and cognitive processes (Che et al., 2020; Tian et al., 2021). Furthermore, the diversity in the audit-firm serving experiences of signing auditor pairs may influence their knowledge integration, which has implications for their audit judgments (Carpenter, 2007; Bonner et al., 2022).

Grounded in social identity theory (Haslam and Platow, 2001), similar serving experience has the potential to strengthen the trust and sense of identification between auditor partners (Hwang and Kim, 2009; Collins and Parker, 2010). This can enhance individual risk-taking capabilities and improve communication efficiency among team members (Cameran et al., 2017). Consequently, auditors are more inclined to proactively disclose problems in financial reports (Pittman et al., 2023), which results in more comprehensive and detailed KAM disclosure. Different audit-firm serving experiences can promote knowledge sharing and prevent the homogenization of cognitive resources. By leveraging collective intelligence, auditors can analyze potential significant risks from various angles, leading to more comprehensive KAM disclosure (De Vaan et al., 2015). Therefore, the impact of auditor partners' heterogeneous audit-firm serving experience on KAM disclosure is unclear and requires further exploration.

In this study, we focus on the Chinese audit market in examining the impact of the diverse serving experiences of signing auditors on KAM disclosure from 2016 to 2021. The findings suggest that signing auditors whose serving experience is more heterogeneous are more inclined to disclose a larger quantity of KAMs in their audit reports. Additionally, these disclosures tend to exhibit longer textual contents and clearer attributions. This implies that work experience diversity within audit teams can assist auditors in integrating novel viewpoints and uncovering a greater number of potential significant risk factors. Our main findings remain robust to the additional auditor factors, namely tenure, project scale across different audit-firms and the chronological order of experience, used to construct our proxy for serving experience heterogeneity. Mechanism analysis indicates that the quality of knowledge accrued from diverse serving experiences and the knowledge integration environment at both the team and firm levels significantly impact the effect of audit team experience heterogeneity on KAM disclosure. Specifically, higher audit quality of auditors' serving firms, greater educational gaps between auditors, higher seniority of the signing auditor and smaller audit firm sizes can amplify the impact of experience heterogeneity on KAM disclosure. Finally, we find that the serving experience heterogeneity of signing auditors tends to improve audit quality, reduce the incidence of restatement or misconduct with more audit input in their teamwork and enhance the informativeness of financial reports.

This study contributes to literature by offering novel evidence of the determinants of KAM disclosure. We show the impact of signing auditors' heterogeneous audit-firm serving experiences on KAM disclosure, integrating insights from psychology, organizational behavior and knowledge management. In so doing, we open the "black box" of audit practice by analyzing the influence of audit team structure on service production and the internal transmission of auditors' tacit knowledge (He et al., 2022). Our findings offer a theoretical basis for human resource management in accounting firms and audit market integrated management. Furthermore, we highlight how strategic audit team structures can cater to the urgent information needs of users, which

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[1] In this study, we emphasize auditors' audit-firm serving experience because, compared with educational backgrounds and other professional experiences, experience within audit firms exerts a more direct influence on the development of auditors' audit-related knowledge and perspectives. In addition, this experience is closely intertwined with auditors' auditing decisions, as elaborated in Section 3.

offers important policy implications for regulatory bodies to steer accounting firms toward improved governance and foster robust capital market growth.

2. Literature review

Our study is related to three major streams of literature: factors influencing KAM disclosure, auditors' professional experiences and structural characteristics of audit teams.

First, in terms of the factors influencing KAM disclosure, the literature primarily explores the impact of client-level factors, including business complexity (Sierra-García et al., 2019), profitability (Li et al., 2020), risk level (Qian et al., 2022), the relationship between management and auditors (Hu and Hu, 2021) and industry characteristics (Pinto and Morais, 2019). A few studies consider the influence of audit firm characteristics on KAM disclosure. Sierra-García et al. (2019) show that KAM disclosure follows certain firm-related styles. For example, PricewaterhouseCoopers tends to disclose more KAMs related to overall client risk, while KPMG tends to disclose more KAMs related to individual account risks. Griffith et al. (2022) find that firm training guidance and organizational culture can affect audit efficiency and auditors' compliance with policies, thereby ultimately influencing the quality of KAM disclosure.

Research on the impact of individual auditors on KAM disclosure is still in its infancy. Some literature analyzes abnormal audit fees (Chen et al., 2022), auditor industry expertise (Chen et al., 2021), auditor gender (Cao, 2021), decision-making styles (Rousseau and Zehms, 2024), auditor changes (Chen et al., 2023) and their influence on KAM disclosure. However, studies mostly consider the decision-making unit of audit activities as a whole, focusing on how the individual characteristics, personal audit styles and experience and abilities of auditors affect their KAM disclosure while overlooking the collaborative nature of audit service operations within a team (Cameran et al., 2017; Shi et al., 2019). Through positive interactions with one another, team members can integrate an organization's available knowledge resources, refine individual existing capabilities and stimulate new learning motivations (Liu et al., 2014), thereby enhancing the team's ability to process complex information. When a signing auditor encounters significant issues requiring professional judgment during the practice process, the knowledge resources and experience provided by the audit team assist the auditor in making better decisions and improving audit quality. We attempt to deconstruct the audit team and explore its core leadership. Specifically, we examine the impact of serving experience heterogeneity between signing auditors on KAM disclosure, thus contributing more evidence to this field of research and offering a reference for audit teams' human resource allocation.

Second, we contribute to the literature on the professional experiences of signing auditors. One strand of literature focuses on business-level working experience. Researchers find a positive correlation between the number of audit reports signed, years of practice (Cahan and Sun, 2015; Wang et al., 2016; Pan and Zhang, 2019), the cumulative number of reports issued in specific industries (Liu and Li, 2022) and audit quality. More relevant to our study is another strand of literature that explores the impact of firm-level serving experience on auditor behavior. For example, some scholars show that auditors with experience at Big 4 audit firms exhibit greater independence and sharper professional judgment and demonstrate higher audit quality (Gul et al., 2013; Che et al., 2020). Researchers also document that accounting firms can weaken the differentiated impact of individual auditor traits on audit quality through unified training and personnel assessments, forming a firm-level audit style. As a result, the audit-firm serving experience significantly influences individual auditors' audit practice and thought patterns (Francis et al., 2014; Tian et al., 2021), and this influence possesses a certain level of continuity with changes in auditor tenure experience (Gul et al., 2013), laying the foundation for us to explore the role of firm tenure experience in shaping auditor styles and thought patterns in this study.

Third, this study is related to the literature on the structural characteristics of audit teams. The literature mainly focuses on the impacts of stability, homogeneity, heterogeneity and other structural characteristics of audit teams on audit quality. For instance, Yan et al. (2017) find that the stability of signing auditor partnerships significantly enhances audit quality. Findings on the roles of audit team homogeneity and heterogeneity are inconsistent. Some studies suggest that homogeneity is more likely to generate strong cohesion and higher work efficiency, and thus the homogeneity of signing auditor partnerships promotes audit quality (Chin and Chi, 2008; Shi and Cheng, 2011). However, other studies indicate that the diverse perspectives of auditor part-

nerships generate cognitive conflicts, forcing them to consider a broader range of information, gather more evidence to assess risks and significantly increase the probability of issuing modified audit opinions (Liu and Bi, 2019). The literature on the homogeneity and heterogeneity of audit teams mostly focuses on demographic characteristics, such as auditor gender, age and education. In contrast, we focus on auditors' serving experiences in different audit firms; as mentioned earlier, this characteristic is more closely related to the accumulation of knowledge and thought patterns associated with auditors' practice and more directly influences audit judgments. We construct an indicator to capture the heterogeneity of signing auditors' firm serving experience by tracking the auditors' serving histories, and we explore its impact on auditors' professional judgment. In so doing, we not only enrich the literature on the structural characteristics of audit teams but also provide new insights for project management through the full exploration of individual auditor information.

3. Hypothesis development

3.1. Heterogeneity of audit-firm serving experience and KAM disclosure

Signing auditors rely on their professional knowledge and risk perception to identify significant misstatement risks in financial reports and to determine the quantity and detail of disclosure matters (Li and Lu, 2021). Heterogeneous firm serving experiences shape auditors' audit styles and knowledge systems differently, further affecting KAM disclosure through knowledge integration within the team.

The literature suggests that audit firms can shape auditors' styles and knowledge systems through unified training, assessments and cooperation to ensure that auditors' behaviors reflect the unique work norms and standardized processes of a given firm (Francis et al., 2014; Che et al., 2020; Wang and Hu, 2020; Wang et al., 2022). For example, Francis et al. (2014) point out the similarity in the financial reports of clients from the same firm due to firms' internal norms for interpreting and implementing standards, which is fostered through internal training and the provision of other tools, libraries and employee resources. Taking KAM disclosure as an example, Lu and Zhang (2018) observe industry-firm-level effects in the form and audit response procedures of KAMs: most impairment-related KAMs are issued by Big 4 audit firms, while domestic audit firms (e.g., Shinewing) are more sensitive to revenue recognition issues in manufacturing companies, issuing more revenue-related KAMs and conducting additional audit procedures. Consistent with this, Sierra-García et al. (2019) find that compared with other Big N audit firms, PricewaterhouseCoopers discloses more KAMs related to overall client risk. Therefore, different firm serving experiences can endow auditors with different audit styles and knowledge systems.

Differences between signing auditors' audit-firm serving experiences may also affect the auditors' knowledge integration and, ultimately, audit team output. Based on social identity theory (Haslam et al., 2020; Haslam and Platow, 2001), signing auditors with common serving experiences have stronger risk-sharing capabilities and higher communication efficiency, prompting them to disclose more KAMs. High similarity in serving experience can enhance trust and identification among auditors (Collins and Parker, 2010), thus improving their willingness to reveal misstatement risks in financial reports (Pittman et al., 2023). Auditors also tend to engage in more in-depth discussions with colleagues who have similar mindsets and knowledge systems (Li and Hambrick, 2005; Bezrukova et al., 2009; Christian et al., 2009; He et al., 2022), facilitating knowledge transfer and absorption (Song and Wang, 2020) and thereby helping audit teams uncover more detailed and clearly attributable KAMs (Tian et al., 2021).

Heterogeneous serving experiences can alleviate the herd effect among audit team members, providing fresh perspectives for audit team decision-making and thereby promoting the identification of more comprehensive and appropriate KAMs. According to social loafing theory (Steiner, 1972; Boeker, 1997), when the homogeneity within a group is high, given similar knowledge systems and mindsets, team members tend to trust each other's decisions. This trust can reduce benign task conflicts, leading to a decrease in individual effort (Ni et al., 2013; Wang et al., 2020) and creating a herd effect. Under the influence of the herd effect and in an effort to play it safe, auditors within a team may choose to go along with the majority to avoid uncertainty, which can inhibit the disclosure of uncertain matters and thereby reduce the adequacy of KAM disclosure (Dannemiller et al., 2022). In contrast, in a highly heterogeneous environment, proposing different viewpoints will not threaten auditors' sense of belonging. Thus, heterogeneity in serving experience can allow individual

professional knowledge to spread throughout the team (Dhanaraj et al., 2004; Song and Wang, 2020) and enhance the integration and utilization of team knowledge (Sun and Wei, 2011). Heterogeneous serving experiences can also introduce fresh perspectives (Chen et al., 2013), help auditors analyze potential significant risks to their companies from multiple perspectives, reduce selective biases due to path dependence in the KAM determination process (De Vaan et al., 2015; Cameran et al., 2017) and increase the adequacy of KAM disclosure. Essentially, continuous organizational knowledge accumulation and collective learning can induce knowledge convergence (Gulati et al., 2012; Zhou and Chen, 2015) as well as create exclusion effects, hindering the flow of new knowledge (Sytch et al., 2012). In a team context, strong heterogeneity in auditors' serving experiences implies less overlap in their knowledge and skills. This broadens the audit team's information pool (Li and Wu, 2017), increases the organization's knowledge stock, updates the team's knowledge structure and leads to continuous knowledge creation (Rosenkopf and Padula, 2008).

Accordingly, we propose two competing hypotheses:

H1a: Signing auditors with more heterogeneous audit-firm serving experience demonstrate lower KAM disclosure adequacy.

H1b: Signing auditors with more heterogeneous audit-firm serving experience demonstrate higher KAM disclosure adequacy.

As discussed above, serving experience heterogeneity influences knowledge accumulation and integration within audit teams. Next, we delve further into the mechanisms through which heterogeneous audit-firm serving experiences exert their influence, focusing on both the quality of knowledge accumulation and the environment for knowledge integration.

3.2. Quality of knowledge accumulation

The usefulness of implicit organizational knowledge is contingent upon the quality of that knowledge (Hill and Rothaermel, 2003; Demirkan et al., 2013). High-caliber knowledge substantially elevates the knowledge integration process, augmenting the organizational knowledge base (Kang and Liu, 2021). The literature indicates that auditors who work in high-audit-quality firms exhibit stringent quality controls, accruing superior business acumen through diverse knowledge resources and thereby enhancing audit quality (Zhou et al., 2020a; Liu and Li, 2022). This suggests that audit teams benefit from high-quality audit knowledge integration.

Conversely, auditors from firms with audit failures tend to amass low-quality audit knowledge, which increases misreporting risks (Francis and Michas, 2013). In such scenarios, the utility of heterogeneous serving experiences in mitigating significant misreporting risks is diminished. This leads to our second hypothesis:

H2: When auditors accumulate higher-quality knowledge from prior audit-firm serving experiences, the impact of their heterogeneous experiences on KAM disclosure is more pronounced.

3.3. Knowledge integration environment

3.3.1. Team-level knowledge integration environment

According to knowledge grid theory (Gu et al., 2006), an optimal knowledge gap between transmitters and receivers engenders a knowledge potential difference, catalyzing effective knowledge sharing and integration (Yang and Li, 2008; Cricelli and Grimaldi, 2010). Therefore, knowledge potential difference between signing auditors can foster a conducive knowledge integration environment.

The educational disparity among auditors within an audit team can affect individuals' knowledge reserves and information absorption abilities, thereby creating a knowledge gap (Jensen and Zajac, 2004). Auditors with higher education levels typically possess stronger cognitive abilities (Du and Hou, 2019), enabling them to better digest and understand relevant policies regarding audit reforms and make more accurate KAM-related judgments. Therefore, auditors with higher education levels are more capable of sharing risk identification techniques with team members who have relatively lower educational backgrounds through work communication, further promoting the integration and transfer of tacit knowledge (Ye, 2021).

However, differences in seniority among signing auditors can also lead to knowledge differentials within the team, thereby affecting the efficiency of knowledge transfer. Audit engagements are executed by audit teams to

complete audit procedures, with review and engagement partners providing guidance, supervision and review throughout the entire audit process. The work focuses and responsibilities of the two signing auditors are slightly different. The primary responsibility of the review partner is to conduct the final quality review of significant issues, such as audit risks identified by the team and their corresponding responses, and the appropriateness of audit reports, whereas the engagement partner is primarily responsible for fieldwork, providing specific on-site guidance and supervision (Wang et al., 2016; Liu and Li, 2022; Yan et al., 2022). In practice, given the high level of tacit knowledge obtained through their extensive professional experiences, review partners typically have more seniority than engagement partners and thus exert relatively greater influence on audit decisions. Review partners also demonstrate a stronger capability to identify misstatement risks (Han, 2016; Chen et al., 2017).

We thus expect review partners to be better able to utilize their position, professional experience and expertise to transmit tacit knowledge to engagement auditors in weaker knowledge positions, facilitating internal knowledge transfer and integration. Furthermore, engagement auditors tend to absorb the knowledge and skills of review partners with richer tacit knowledge, resulting in better diffusion and integration of knowledge. As a result, the impact of review partners' heterogeneous serving experiences on knowledge integration is more pronounced. Therefore, we propose our third hypothesis as follows:

H3a: Educational gaps among audit partners amplify the impact of heterogeneous experiences on KAM disclosure.

H3b: Review partners exert a more significant influence on KAM disclosure than engagement partners through their heterogeneous serving experiences.

3.3.2. Audit-firm-level knowledge integration environment

Studies suggest that the collective mindset and standardized organizational characteristics of audit firms, such as audit procedures, can influence auditors' identification and judgment of KAMs (Tian et al., 2021). Specifically, small audit firms are often limited by factors such as human resources, quality control systems and technology, resulting in a lower level of standardization and uneven internal knowledge levels. Their determination of KAMs can be more influenced by the professional sensitivity of signing auditors. In contrast, big audit firms (e.g., domestic and international Big 4 audit firms) have developed more mature internal systems for judging KAMs internally. Additionally, auditors employed by larger firms typically undergo systematic training and continuing education (Che et al., 2020; Liu and Li, 2022), enabling them to utilize standardized procedures for identifying KAMs and apply uniform thinking processes and workflows to ensure audit quality (Tian et al., 2021). Such highly homogenized knowledge environments limit the complementary effect of knowledge. Based on this, we propose our fourth hypothesis as follows:

H4: The influence of auditors' heterogeneous serving experiences on KAM disclosure is more pronounced in smaller audit firms.

4. Data and research methodology

4.1. Sample selection and data sources

Following prior research (Chen et al., 2021; He et al., 2021; Cai et al., 2022), we use Chinese A-share listed companies that disclosed KAMs from 2016 to 2021 as the initial sample. To facilitate our analyses, we further exclude the following observations: (1) firms in the finance industry, (2) samples with a missing number of signing auditors or other than two signing auditors, (3) special treatment firms (i.e., marked ST or *ST) and (4) samples with missing variables. The final sample includes 12,570 firm-year observations. We manually collect data on the auditors' experience and personal characteristics from the Chinese Institute of Certified Public Accountants and annual reports, and we obtain the companies' financial statement data from the China Stock Market and Accounting Research database. To mitigate the effect of outliers, all of the continuous variables are winsorized at the 1st and 99th percentiles.

4.2. Definitions of key variables and model construction

4.2.1. Adequacy of KAM disclosure

Following Zhou et al., (2020b) and Chen et al. (2021), we capture the adequacy of KAM disclosure via the quantity and quality of disclosure. The quantity of KAM disclosure is assessed using the natural logarithm of the number of KAM disclosure items (*LnKAM*) as well as the natural logarithm of the word count of KAM disclosures (*LnWord*). The quality of KAM disclosure is determined through a keyword search method, in which the presence of keywords such as "significant misstatement risk," "significant judgment" and "significant transactions or matters" within the Key Audit Matters section is considered indicative of clear KAM attribution (*LnClear*) and the count of such clear attributions is log-transformed (plus 1). Consequently, higher values of *LnKAM*, *LnWord* and *LnClear* indicate more comprehensive KAM disclosure.

4.2.2. Heterogeneity of signing auditors' serving experience

We use *Difference* to capture the degree of heterogeneity in the signing auditors' serving experiences. *Difference* equals the number of non-overlapping audit firms served by the signing auditors divided by the total number of unique firms served[2]:

$$Difference = 1 - \frac{the\ intersetion\ set\ of\ auditor\ pairs'\ audit - firm\ experience}{the\ union\ set\ of\ auditor\ pairs'\ audit - firm\ experience} \quad (1)$$

In the robustness test, we consider additional factors (i.e., the auditors' tenure, their project scales across different firms and the chronological order of their experiences) and re-construct the *Difference* proxy.

4.2.3. Models

To test our main hypotheses, we construct the following model:

$$Adequacy_{it} = \alpha_0 + \alpha_1 Difference_{it} + \sum Controls_{it} + \sum Industry + \sum Year + \varepsilon_{it} \quad (2)$$

where *Adequacy* indicates the adequacy of KAM disclosure, as captured by *LnKAM*, *LnWord* and *LnClear*. *Difference* refers to the heterogeneity of signing auditors' audit-firm serving experiences. Following prior research (Chen et al., 2021; Lennox et al., 2023), we further control for client, auditor and audit-team-level characteristics, including client size (*Size*), leverage (*Lev*), profitability (*ROA*), incurrence of loss (*Loss*), sales growth (*Growth*), operating cash flow (*CFO*), accounts receivable (*AR*), the current ratio (*CR*), inventory (*INV*), ownership structure (*SOE*), largest shareholder ownership (*Top1*), years listed (*ListAge*), auditor changes (*Change*), whether audited by an international Big 4 firm (*Big4*), audit opinion (*MAO*), years of experience as an engagement partner (*Experience*), length of collaboration (*Collaboration*), gender differences (*GenderDIFF*), educational differences (*EduDIFF*) and tenure differences between signing auditors (*ExpDIFF*). Table 1 provides detailed variable definitions. We also control for industry (*Industry*) and year (*Year*) fixed effects in the model.

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[2] We illustrate the concept of tenure heterogeneity using two examples. In example 1, auditor A has experience at Yuehua Accounting Firm, Zhongrui Yuehua Accounting Firm and ShineWing Accounting Firm. Her partner, auditor B, has served at Shanghai Donghua Accounting Firm and ShineWing. The total number of non-overlapping firms between them is three (Yuehua, Zhongrui Yuehua and Shanghai Donghua), with four audit firms served collectively (Yuehua, Zhongrui Yuehua, Shanghai Donghua and ShineWing). Thus, their serving experience heterogeneity, denoted as *Difference*, is 0.75 (=3/4). In example 2, auditor C has experience at Shenzhen Nanfang Minhe Accounting Firm, China Audit International Accounting Firm, Dahua Accounting Firm and Zhongshen Hua Accounting Firm. Her partner, Auditor D, has served at Shenzhen Nanfang Minhe, China Audit International and Zhongshen Hua. Here, the non-overlapping firm count is one (Dahua), with four audit firms served collectively. Consequently, *Difference* in this case is 0.25 (=1/4).

Table 1
Variable definitions.

Type	Variable	Definition
Dependent variables	*LnKAM*	The natural logarithm of the number of items disclosed in the Key Audit Matters section.
	LnWord	The natural logarithm of the number of words used to describe and respond to KAMs.
	LnClear	The natural logarithm of the number of KAMs with keywords such as "significant misstatement risk," "significant judgment" and "significant transactions or matters."
Independent variable	*Difference*	The number of non-overlapping audit firms served by the signing auditors, divided by the total number of unique firms served.
Control variables	*Size*	The natural logarithm of total assets.
	Lev	The ratio of total liabilities to total assets.
	ROA	The ratio of net income to total assets.
	Loss	Equals 1 if the company reports negative net income in the current year, and 0 otherwise.
	Growth	Sales growth, computed as the percentage change in sales from the prior year to the current year.
	CFO	Operating cash flow divided by the average of beginning and ending total assets.
	AR	The ratio of accounts receivable to total assets.
	CR	The ratio of current assets to current liabilities.
	INV	The ratio of inventory to total assets.
	SOE	Equals 1 for state-owned companies, and 0 for private companies.
	TOP1	The percentage of shares held by the largest shareholder.
	ListAge	The number of years a company has been listed.
	Change	Equals 1 if the auditor changes in the current year, and 0 otherwise.
	Big4	Equals 1 if the company is audited by an international Big 4 firm, and 0 otherwise.
	MAO	Equals 1 if the company receives a modified audit opinion, and 0 otherwise.
	Experience	The number of years since the first year in which an auditor served as an engagement partner of a publicly listed company.
	Collaboration	The number of years the signing auditor partners have continuously collaborated in their current audit firm.
	GenderDIFF	Equals 1 if the audit team members are of the same gender, and 0 otherwise.
	EduDIFF	Equals 1 if the audit team members have the same education levels, and 0 otherwise.
	ExpDIFF	The absolute difference in total years of auditing experience between the signing auditor pairs.
Variables in mechanism analysis	*Biglocal*	Equals 1 if the non-overlapping serving firms consist of domestic or international Big 4 audit firms, and 0 otherwise.
	Misconduct	Equals 1 if the non-overlapping serving firms were penalized during signing auditors' serving period due to misconducts in auditing peer industry clients, and 0 otherwise.
	BigAF	Equals 1 if the company is audited by domestic or international Big 4 audit firms, and 0 otherwise.
	Difference1	The contribution of the review partner to non-overlapping serving firms.
	Difference2	The contribution of the engagement partner to non-overlapping serving firms.

5. Empirical results analysis

5.1. Descriptive statistics of signing auditors' serving experience

Table 2 presents the descriptive statistics for the signing auditors' audit-firm serving experiences. The average number of serving experiences across different audit firms for each signing auditor (*AuditorExp*) is 1.349. Notably, the review partners (*AuditorExp1*) demonstrate tenure in up to 5 distinct audit firms, in contrast to the maximum of 4 for the engagement partners (*AuditorExp2*). The average number of serving experiences for the review partners is 1.616, surpassing the engagement partners' average number of serving experiences of 1.185, indicating a broader spectrum of professional exposure among the review partners.

The maximum number of non-overlapping serving experiences within an audit team is 4, with a maximum of 5 collective serving firms, culminating in a maximum *Difference* value of 0.8. The average heterogeneity in team working experience (*Difference*) is 0.239, suggesting that 23.9 % of the serving experiences between a pair of signing auditors do not overlap.

Table 2
Descriptive statistics for signing auditors' audit-firm serving experience.

Variables	Mean	SD	Min.	Median	Max.
Panel A: Individual auditor					
AuditorExp	1.349	0.752	1.000	1.000	5.000
AuditorExp1	1.616	0.951	1.000	1.000	5.000
AuditorExp2	1.185	0.510	1.000	1.000	4.000
Panel B: Audit team					
Number of Experiences in the Difference Set	0.679	0.941	0.000	0.000	4.000
Number of Experiences in the Union Set	1.796	1.023	1.000	1.000	5.000
Difference	0.239	0.290	0.000	0.000	0.800

5.2. Descriptive statistics of the primary variables

Table 3 reports the descriptive statistics of key variables in the regression model. *LnKAM (raw)* spans from 1 to 6, with a standard deviation of 0.645 and a mean value of 2.041. This reflects notable variation in the number of items included in KAMs among the sample companies. The average of *LnWord (raw)* is 1,046, with a large disparity between the minimum and maximum values. The mean of *LnClear (raw)* is 1.869, indicating prevalent clarity in the attribution of KAMs in the companies' audit reports. These descriptive statistics align with the prior findings (e.g., Lu and Zhang, 2018; Wang and Li, 2019; Chen et al., 2021), underscoring the consistency in KAM disclosure adequacy. The descriptive statistics of the other control variables align with existing research and are not elaborated.

5.3. Regression analysis

Table 4 presents the main regression results for the impact of the heterogeneity of signing auditors' serving experiences on KAM disclosure. The association between *Difference* and KAM disclosure is positive and significant at the 1 % level. Specifically, the coefficients of KAMs disclosed (*LnKAM*), textual length (*LnWord*) and attribution clarity (*LnClear*) are 0.054, 0.061 and 0.045, respectively, which are statistically significant at the 1 % level. In terms of economic significance, when serving experience heterogeneity increases from 0 (complete similarity) to 1 (complete dissimilarity), KAMs disclosed, textual length and attribution clarity increase by 5.4 %, 6.1 % and 4.5 %, respectively.

These findings imply that auditors with diverse serving experiences can use knowledge complementarity and collective intelligence, thus effectively countering conventional thinking biases in KAM disclosures. These results support H1b.

5.4. Mechanism analysis

To further analyze the potential mechanisms through which the heterogeneity of auditors' tenure experience influences KAM disclosure, we explore the boundary conditions from two dimensions: the quality of knowledge accumulation and the environment of knowledge integration.

5.4.1. Effects of the quality of knowledge accumulation

As proposed in H2, when the audit quality of a serving firm is higher, auditors can acquire more high-quality knowledge from their experience at that firm, thereby providing better resources for team knowledge integration. On the contrary, when the audit quality of a serving firm is poor, auditors may accumulate knowledge of relatively lower quality from their experiences within that firm, which adds little value for team knowledge integration. To test this hypothesis, we define serving experience at domestic or international Big 4 audit firms as high-quality experience. *Biglocal* equals 1 if the non-overlapping serving firms consist of domestic or international Big 4 audit firms, and 0 otherwise. Additionally, drawing from the literature (Francis and Michas, 2013; Huang et al., 2015; Yang et al., 2018), serving experience at firms where peer industry clients

Table 3
Descriptive statistics for the key variables.

Variables	N	Mean	SD	Min.	Median	Max.
LnKAM	12,570	0.659	0.340	0.000	0.693	1.609
LnKAM (Raw)	12,570	2.041	0.645	1.000	2.000	6.000
LnWord	12,570	6.866	0.421	5.670	6.897	8.320
LnWord (Raw)	12,570	1,046.254	438.044	199.000	989.000	5,498.000
LnClear	12,570	1.016	0.288	0.000	1.099	1.792
LnClear (Raw)	12,570	1.869	0.737	0.000	2.000	5.000
Difference	12,570	0.239	0.290	0.000	0.000	0.800
Size	12,570	22.375	1.318	19.812	22.192	28.505
Lev	12,570	0.423	0.197	0.062	0.418	1.003
ROA	12,570	0.034	0.076	−0.451	0.037	0.219
Loss	12,570	0.109	0.312	0.000	0.000	1.000
Growth	12,570	0.166	0.383	−0.668	0.111	3.335
CFO	12,570	0.050	0.066	−0.180	0.050	0.252
AR	12,570	0.129	0.104	0.000	0.108	0.505
CR	12,570	2.320	2.039	0.094	1.671	15.577
INV	12,570	0.134	0.121	0.000	0.107	0.661
SOE	12,570	0.325	0.468	0.000	0.000	1.000
Top1	12,570	33.615	14.253	9.200	31.160	86.010
ListAge	12,570	11.640	8.058	0.830	9.567	29.132
Change	12,570	0.575	0.494	0.000	1.000	1.000
Big4	12,570	0.062	0.242	0.000	0.000	1.000
MAO	12,570	0.033	0.178	0.000	0.000	1.000
Experience	12,570	12.300	5.090	1.000	13.000	23.000
Collaboration	12,570	2.761	2.360	1.000	2.000	12.000
GenderDIFF	12,570	0.446	0.497	0.000	0.000	1.000
EduDIFF	12,570	0.490	0.500	0.000	1.000	1.000
ExpDIFF	12,570	7.627	4.933	0.000	7.000	20.000

have been penalized is defined as low-quality experience. *Misconduct* equals 1 if the non-overlapping serving firms of a signing auditor pair contain low-quality experience, and 0 otherwise.

Table 5 shows that in the subsample with high-quality knowledge accumulation (i.e., *Biglocal* = 1 or *Misconduct* = 0), the coefficients of *Difference* are positive and significant at the 5 % level or better, with the exception of those in Column (5) of Panel A. In the subsample with low-quality knowledge accumulation, the coefficients of *Difference* are not significant. These results support H2 that heterogeneity in audit-firm serving experiences substantially bolsters KAM adequacy, predominantly when coupled with high-quality knowledge accumulation during that heterogeneous experience.

5.4.2. Effects of the knowledge integration environment

Next, we examine the impact of the knowledge integration environment. As proposed in H3a and H3b, educational gaps and seniority differences between signing auditors can reinforce the effect of heterogeneous serving experience by facilitating knowledge integration. Additionally, H4 predicts that smaller firms tend to depend more on individual auditors' knowledge and professional acumen for KAM assessments. However, larger firms often utilize more established and standardized systems for KAM evaluation, which may attenuate the benefits of diversity in audit team knowledge.

To empirically test these hypotheses, we first use *EduDIFF* to capture educational differences. *EduDIFF* equals 1 in cases of educational disparity among audit partners, and 0 otherwise. Then, we split *Difference* into *Difference1 and Difference2* according to the contribution of the review partner and engagement partner, respectively, to non-overlapping serving firms. Furthermore, audit firm size is utilized to evaluate the knowledge integration environment at the audit-firm level. Specifically, *BigAF* is an indicator that equals 1 for auditors in domestic or international Big 4 audit firms, and 0 otherwise.

Table 4
Heterogeneity of signing auditors' serving experience and KAM disclosure.

Variables	(1) LnKAM	(2) LnWord	(3) LnClear
Difference	**0.054*****	**0.061*****	**0.045*****
	(3.19)	**(2.85)**	**(2.97)**
Size	0.054***	0.069***	0.042***
	(10.40)	(10.45)	(10.19)
Lev	0.059	0.085*	0.063*
	(1.54)	(1.77)	(1.95)
ROA	−0.481***	−0.485***	−0.373***
	(−6.52)	(−5.42)	(−5.90)
Loss	0.013	0.022	0.011
	(0.86)	(1.19)	(0.85)
ListAge	−0.002*	−0.002	−0.001
	(−1.95)	(−1.59)	(−1.08)
CFO	−0.155**	−0.094	−0.121**
	(−2.52)	(−1.26)	(−2.31)
Growth	0.042***	0.049***	0.033***
	(5.18)	(4.73)	(4.61)
AR	0.225***	0.349***	0.230***
	(4.28)	(5.17)	(5.11)
CR	−0.000	0.001	0.002
	(−0.07)	(0.34)	(0.81)
INV	0.045	0.009	−0.033
	(0.92)	(0.14)	(−0.73)
Top1	−0.001***	−0.001	−0.000
	(−2.61)	(−1.58)	(−1.46)
SOE	−0.046***	−0.080***	−0.040***
	(−3.61)	(−4.91)	(−3.62)
Big4	−0.075***	0.056*	−0.005
	(−2.94)	(1.87)	(−0.27)
MAO	−0.087***	−0.103***	−0.069***
	(−3.56)	(−3.54)	(−3.43)
Change	0.004	0.014**	0.003
	(0.75)	(2.00)	(0.52)
Experience	−0.004***	−0.006***	−0.000
	(−2.78)	(−3.19)	(−0.41)
Collaboration	−0.001	−0.000	−0.002
	(−0.61)	(−0.04)	(−0.94)
GenderDIFF	−0.005	−0.003	0.003
	(−0.70)	(−0.33)	(0.48)
EduDIFF	−0.009	−0.030***	−0.019***
	(−1.14)	(−3.02)	(−2.76)
ExpDIFF	−0.000	0.000	−0.002*
	(−0.33)	(0.03)	(−1.90)
Constant	−0.472***	5.389***	0.086
	(−4.23)	(38.02)	(0.97)
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
N	12,570	12,570	12,570
Adj. R²	0.087	0.088	0.081

Notes: The *t*-statistics shown in parentheses are adjusted for clustering by client. ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.

Table 5
Effects of the quality of knowledge accumulation.

Panel A: Knowledge accumulation quality as captured by the size of the serving firm

Variables	LnKAM		LnWord		LnClear	
	(1)	(2)	(3)	(4)	(5)	(6)
	Biglocal = 1	Biglocal = 0	Biglocal = 1	Biglocal = 0	Biglocal = 1	Biglocal = 0
Difference	0.180**	0.012	0.328***	−0.008	0.061	0.020
	(2.09)	(0.55)	(2.95)	(−0.30)	(0.87)	(1.09)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	1,916	10,654	1,916	10,654	1,916	10,654
Adj. R^2	0.098	0.093	0.114	0.099	0.089	0.086

Panel B: Knowledge accumulation quality as captured by the misconduct of the serving firm

Variables	LnKAM		LnWord		LnClear	
	(1)	(2)	(3)	(4)	(5)	(6)
	Misconduct = 0	Misconduct = 1	Misconduct = 0	Misconduct = 1	Misconduct = 0	Misconduct = 1
Difference	0.062***	0.073	0.062**	0.129	0.054***	0.024
	(3.13)	(0.89)	(2.45)	(1.19)	(3.07)	(0.36)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	10,994	1,574	10,994	1,574	10,994	1,574
Adj. R^2	0.089	0.091	0.091	0.102	0.085	0.087

Notes: The *t*-statistics shown in parentheses are adjusted for clustering by client. ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.

Panel A of Table 6 shows that the coefficient of *Difference* is more significant in the subsample with educational disparity (*EduDIFF* = 1).[3] This result supports H3a, indicating that cognitive variances between signing auditors bolster audit knowledge integration and circulation, thus enhancing the impact of heterogeneity in serving experience on KAM disclosure adequacy. The results in Panel B of Table 6 reveal that *Difference1* has a positive effect on all KAM disclosure adequacy indices at the 1 % significance level, whereas *Difference2* fails to load. This finding is consistent with H3b that review partners with more diverse experience can effectively integrate knowledge within audit teams and transfer tacit knowledge acquired from various firms to less experienced members, thus improving KAM disclosure adequacy.

In Panel C of Table 6, we use audit firm size to assess the audit-firm-level knowledge integration environment. The results show that for signing auditor pairs in small audit firms, the coefficients of *Difference* are positive and significant at the 5 % level or better. In contrast, this effect disappears in big audit firms. These results are consistent with H4 that smaller firms offer a better environment for the knowledge integration of signing auditors with different serving experiences.

5.5. Robustness test

5.5.1. Alternative measurement of key explanatory variables

In the previous analyses, we measure the heterogeneity of signing auditors' serving experiences without considering the characteristics of each serving experience. Next, we deepen our analyses by further examining the signing auditors' tenure at their serving firms, the scale of their projects across firms and the chronological order of their serving experiences.

(1) Tenure and project scale

The accumulation of knowledge and experience increases with the duration of service and project scale (Ashton, 1991; Zhang and Xu, 2014). Therefore, we construct an indicator, $Diff_{Tenure}$, measured as the tenure at non-overlapping serving firms as a proportion of the auditors' total years of professional practice. Considering that auditors may accumulate more professional skills and experience as they audit larger projects (Song and Yu, 2018), we also construct an indicator considering the scale of the auditors' projects. As audit fees are closely related to project scale, complexity, risk and the time and effort required, we use the proportion of each auditor's cumulative audit fees at non-overlapping serving firms to the total cumulative audit fees in their professional practice as an indicator, $Diff_{ProjectScale}$, to account for project scale:

$$Diff_{Tenure} = \frac{\text{Auditor1's diverse serving tenure}}{\text{Audior1's total serving tenure}} + \frac{\text{Auditor2's diverse serving tenure}}{\text{Audior2's total serving tenure}} \tag{3}$$

$$Diff_{Projectscale} = \frac{\text{Auditor1's accumulated audit fees from diverse audit firms}}{\text{Auditor1's accumulated audit fees from overall serving experience}}$$
$$+ \frac{\text{Auditor2's accumulated audit fees from diverse audit firm}}{\text{Auditor2's accumulated audit fees from overall serving experience}} \tag{4}$$

(2) Career development

Given the dynamic nature of knowledge accumulation, the accrual of tacit knowledge has a temporal dimension. Specially, recently accumulated knowledge tends to supersede and overshadow previous knowledge accumulation (Song et al., 2011; Tang et al., 2020). Additionally, within the self-reinforcing cycle of knowledge, auditors continually enhance their capability to apply and reconstitute knowledge (Carlile and Rebentisch, 2003; Wei et al., 2017; Tang et al., 2020). Thus, recent serving experiences, often more aligned with

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[3] Readers are cautioned to interpret these results prudently, as heterogeneity in serving experiences among auditor partners with identical education levels still influences the adequacy of KAM disclosure.

Table 6
Effects of the knowledge integration environment.

Panel A: Educational gaps among audit team

Variables	LnKAM		LnWord		LnClear	
	(1) EduDIFF = 1	(2) EduDIFF = 0	(3) EduDIFF = 1	(4) EduDIFF = 0	(5) EduDIFF = 1	(6) EduDIFF = 0
Difference	0.058**	0.053**	0.089***	0.035	0.054***	0.035*
	(2.50)	(2.34)	(3.14)	(1.22)	(2.69)	(1.77)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	6,163	6,407	6,163	6,407	6,163	6,407
Adj. R^2	0.090	0.094	0.092	0.095	0.083	0.084

Panel B: Seniority differences among audit team

Variables	(1) LnKAM	(2) LnWord	(3) LnClear
Difference1	0.048***	0.049***	0.047***
	(3.25)	(3.26)	(3.08)
Difference2	0.013	−0.004	0.008
	(1.18)	(−0.43)	(0.74)
Controls	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
N	12,570	12,570	12,570
Adj. R^2	0.087	0.089	0.081
Equal effects: Difference1 = Difference2			
p-value	0.030	0.001	0.018

Panel C: Audit firm size

Variables	LnKAM		LnWord		LnClear	
	(1) BigAF = 0	(2) BigAF = 1	(3) BigAF = 0	(4) BigAF = 1	(5) BigAF = 0	(6) BigAF = 1
Difference	0.076***	−0.002	0.060**	−0.024	0.050**	−0.010
	(3.11)	(−0.09)	(2.05)	(−0.77)	(2.09)	(−0.58)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	6,089	6,481	6,089	6,481	6,089	6,481
Adj. R^2	0.105	0.087	0.113	0.082	0.089	0.087

Notes: The t-statistics shown in parentheses are adjusted for clustering by client. ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.

current policy shifts, deepen auditors' knowledge comprehension. Consequently, for an auditor's career development, tacit knowledge gained from recent serving experiences is probably more effective in augmenting individual professional competencies and fostering internal knowledge integration within audit teams.

We assign weights to audit team serving experiences based on the chronological order of those experiences: a weight of 1 for experiences within the previous 5 years, 2/3 for those within the previous 5 to 10 years and 1/3 for those over 10 years old (Pittman et al., 2022). The new index, $Diff_{Time}$, reflects the chronologically weighted heterogeneity of the auditors' serving experiences.

Additionally, untabulated analysis results reveal that in the non-overlapping experiences, serving experiences within the previous 5 years comprise 50.8 %, those within the previous 5 to 10 years constitute 35.61 % and those over 10 years old represent just 13.59 %. In terms of the chronological order of differentiated serving experiences, 15.46 % occurred within the previous 5 years, 30.78 % within the previous 5 to 10 years and 53.76 % over 10 years before. The results in Table 7 demonstrate that our main results hold even when we account for the auditors' service duration, their project scales and the chronological order of their experiences.

5.5.2. Controlling for the impact of signing auditors' total number of serving experiences

Our main findings may be confounded by the extent of the signing auditors' total serving experiences. Auditors with broader serving experiences are likely to exhibit greater heterogeneity in their experiences. Furthermore, experienced auditors tend to possess higher capabilities, which may manifest in more comprehensive KAM disclosures. To address this issue, we incorporate the total count of serving experiences of the signing auditor partners (*TotalExp*) as a fixed effect in the baseline regression model. Table 8 shows that with the exception of the Column (1) results, the core explanatory variable *Difference* loads positively and significant at the 10 % level or better. These results suggest that our primary findings are not exclusively driven by the influence of signing auditors' total serving experiences.

5.5.3. Endogeneity concerns

Our analysis may be subject to endogeneity arising from sample selection bias: audit firms are likely to assign more experienced and diverse audit teams to clients with higher business complexity and risk, which in turn may have a higher incidence of KAMs. To alleviate potential endogeneity concerns, we use propensity score matching (PSM) and the Heckman two-stage model.

In the first stage of PSM, we create a dummy variable for high serving experience heterogeneity (*HighDiff*) based on the annual median of *Difference* and regress it against all of the control variables in Model (1) to compute the *Pscore* values. Next, each sample with high serving experience heterogeneity is nearest-neighbor matched by the *Pscore*, with the common support and without replacement, using a caliper distance of 0.05. Panel A of Table 9 reports the results of the pre- and post-matching balance tests. The results indicate that the differences in most of the variables become non-significant post-matching, thus supporting the effectiveness of PSM. In the second stage of PSM, the regression is re-conducted with the matched sample. As presented in Panel B of Table 9, the coefficients of the core explanatory variable *Difference* remain positive and significant at the 1 % level, suggesting that the primary conclusions are not materially altered.

We also conduct a Heckman two-stage test. Table 10 reports the results, which are consistent with the PSM results. Overall, the results demonstrate that our main findings are not driven by sample self-selection bias.

5.5.4. Alternative sample

The descriptive statistics presented previously reveal that more than half of the signing audit teams work entirely within their firms (i.e., *Difference* = 0), thus exhibiting homogenous serving experiences. Theoretically, the heterogeneity of signing auditors' serving experiences constructed in this study may not explain the variance in KAM disclosure in such a homogeneous sample. To avoid potential regression distortions from including too many observations with a *Difference* value of 0, we retain only those observations in which the signing auditors exhibit diversity in serving experiences (i.e., *Difference* > 0) for the robustness testing. Table 11 reports the results of this alternative sample. The results show that the coefficient of *Difference* is positive and significant at the 1 % level across all measures. These findings further confirm that heterogeneity in signing auditors' serving experiences improves the adequacy of KAM disclosure.

Table 7
Considering the characteristics of audit-firm serving experiences.

Panel A: Considering auditors' tenure

Variables	(1) LnKAM	(2) LnWord	(3) LnClear
$Diff_{Tenure}$	0.046**	0.006	0.033**
	(2.48)	(0.27)	(1.98)
Controls	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
N	12,570	12,570	12,570
Adj. R^2	0.086	0.087	0.080

Panel B: Considering auditors' project scale

Variables	(1) LnKAM	(2) LnWord	(3) LnClear
$Diff_{Project\ scale}$	0.033***	0.025*	0.025**
	(2.92)	(1.76)	(2.50)
Controls	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
N	12,570	12,570	12,570
Adj. R^2	0.086	0.087	0.080

Panel C: Considering the chronological order of auditors' experiences

Variables	(1) LnKAM	(2) LnWord	(3) LnClear
$Diff_{Time}$	0.094***	0.085**	0.071***
	(3.14)	(2.30)	(2.65)
Controls	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
N	12,570	12,570	12,570
Adj. R^2	0.086	0.088	0.081

Notes: The *t*-statistics shown in parentheses are adjusted for clustering by client. ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.

Table 8
Controlling for the impact of signing auditors' total number of serving experiences.

Variables	(1) LnKAM	(2) LnWord	(3) LnClear
Difference	0.037	0.122***	0.047*
	(1.24)	(3.18)	(1.80)
Controls	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
TotalExp FE	Yes	Yes	Yes
N	12,570	12,570	12,570
Adj. R^2	0.089	0.096	0.084

Notes: The *t*-statistics shown in parentheses are adjusted for clustering by client. ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.

Table 9
Results of PSM.

Panel A: PSM pre- and post-matching balance tests

Variables	Pre-matching				Post-matching			
	Treated	Control	%Bias	*p*-values	Treated	Control	%Bias	*p*-values
Size	22.332	22.407	−5.80	0.00	22.361	22.365	−0.40	0.89
Lev	0.418	0.428	−5.10	0.01	0.423	0.424	−0.60	0.83
ROA	0.037	0.032	7.10	0.00	0.035	0.035	0.30	0.91
Loss	0.097	0.118	−7.00	0.00	0.105	0.105	0.10	0.97
Growth	0.173	0.161	3.10	0.09	0.174	0.169	1.40	0.60
CFO	0.051	0.050	1.40	0.44	0.049	0.050	−1.40	0.59
AR	0.129	0.128	0.60	0.74	0.129	0.129	−0.20	0.94
CR	2.351	2.296	2.70	0.13	2.291	2.300	−0.40	0.88
INV	0.134	0.134	−0.20	0.93	0.134	0.135	−0.90	0.73
SOE	0.317	0.331	−3.10	0.09	0.330	0.330	−0.20	0.95
Top1	33.552	33.663	−0.80	0.67	33.631	33.718	−0.60	0.82
ListAge	11.247	11.933	−8.50	0.00	11.471	11.577	−1.30	0.61
Change	0.576	0.574	0.50	0.77	0.575	0.572	0.60	0.81
Big4	0.021	0.092	−31.40	0.00	0.032	0.018	6.00	0.00
MAO	0.031	0.034	−1.90	0.30	0.032	0.030	0.90	0.73
Experience	15.046	10.288	107.10	0.00	13.245	14.455	−27.20	0.00
Collaboration	2.873	2.680	8.20	0.00	2.992	3.087	−4.00	0.16
GenderDIFF	0.444	0.447	−0.60	0.72	0.454	0.464	−2.00	0.46
EduDIFF	0.496	0.486	1.90	0.28	0.505	0.514	−1.80	0.49
ExpDIFF	10.253	5.701	103.30	0.00	8.012	8.989	−22.2	0.00

Panel B: Second-stage results of using the PSM sample

Variables	(1) *LnKAM*	(2) *LnWord*	(3) *LnClear*
Difference	0.056***	0.077***	0.050***
	(2.88)	(3.03)	(2.91)
Controls	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
N	5,596	5,596	5,596
Adj. R²	0.086	0.091	0.080

Notes: The *t*-statistics shown in parentheses are adjusted for clustering by client. ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.

6. Economic consequences analysis

The above results suggest that greater heterogeneity in auditors' serving experiences is correlated with more comprehensive KAM disclosure. Building upon this, we further explore whether audit teams with more heterogeneous auditor serving experiences, after sufficiently identifying and addressing risk points in financial reporting, can enhance audit quality and accounting information quality by increasing audit efforts. Specifically, we examine the economic consequences from the dimensions of audit report delays, the issuance of modified audit opinions, the occurrence of restatement and financial misconduct and market reactions to earnings.

We first explore the impact of audit team serving experience heterogeneity on audit input and audit quality. Following the literature (Liu et al., 2017; Yan et al., 2020; Li and Liang, 2023), we use the natural logarithm of audit delay days (*Delay*) and modified audit opinions (*MAO*) as proxies for audit input and audit quality. Columns (1) and (2) of Table 12 show that the coefficients of *Difference* are positive and significant at the 5 % level or better, indicating that serving experience heterogeneity increases audit effort and improves audit quality.

Next, we use the occurrence of financial misconduct (*Misconduct*) and restatements (*Restate*) to capture accounting information quality (Pittman et al., 2022). *Misconduct* (or *Restate*) equals 1, if audited clients experience financial misconduct (or restatement) in subsequent years, and 0 otherwise. Columns (3) and (4) of Table 12 show that the coefficients of *Difference* are negative and significant at the 10 % level or better, sug-

Table 10
Results of the Heckman two-stage test.

Variables	First stage	Second stage		
	(1) HighDiff	(2) LnKAM	(3) LnWord	(4) LnClear
Difference		**0.056*****	**0.064*****	**0.046*****
		(3.31)	**(3.00)**	**(3.06)**
Size	0.041***	0.048***	0.059***	0.038***
	(3.29)	(8.69)	(8.46)	(8.70)
Loss	−0.086*	0.023	0.038**	0.018
	(−1.96)	(1.50)	(2.01)	(1.34)
Growth	0.014	0.040***	0.045***	0.031***
	(0.42)	(4.91)	(4.40)	(4.40)
CFO	−0.072	−0.146**	−0.080	−0.114**
	(−0.35)	(−2.37)	(−1.07)	(−2.18)
INV	−0.106	0.058	0.029	−0.025
	(−0.79)	(1.18)	(0.47)	(−0.54)
SOE	0.066**	−0.055***	−0.095***	−0.046***
	(1.97)	(−4.22)	(−5.62)	(−4.15)
Top1	0.001	−0.001***	−0.001*	−0.000*
	(0.60)	(−2.88)	(−1.91)	(−1.66)
ListAge	−0.009***	−0.000	0.000	0.000
	(−4.28)	(−0.39)	(0.24)	(0.06)
Change	0.118***	−0.010	−0.008	−0.007
	(4.64)	(−1.26)	(−0.79)	(−1.07)
Big4	−1.001***	0.071	0.284***	0.094**
	(−14.17)	(1.21)	(3.95)	(2.03)
MAO	0.161**	−0.106***	−0.133***	−0.082***
	(2.17)	(−4.23)	(−4.41)	(−3.98)
Experience	0.141***	−0.022***	−0.034***	−0.013**
	(49.88)	(−3.30)	(−4.06)	(−2.36)
Lev		0.061	0.089*	0.065**
		(1.61)	(1.85)	(2.00)
ROA		−0.482***	−0.487***	−0.373***
		(−6.55)	(−5.46)	(−5.92)
AR		0.223***	0.347***	0.229***
		(4.26)	(5.14)	(5.09)
CR		−0.000	0.001	0.002
		(−0.04)	(0.39)	(0.83)
Collaboration		−0.001	0.000	−0.001
		(−0.44)	(0.17)	(−0.81)
GenderDIFF		−0.005	−0.003	0.003
		(−0.71)	(−0.35)	(0.48)
EduDIFF		−0.008	−0.029***	−0.018***
		(−1.08)	(−2.95)	(−2.71)
ExpDIFF		−0.000	0.000	−0.002*
		(−0.26)	(0.11)	(−1.84)
IMR		−0.188***	−0.293***	−0.127**
		(−2.78)	(−3.47)	(−2.33)
Constant	−3.146***	0.061	6.223***	0.447**
	(−9.85)	(0.28)	(22.38)	(2.55)
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
N	12,567	12,567	12,567	12,567
Pseudo R^2/Adj. R^2	0.203	0.088	0.090	0.082

Notes: The t/z-statistics shown in parentheses are adjusted for clustering by client. ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.

Table 11
Results of the alternative sample.

Variables	(1) LnKAM	(2) LnWord	(3) LnClear
Difference	0.179***	0.414***	0.136***
	(3.38)	(6.04)	(2.95)
Controls	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
N	5,319	5,319	5,319
Adj. R^2	0.079	0.085	0.071

Notes: The *t*-statistics shown in parentheses are adjusted for clustering by client. ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.

Table 12
Economic consequences.

Variables	(1) Delay	(2) MAO	(3) Misconduct	(4) Restate	(5) CAR
Difference	**0.015****	**0.728*****	**–0.684*****	**–0.150***	0.007**
	(2.05)	**(2.61)**	**(–3.35)**	**(–1.68)**	(2.47)
SUE					0.002***
					(2.82)
SUE × Difference					**0.003***
					(1.65)
Controls	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
N	12,568	12,570	12,284	12,567	10,799
Adj. R^2/Pseudo R^2	0.127	0.268	0.118	0.089	0.047

Notes: The *t*/*z*-statistics shown in parentheses are adjusted for clustering by client. ***, ** and * indicate significance at the 1%, 5% and 10% levels, respectively.

gesting that divergence in signing auditors' serving experiences reduces the likelihood of clients' financial restatements and violations, thereby enhancing accounting information quality.

Lastly, we use an event study to capture the market reaction to earnings information (Wang et al., 2018; Zhang et al., 2019). The cumulative abnormal returns (*CAR*) around the audit report disclosure date (i.e., event date) are calculated using the market model over a 3-day window. The estimation period is [–150, –30] days, requiring at least 100 trading days of data. Additionally, unexpected earnings (*SUE*) are derived by standardizing annual earnings changes (Basu et al., 2010). The incremental impact of serving experience heterogeneity on earnings response coefficients is captured by an interaction term, *SUE × Difference*, in the model (Teoh and Wong, 1993). The client size (*Size*), price-to-book ratio (*PB*), return on equity (*ROE*), market value of equity (*LnMV*), stock beta (*Beta*), ownership structure (*SOE*), whether audited by an international Big 4 firm (*Big4*) and industry (*Industry*) and year (*Year*) fixed effects are also included. Column (5) of Table 12 shows that the coefficient of *SUE* is positive and significant at the 1 % level, and the interaction term *SUE × Difference* is positive and significant at the 10 % level. This finding indicates that audit teams whose auditors have heterogeneous serving experiences can help enhance the informativeness of accounting information.

7. Conclusions

In this study, we provide novel empirical evidence on the factors influencing KAM disclosure. We find that signing auditors with more heterogeneous audit-firm serving experiences exhibit more adequate KAM disclo-

sure. Mechanism analysis reveals that the quality of knowledge accumulated from heterogeneous serving experiences and the knowledge integration environment at both the team and firm levels significantly influence the impact of serving experience heterogeneity. Specifically, the increase in KAM disclosure adequacy is more salient when auditors accumulate higher-quality knowledge through heterogeneous serving experiences, when audit teams exhibit educational gaps between members, when review partners have heterogeneous experiences and when audit firms are smaller. Economic consequence tests indicate that signing auditors with greater serving experience heterogeneity can enhance audit quality through more audit input, significantly reduce the probability of restatements and financial misconducts and ultimately enhance the informativeness of accounting information. In other words, such audit teams can improve accounting information quality by thoroughly identifying and addressing potential risks in financial reporting.

We extend the literature on KAM disclosure through a novel investigation of how audit team composition affects the adequacy of such disclosure. Our findings offer valuable implications for practice. In the realm of integrated audit firm management, human resource management is pivotal for audit firms' internal governance. Managers need to consider the proper allocation of human resources from the perspective of auditor team composition. By leveraging differentiated serving experiences within audit teams, they can adjust member configurations, enhance communication and cooperation among team members, better harness their teams' collective intelligence and improve internal governance mechanisms and quality management systems. Regulatory bodies are encouraged to encourage audit teams to embrace diverse decision-making frameworks. This shift will aid audit firms in transitioning from a growth-centric to a strength-based approach and promote the healthy development of capital markets.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgment

References

Ashton, A.H., 1991. Experience and error frequency knowledge as potential determinants of audit expertise. Account. Rev. 66 (2), 218–239.

Basu, S., Markov, S., Shivakumar, L., 2010. Inflation, earnings forecasts, and post-earnings announcement drift. Rev. Acc. Stud. 15 (2), 403–440.

Bezrukova, K., Jehn, K.A., Zanutto, E.L., Thatcher, S., 2009. Do workgroup faultlines help or hurt? A moderated model of faultlines, team identification, and group performance. Organ. Sci. 20 (1), 35–50.

Boeker, W., 1997. Strategic change: the influence of managerial characteristics and organizational growth. Acad. Manag. J. 40 (1), 152–170.

Bonner, S.E., Kadous, K., Majors, T.M., 2022. A habit strength-based explanation for auditors' use of simple cognitive processes for complex tasks. Account. Rev. 97 (3), 107–129.

Cahan, S.F., Sun, J., 2015. The effect of audit experience on audit fees and audit quality. J. Acc. Audit. Financ. 30 (1), 78–100.

Cai, Y.D., Wang, S., Chen, Y.L., Li, Y.Z., 2022. Annual report tone Management and auditors' disclosure response. Auditing Research 5, 85–94 (in Chinese).

Cameran, M., Ditillo, A., Pettinicchio, A., 2017. Auditing teams: dynamics and efficiency. Routledge.

Cao, Y.M., 2021. The impact of auditor gender on key audit matters disclosure: evidence from goodwill impairment key audit matters. J. Shanxi Univ. Financ. Econ. 43 (7), 97–111 (in Chinese).

Carlile, P.R., Rebentisch, E.S., 2003. Into the black box: the knowledge transformation cycle. Manag. Sci. 49 (9), 1180–1195.

Carpenter, T.D., 2007. Audit team brainstorming, fraud risk identification, and fraud risk assessment: implications of SAS No. 99. Account. Rev. 82 (5), 1119–1140.

Che, L., Hope, O.-K., Langli, J.C., 2020. How big-4 firms improve audit quality. Manag. Sci. 66 (10), 4552–4572.

Chen, X., Dai, Y., Kong, D., Tan, W., 2017. Effect of international working experience of individual auditors on audit quality: evidence from China. J. Bus. Financ. Acc. 44 (7–8), 1073–1108.

Chen, G.C., Lv, J.L., Wang, Z.Q., Xin, H., Ye, L.X., 2013. Analysis and model innovation of knowledge management issues in accounting firms. Account. Res. 5, 87–94 (in Chinese).

Chen, L.H., Yi, B.X., Yin, M.H., Zhang, L.P., 2021. Do industry expert auditors fully disclose key audit matters? Account. Res. 2, 164–175 (in Chinese).

Chen, L.H., Yi, B.X., Zhang, L.P., 2022. Abnormal audit fees and key audit matters disclosure. Audit. Res. 2, 60–70 (in Chinese).

Chen, L.H., Sun, M.N., Ji, N.N., Zhang, L.P., 2023. Will the change of auditor affect the textual Similarity in key audit matters? Auditing Research 3, 72–84 (in Chinese).

Christian, M.S., Bradley, J.C., Wallace, J.C., Burke, M.J., 2009. Workplace safety: a meta-analysis of the roles of person and situation factors. J. Appl. Psychol. 94 (5), 1103–1127.

Collins, C.G., Parker, S.K., 2010. Team capability beliefs over time: distinguishing between team potency, team outcome efficacy, and team process efficacy. J. Occup. Organ. Psychol. 83 (4), 1003–1023.

Cricelli, L., Grimaldi, M., 2010. Knowledge-based inter-organizational collaborations. J. Knowl. Manag. 14 (3), 348–358.

Dannemiller, S., Doxey, M., Hoang, K., Houston, R. W., 2022. Unique like everyone else: Auditor herding behavior in critical audit matter implementation. Working Paper, University of Alabama.

De Vaan, M., Stark, D., Vedres, B., 2015. Game changer: the topology of creativity. Am. J. Sociol. 120 (4), 1144–1194.

Demirkan, I., Deeds, D.L., Demirkan, S., 2013. Exploring the role of network characteristics, knowledge quality, and inertia on the evolution of scientific networks. J. Manag. 39 (6), 1462–1489.

Dhanaraj, C., Lyles, M.A., Steensma, H.K., Tihanyi, L., 2004. Managing tacit and explicit knowledge transfer in IJVs: the role of relational embeddedness and the impact on performance. J. Int. Bus. Stud. 35 (5), 428–442.

Du, X.Q., Hou, F., 2019. Individual auditors' overseas Experience and audit quality. Manag. Sci. 32 (6), 133–148 (in Chinese).

Francis, J.R., Michas, P.N., 2013. The contagion effect of low-quality audits. Account. Rev. 88 (2), 521–552.

Francis, J.R., Pinnuck, M.L., Watanabe, O., 2014. Auditor style and financial statement comparability. Account. Rev. 89 (2), 605–633.

Griffith, E. E., Rousseau, L. M., Zehms, K. M., 2022. Old institutions, new report: Auditors' experiences implementing critical audit matter reporting. Working Paper, University of Wisconsin-Madison.

Gu, X., Li, J.P., Wang, W.C., 2006. Knowledge flow, knowledge chain, and knowledge chain Management. Soft Sci. 2, 10–12 (in Chinese).

Gul, F.A., Wu, D., Yang, Z., 2013. Do individual auditors affect audit quality? Evidence from archival data. Account. Rev. 88 (6), 1993–2023.

Han, W.F., 2016. Auditor personal Experience, industry expertise, and audit fees. Account. Econ. Res. 30 (6), 91–108 (in Chinese).

Haslam, S.A., Platow, M.J., 2001. The link between leadership and followership: how affirming social identity translates vision into action. Pers. Soc. Psychol. Bull. 27 (11), 1469–1479.

Haslam, N., Rothschild, L., Ernst, D., 2020. Essentialist beliefs about social categories. Br. J. Soc. Psychol. 39 (1), 113–127.

He, X., Kothari, S.P., Xiao, T., Zuo, L., 2022. Industry-specific knowledge transfer in audit firms: evidence from audit firm mergers in China. Account. Rev. 97 (3), 249–277.

He, C., Li, C.K., Monroe, G.S., Si, Y., 2021. Diversity of signatory auditors and audit quality. Audit. J. Pract. Theory 40 (3), 27–52.

Hermanson, D.R., Houston, R.W., Stefaniak, C.M., Wilkins, A.M., 2016. The work environment in large audit firms: current perceptions and possible improvements. Curr. Issues Audit. 10 (2), A38–A61.

Hill, C.W.L., Rothaermel, F.T., 2003. The performance of incumbent firms in the face of radical technological innovation. Acad. Manag. Rev. 28 (2), 257–274.

Hu, Z.Y., Hu, G.Q., 2021. Does the alumni relationship affect the disclosure of key audit matters? J. Zhongnan Univ. Econ. Law 4, 37–48 (in Chinese).

Huang, H.W., Raghunandan, K., Huang, T.C., Chiou, J.R., 2015. Fee discounting and audit quality following audit firm and audit partner changes: Chinese evidence. Account. Rev. 90 (4), 1517–1546.

Hwang, B.H., Kim, S., 2009. It pays to have friends. J. Financ. Econ. 93 (1), 138–158.

Jensen, M., Zajac, E.J., 2004. Corporate elites and corporate strategy: how demographic preferences and structural position shape the scope of the firm. Strateg. Manag. J. 25 (6), 507–524.

Jiang, Y.M., Tang, Y.J., 2016. Accounting firms' human capital, access, and audit quality. Account. Res. 8, 89–95 (in Chinese).

Kang, X., Liu, M.X., 2021. Technological innovation network fragmentation fault, knowledge power, and innovation exclusivity: the moderating role of knowledge gap. Sci. Technol. Prog. Policy 38 (8), 9–15 (in Chinese).

Lennox, C.S., Schmidt, J.J., Thompson, A.M., 2023. Why are expanded audit reports not informative to investors? Evidence from the United Kingdom. Rev. Acc. Stud. 28 (2), 497–532.

Li, J., Hambrick, D.C., 2005. Factional groups: a new vantage on demographic faultlines, conflict, and disintegration in work teams. Acad. Manag. J. 48 (5), 794–813.

Li, Y., Liang, R.X., 2023. Directors and officers liability insurance and audit efficiency: from the perspective of audit delay. Audit. Res. 1, 149–160 (in Chinese).

Li, Q.F., Lu, J.W., 2021. Do Characteristics of key audit matters Paragraphs have information content? Evidence from the audits of 2017 annual reports of Chinese A-share listed companies. Audit Econ. Res. 36 (2), 30–40 (in Chinese).

Li, Y.X., Sai, Q., Sun, W.Z., 2019. Does communicating key audit matters in the audit report improve earnings quality? China Soft Sci. 3, 120–135 (in Chinese).

Li, D.W., Wu, J., 2017. The impact of executive team heterogeneity on corporate social performance. Manage. Rev. 29 (12), 84–93 (in Chinese).

Liu, J., Bi, X.L., 2019. Characteristics of signing auditor partners' heterogeneity and audit opinion: based on the perspective of media report utilization. J. Beijing Technol. Bus. Univ. (Soc. Sci.) 34 (3), 62–73 (in Chinese).

Liu, M.H., Lei, X., 2020. Do auditors use expert work to restrain earnings management? Evidence from key audit matters disclosure. Audit. Res. 1, 78–86 (in Chinese).

Liu, X.X., Li, M.H., 2022. Discovering the minutest detail in everything or playing footsie with clients? Effect of signing auditor's experience on real earnings management. J. Manag. Eng. 36 (2), 123–137 (in Chinese).

Liu, X.X., Li, M.H., Sun, L., 2017. Media negative reports, audit pricing, and audit delay. Account. Res. 4, 88–94 (in Chinese).

Liu, S.B., Zhang, P.C., Xu, C.N., 2014. Team external Learning: theoretical origins, related research, and prospects. Manag. Rev. 26 (5), 39–47 (in Chinese).

Lu, J., Zhang, J.D., 2018. Preliminary study on the disclosure of key audit matters in audit reports: evidence from A+H share listed companies. Account. Res. 2, 83–89 (in Chinese).

Ni, C.H., Ye, R.S., Huang, S.C., Xia, J., 2013. Perceived organizational support and group turnover in the context of working groups: the mediating effects of group level psychological safety and group cohesion. Manag. Rev. 25 (5), 92–101 (in Chinese).

Pan, L., Zhang, L.P., 2019. Signing accountant practice experience and audit delay. J. Nanjing Audit Univ. 16 (5), 32–42 (in Chinese).

Pinto, I., Morais, A.I., 2019. What matters in disclosures of key audit matters: evidence from Europe. J. Int. Financ. Manag. Acc. 30 (2), 145–162.

Pittman, J., Wang, L., Wu, D., 2022. Network analysis of audit partner rotation. Contemp. Account. Res. 39 (2), 1085–1119.

Pittman, J., Stein, S.E., Valentine, D.F., 2023. The importance of audit partners' risk tolerance to audit quality. Contemp. Account. Res. 40 (4), 2512–2546.

Qian, A.M., Xiao, Y.C., Zhu, D.P., Wu, C.T., 2022. Does the financialization of non-financial enterprises affect the disclosure of key audit matters? Audit. Res. 5, 63–74 (in Chinese).

Reid, L.C., Carcello, J.V., Li, C., Neal, T., 2015. Impact of auditor report changes on financial reporting quality and audit costs: evidence from the United Kingdom. Contemp. Account. Res. 36 (3), 1501–1539.

Rosenkopf, L., Padula, G., 2008. Investigating the microstructure of network evolution: alliance formation in the mobile communications industry. Organ. Sci. 19 (5), 669–687.

Rousseau, L.M., Zehms, K.M., 2024. It's a matter of style: The role of audit firms and audit partners in key audit matter reporting. Contemp. Account. Res., 41 (1), 529–561.

Shi, D., Cheng, J., 2011. The impact of auditor gender composition on audit quality and audit fees: evidence from China. Audit Econ. Res. 26 (5), 38–46 (in Chinese).

Shi, W., Ye, F., Liu, F., 2019. Audit teams: research perspectives under the Chinese institutional background. Account. Res. 8, 71–78 (in Chinese).

Sierra-García, L., Gambetta, N., García-Benau, M.A., Orta-Pérez, M., 2019. Understanding the determinants of the magnitude of entity-level risk and account-level risk key audit matters: the case of the United Kingdom. Br. Account. Rev. 51 (3), 227–240.

Song, Y., Wang, J., 2020. The impact of network Characteristics and knowledge attributes on firm innovation performance. Manag. Sci. 33 (3), 63–77 (in Chinese).

Song, R.X., Wei, J., Li, D., Miao, J.J., 2011. The impact of organizational memory and organizational oblivion to knowledge transfer-based on the social network angle. Manage. Rev. 23 (11), 143–150 (in Chinese).

Song, Z.L., Yu, Y.M., 2018. Audit project team industry expertise type, audit fee premium, and audit quality. Account. Res. 4, 82–88 (in Chinese).

Steiner, G.A., 1972. Social policies for business. Calif. Manage. Rev. 15 (2), 17–24.

Sun, Y.W., Wei, Y.P., 2011. Study on knowledge diffusion in high-tech Enterprise alliances: from the perspective of small world networks. J. Manag. Sci. China 14 (12), 17–26 (in Chinese).

Sytch, M., Tatarynowicz, A., Gulati, R., 2012. Toward a theory of extended contact: the incentives and opportunities for bridging across network communities. Organ. Sci. 23 (6), 1658–1681.

Teoh, S.H., Wong, T.J., 1993. Perceived auditor quality and the earnings response coefficient. Account. Rev. 68 (2), 346–366.

Tian, G.L., Chen, K.Y., Qi, B.L., 2021. Do accounting firms have an audit style based on key audit matters? Evidence from the disclosure of new version audit reports of Chinese listed companies. Account. Res. 11, 160–177 (in Chinese).

Wang, L., Wu, D., Zhao, Y., 2022. Network connectedness and the convergence of audit styles. Working Paper, Central University of Finance and Economics.

Wang, X.Q., Hu, J.W., 2020. Does audit style affect the choice of auditors by enterprises? Audit. Res. 3, 115–124 (in Chinese).

Wang, M.Z., Li, D., 2019. The new audit report and stock price synchronicity. Account. Res. 1, 86–92 (in Chinese).

Wang, X.K., Wang, Y.Y., Yu, L.S., Zhao, Y.P., Zhang, Z.Y., 2016. Auditor personal experience and audit quality. Account. Res. 9, 75–81 (in Chinese).

Wang, Y.Y., Xu, R., Wang, C.L., Yu, L.S., 2018. Can the key audit matters improve the communication value of audit reports? Account. Res. 6, 86–93 (in Chinese).

Wang, Y.M., Zhao, Z.B., Wang, Y.C., 2020. Knowledge-based TMT faultlines, CEO-TMT Interface and internationalization scope. Nankai Manag. Rev. 23 (6), 39–51 (in Chinese).

Yan, H.M., Yan, Z.H., Liu, N., 2017. Auditor Partner stability and audit quality: a team perspective study. Audit. Res. 6, 76–83 (in Chinese).

Yan, H.M., Wang, H.Y., Zhang, X.H., 2020. Auditor workload pressure, organizational support, and audit opinion Decisions. Manag. Sci. 33 (4), 19–36 (in Chinese).

Yan, H.M., Wang, H.Y., Li, Y.Y., 2022. Auditor tenure overlap and audit quality: from a tenure regulation perspective. Manag. Sci. 35 (1), 106–117 (in Chinese).

Yang, J.F., Chen, Z., Wu, X., Sun, W.Z., 2018. Study on the spillover effect of certified public accountants' punishment: from the perspective of close relationships with punished signing CPAs. Account. Res. 8, 65–71 (in Chinese).

Yang, H.X., Li, Z., 2008. The impact of intra-cluster knowledge transfer factors on enterprise growth. Econ. Perspect. 5, 40–43 (in Chinese).

Ye, H.J., 2021. Knowledge spillover, governance effect, and innovation performance of industrial clusters. Governance Res. 37 (2), 110–117 (in Chinese).

Zhang, J.D., Lu, J., Li, L.H., 2019. Does the disclosure of key audit matters information in audit reports help improve audit quality? dual-dimensional evidence from reported Earnings and Market perception. Account. Res. 6, 85–91 (in Chinese).

Zhang, W., Xu, D., 2014. Model of knowledge accumulation process on dynamic knowledge networks. J. Manag. Sci. China 17 (11), 122–128 (in Chinese).

Zhou, Z., Chen, Z.G., 2015. Simulation analysis of knowledge transfer behavior in industrial cluster networks: a perspective of Enterprise knowledge rigidity. J. Manag. Sci. Chinese 18 (1), 41–49 (in Chinese).

Zhou, Z.S., He, C., Shao, W., 2020b. Key audit matters disclosure and audit fees. Audit. Res. 6, 68–76 (in Chinese).

Zhou, K.T., Li, Y., Wu, L.S., 2020a. Industry expertise and audit production efficiency. Account. Res. 9, 105–119 (in Chinese).