Frontiers in Business, Economics and Management
ISSN: 2766-824X | Vol. 18, No. 2, 2025

A Study on The Impact of Digital Transformation on Auditor Decision Making

Qian Ou[1, *], Yuxiao Wu[1]

[1] School of Southwest Petroleum University, Sichuan, China

[*] Corresponding author: Qian Ou (Email: 2241228713@qq.com)

Abstract: Faced with the rapid development of the digital economy and profound changes in the market environment, it has become a strategic choice for most enterprises to seek sustainable competitive advantage to promote the renewal and iteration of production mode and governance mode with the help of digital tools and platforms. The digital transformation of enterprises will change the business model, internal control and information transmission formation, and also bring new changes and risks to the audit work of certified public accountants. The new audit report reveals the core content of the audit process through the description part and the response part of the key audit matters, which can be regarded as a strategy for auditors to deal with risks. Therefore, with the help of new scenarios of digital business application and risk control advantages of disclosure of key audit matters, this paper selects A-share listed companies from 2017 to 2023 as research samples to explore the impact of digital transformation of listed companies on auditor decision-making. The study found that the higher the degree of digital transformation, the more auditors tend to disclose and describe key audit matters in detail. Based on the research conclusions, this paper puts forward some suggestions on promoting enterprise digital transformation, reducing audit risk and improving auditor professional competence from the perspectives of government, enterprises and auditors.

Keywords: Digital transformation, Auditor decisions, Key audit matters.

1. Introduction

With the rapid development and widespread application of digital technologies such as big data, cloud computing, artificial intelligence, Internet of Things, blockchain and 5G, digitization has become an important engine to promote economic transformation and achieve high-quality development, supporting the accumulation and growth of China's new quality productivity. According to the White Paper on China's Digital Economy Development released by the China Academy of Information and Communications Technology in 2024, the scale of China's digital economy will reach 53.9 trillion yuan in 2023, accounting for 42.8% of GDP and contributing 66.45% to GDP growth. Obviously, the output value of the digital economy has become an important part of the total output value of the social economy, which is limited to support stable economic growth. Faced with the rapid development of the digital economy and profound changes in the market environment, it has become a strategic choice for most enterprises to seek sustainable competitive advantage to promote the renewal and iteration of production mode and governance mode with the help of digital tools and platforms, and thus achieve digital transformation. In order not to be eliminated by the era of digital economy, enterprises in the market should take the initiative to carry out digital transformation and enhance their competitive advantages in the market. Therefore, it is of great significance to study the digital transformation of enterprises.

Enterprise digital transformation will have an impact on the internal business process, organizational structure, business model and other aspects of the enterprise, but also to the CPA audit work has a certain impact. According to the risk-oriented theory, the CPA will focus on the possible risk points of the enterprise in the audit process and implement the risk response behavior. Enterprise digital transformation has an impact on inherent and control risks, which in turn affects the disclosure of key audit matters. Enterprise digital transformation will also bring new changes such as new personnel, new technology and new environment to the enterprise, which will affect the effectiveness of internal control, organizational structure and governance effect, thus affecting the audit process. At the same time, the digital transformation of enterprises will also have an impact on the disclosure and transparency of corporate information. High audit risk will make auditors spend more audit costs, and the higher the audit fee, the more cautious auditors will express audit opinions and increase the disclosure of key audit matters. Enterprise digital transformation can affect auditor decision making, so how will enterprise digital transformation affect auditor decision making? On the one hand, scholars have not reached a consensus on this effect relationship; On the other hand, existing studies focus more on the impact of digital transformation on audit fees, audit opinions and audit quality, and less on the impact of digital transformation on key audit matters. The use of indirect indicators such as audit opinions or audit fees to infer auditors' responses to different risks has limitations. Therefore, it is of research value to clarify the impact of digital transformation on auditors' decision making based on key audit matters.

In addition, in 2016, the Ministry of Finance issued the Auditing Standard of China for Certified Public Accountants No. 1504 -- Communicating Key Audit Matters in Audit Reports, requiring certified public accountants to communicate key audit matters in audit reports, and disclose specific information about audit items such as reasons for determination and countermeasures taken in the audit process, achieving continuous convergence with international auditing standards. After 2018, all A-share listed companies are required to implement the new audit standards. The new audit report changes the situation of simple content, single form and lack of information in the original audit report, and can reveal the risk assessment and response process behind the audit

opinions to investors. The implementation of the new audit standards has been widely concerned by the academic community. Scholars have studied whether the key audit items have information content for report users and the impact of the key audit items on auditors' perceived responsibility from various perspectives. Key audit matters can well reflect the risk response decision of auditors. On the one hand, according to the requirements of the standards, auditors need to communicate the areas with high risks, and directly disclose the risk assessment and risk response process of auditors; On the other hand, auditors can use disclosure of key audit matters to reduce investors' identification of auditors' responsibility, thus reducing litigation risk and penalty risk, which is also a means to deal with risks. Therefore, this paper uses the number and length of key audit matters as proxy variables for auditor decisions.

To sum up, this paper selects A-share listed companies from 2017 to 2023 as research samples to conduct empirical research on the impact of digital transformation on auditor decision making. With the help of new scenarios of digital business application and risk control advantages of disclosure of key audit matters, this paper analyzes the impact of digital transformation on auditor decision making of listed companies. Possible contributions of this paper: (1) Based on risk-oriented theory, it provides a useful supplement to the research of auditor behavior decision. This paper uses the key audit matters disclosed in the audit report to open the "black box" of the audit process, and directly examines the risk assessment and risk response process. (2) Compared with other indicators, the disclosure characteristics of key audit matters can more directly reflect the risk assessment and response process of auditors. In the decision-making process of auditors, auditors tend to disclose key audit matters to meet the needs of internal and external stakeholders of enterprises, so as to avoid risks. Therefore, based on the perspective of key audit matters, this paper analyzes the impact of enterprise digital transformation on auditor decision-making behavior, and expands the research perspective of existing literature in this field.

2. Theoretical Analysis and Research Hypothesis

Under the background of the digital economy and the new era, the digitalization of enterprises enables the improvement of operation efficiency and corporate governance, but also brings new challenges to the audit business risk control of annual report auditors, which will also affect the decision of auditors. The literature review and theoretical analysis in this paper show that some new changes of enterprise digital transformation will increase audit risks, and then make auditors hold a cautious and conservative attitude towards enterprise audit. Here's why:

First of all, for enterprises, the implementation of digital transformation is a long process, and the dividends brought by digital transformation will take some time to appear, and in this process, Enterprises will face problems such as internal control defects brought by digital transformation, operating risks brought by business model transformation, resource input pressure, low operational efficiency caused by poor adaptability in the initial stage of transformation, and manipulation of earnings management motivation. First, in terms of internal control, as digital transformation is an emerging transformation trend, traditional enterprises lack digital talents and employees lack corresponding knowledge and experience in the use and management of digital technologies, resulting in the lagging update of the supporting internal control system and even a blank state . It can be seen that the digital transformation of enterprises is easy to cause internal control risks, thus increasing the possibility of audit failure. Second, the impact of digital transformation on the original management system, business process and organizational model of the enterprise may make it difficult for the enterprise to adapt to the new changes in a short period of time, resulting in low operating efficiency, increased operating costs and poor performance (Yang Deming et al., 2020), bringing operational risks. Third, the digital transformation of enterprises requires a large amount of upfront investment, including hardware and software investment and personnel training, which will cause certain financial pressure on enterprises. Especially in the early stage of digitalization, enterprise technology exploration requires high capital investment and precipitation costs (Liu Shuchun et al.,2021), which may crowd out enterprise operating capital and bring additional business risks . Moreover, the financial pressure will strengthen the motivation of enterprises to embellish their financial status by manipulating earnings to alleviate the risk of "loan reluctance" of borrowers, thus leading to the deterioration of the quality of accounting information of enterprises (Lu Taiping et al., 2014) . At the same time, the transformation of enterprise business model is highly uncertain. For the consideration of personal salary and reputation, the performance pressure brought by business uncertainty will encourage the management to hide negative information or even whitewash statements, which will lead to the deterioration of the quality of accounting information (Xu Ziyao and Zhang Lisha, 2022) .

Secondly, for auditors, digital transformation has brought many challenges to audit. Digital transformation has increased the complexity and difficulty of audit, hidden violations, and lack of auditors' experience and compound talents, which are prone to misstatement and inspection risks. First, the newly established digital technology departments overlap with traditional organizational departments, which improves the redundancy and complexity of organizational structure (Li Rong et al., 2020) . Such complex organizational structure is easy to induce opportunistic behavior of management and employees, increase the risk of material misstatement of financial statements, and make auditors have to make more efforts to reduce audit risk to an acceptable level. The innovation of the business model makes it difficult for auditors to apply the audit experience and knowledge accumulated in the past. As a result, auditors must adjust the audit plan according to the process of enterprise product and service integration. Second, enterprises may introduce a variety of information systems in the process of digital transformation, and auditors are only familiar with traditional financial systems and software, which greatly increases the audit difficulty of auditors. In order to avoid the risk of litigation in the future due to the lack of effective identification of potential risks, it is the best choice for firms to hire information technology experts with financial background, but there are not many inter-disciplinary talents meeting the requirements at this stage. The shortage of human resources increases the audit input burden of auditors to some extent. At the same time, the "cover" of various complicated information systems makes the violations of enterprises more hidden, and the auditors cannot identify the real earnings

management behaviors, thus improving the assessment of audit risks and increasing the inspection risks (Wu Wuqing et al., 2022) . Based on this, this paper proposes the following hypothesis:

H1: Digital transformation has increased audit risk, and auditors are choosing to increase the number and length of disclosures of key audit matters.

3. Research Design

3.1. Sample selection and data source

In this paper, China's A-share listed companies from 2017 to 2023 are selected as research samples, and the data is downloaded from CSMAR database, and the data of key audit matters are manually sorted. The original samples were screened as follows: (1) ST, *ST, PT and delisted listed companies were excluded; (2) Excluding companies in the financial sector; (3) Eliminate companies with abnormal financial data and missing variable data; (4) To retain research samples with seven consecutive years or more to enhance the efficiency of measurement research. After the above processing operations, 15,330 sample observations were finally obtained. In order to mitigate the potential perturbation of sample extremes, 1% Winsorize tail reduction was performed on all continuous variables before testing..

3.2. Variable selection and measurement

(1) Explained variable -- auditor decision

This paper discusses the auditor's decision-making behavior from the perspective of key audit matters. Referring to the relevant studies of Chu Youwei (2022) and Zhang Ting (2023), this paper believes that the new audit report reveals the core content of the audit process through the description and response parts of key audit matters [87,175]. This kind of disclosure not only shows the auditor's identification and response to the major risks of the enterprise, but also improves the audit transparency to a certain extent. In addition, compared with other contents of the audit report, the disclosure of key audit matters can help auditors reduce the risk of liability and the risk of litigation and punishment, which can be regarded as a strategy for auditors to deal with risks. Therefore, this paper takes the disclosure of key audit matters as a measure of auditors' risk decision-making behavior. Specific measures include the number of key audit matters disclosed in the audit report (Kamnum), the text length of the key audit matters description section (Kaml), and the text length of the response paragraph (Sol).

(2) Explanatory variable -- digital transformation

The word frequency measurement method of digital transformation can reflect the latest trend of enterprise digital transformation. Referring to the study of Wu Fei (2021), this paper adopts enterprise digital transformation data provided by CSMAR database in the main test, and adds 1 to the frequency of digital transformation keywords appearing in the annual financial reports of enterprises and takes the natural logarithm as a measure of the degree of enterprise digital transformation, which is recorded as DIG[5].

(3) Control variables

Based on the study of Yao Youfu and Zhou LAN (2023), this paper intends to add the following control variables, and the specific variables are selected in the table 1.

3.3. Model design

In order to test hypothesis H1, that is, digital transformation increases audit risk, auditors choose to increase the number and length of disclosure of key audit matters, and construct models (3-1), (3-2) and (3-3).

$$\text{Kamnum} = \alpha_0 + \alpha_1 DIG + \sum \alpha\, Controls + \sum Ind + \sum Year + \varepsilon \quad (3\text{-}1)$$

$$\text{Kaml} = \beta_0 + \beta_1 DIG + \sum \beta\, Controls + \sum Ind + \sum Year + \varepsilon \quad (3\text{-}2)$$

$$\text{Sol} = \gamma_0 + \gamma_1 DIG + \sum \gamma\, Controls + \sum Ind + \sum Year + \varepsilon \quad (3\text{-}3)$$

Where Kamnum represents the number of key audit matters, one of the proxy variables for auditor decisions, as explained by the explained variable (Zhang Ting and Zhang Dunli, 2023; Chen Lihong et al. 2021), Kamnum is an ordered discrete variable with values of 1, 2, 3, and 4, and the preferentially ordered Logit model is used in this paper. Where Kaml represents the text length of the key audit item description paragraph of the explained variable; Sol indicates the text length of the critical audit event response paragraph. DIG represents the degree of digital transformation of the enterprise; Controls represents the control variable, and this paper controls both the industry dummy variable (Ind) and the time dummy variable (Year) to absorb the fixed effect as much as possible. If the model coefficient a1\b1\g1 is significantly positive, it indicates that the relationship between enterprise digital transformation and auditor decision making is positive, indicating that auditors respond to audit risks that may exist in the process of enterprise digital transformation by disclosing more key audit matters

4. Empirical Results

4.1. Descriptive statistics

Table 3 shows the results of descriptive statistics of major variables in this study. According to the results, 15,533 valid samples are included in all sample observations from 2017 to 2023. The number of key audit matters (Kamnum) is an orderly discrete variable with a minimum value of 1, a maximum value of 4 and an average value of 2.03, indicating that there is little difference in the number of key audit matters disclosed by auditors to listed companies. The minimum, maximum, and median Kaml length is 4.533, 7.375, and 6.040, indicating that the data distribution is skewed. The minimum value of Sol is 5.366, the maximum value is 7.027, the median value is 6.525, and the average value is 6.485. The overall average value of digitization transformation degree (DIG) is 1.830, the standard deviation is 1.428, the minimum value is 0, and the maximum value is 5.268. It can be seen that there are huge differences in this index among different enterprises. The digitization level of ..China's non-financial A-share listed companies is obviously different, and the digital transformation degree of enterprises is not high on the whole, which needs further development. The reasonable distribution of control variables is basically consistent with the existing literature.

4.2. Correlation analysis and multicollinearity test

The Pearson correlation coefficient test of each major variable can directly show the correlation between variables. The correlation coefficient of most variables is less than 0.5, and only a few are greater than 0.5, indicating that the

correlation between variables is relatively strong. At the same time, the variance inflation factor test was carried out on all variables, and the VIF value of all variables was far

Table 1. Variable Settings and description

variable type	Variable name	variable symbol	Variable declaration
Be interpreted variable	Number of key audit items	Kamnum	Number of key audit items disclosed in the audit report
	The text length of the critical audit event description section	Kaml	The logarithm of all text characters in the audit report that disclose key audit matters
	The text length of the critical audit event should be the paragraph	Sol	The logarithm of the number of all text characters in the response to the critical audit matter disclosed in the audit report
explain variable	Digital transformation	DIG	Digital transformation keyword frequency plus 1 to take the natural logarithm
Controls variable	Company size	Size	Total assets of company
	Return on total assets	ROA	Net profit/total assets
	Accounts receivable ratio	Rec	Net accounts receivable/total assets
	Debt level	Debt	Total liabilities/total assets
	growth	Growth	(Current period operating income - previous period operating income)/ previous period operating income
	Management shareholding	Mshare	Number of management holdings/total number of shares
	Ownership concentration	TOP1	Shareholding ratio of the largest shareholder (%)
	Operating cash flow	CFO	Net operating cash flow/total assets
	Property right nature	SOE	The value is 1 for state-owned enterprises and 0 for non-state-owned enterprises
	Market age	ListAge	The number of years a company has been listed is the natural logarithm
	Transaction type	Big4	Whether it is audited by the Big Four accounting firms, the big four audit takes 1, otherwise it is 0
	Deficit position	Loss	If the net profit is negative, the value is 1, otherwise it is 0
	Year	Year	Annual dummy variable
	Industry	Ind	Industry dummy variable

Table 2. Descriptive statistics

VarName	Obs	Mean	SD	Min	Median	Max
Kamnum	15533	2.034	0.637	1.000	2.000	4.000
Kaml	15533	5.993	0.527	4.533	6.040	7.072
Sol	15533	6.485	0.418	5.366	6.525	7.375
DIG	15533	1.830	1.428	0.000	1.609	5.268
size	15533	22.543	1.290	20.104	22.380	26.511
ROA	15533	0.033	0.066	-0.251	0.034	0.204
Rec	15533	0.127	0.101	0.001	0.108	0.465
Debt	15533	0.428	0.191	0.070	0.422	0.868
Growth	15533	0.133	0.324	-0.528	0.092	1.818
Mshare	15533	0.064	0.123	0.000	0.002	0.581
Top1	15533	31.815	14.306	7.950	29.810	72.020
CFO	15533	0.052	0.064	-0.125	0.049	0.240
SOE	15533	0.360	0.480	0.000	0.000	1.000
ListAge	15533	2.457	0.654	0.000	2.485	3.526
Big4	15533	0.061	0.239	0.000	0.000	1.000
Loss	15533	0.860	0.347	0.000	1.000	1.000

less than 10, indicating that there was no serious collinearity problem between variables.

4.3. Regression Analysis

(1) Regression analysis of digital transformation and number of key audit matters

In order to test the relationship between digital transformation and the number of key audit items, this paper conducted orderly Logit regression according to the model established by formula (4-1). The model took the number of key audit items (Kamnum) as the explained variable, and the regression results were shown in Table 3:

Specifically, (1) is listed as not adding other control variables, but controlling for industry and annual fixed effects. The regression results show that the coefficient of enterprise digitization degree (DIG) is 0.151 and significant at 1% level, preliminarily indicating that auditors have made positive disclosure responses to enterprise digital transformation. In

column (2), variables such as financial and governance characteristics are further added, and the coefficient of enterprise digitization degree (DIG) is 0.068 and significantly positive at the 1% level, indicating that after controlling for various heterogeneity characteristics, auditors still respond to enterprise digitization by disclosing more key audit matters, that is, the higher the level of enterprise digitization, the higher the level of enterprise digitization. The greater the number of key audit matters disclosed by auditors, supports the research hypothesis H1a. Further, according to the median digitalization degree of enterprises, the group with low digitalization degree is less than 1.609, and the group with high digitalization degree is greater than or equal to 1.609. The impact of digitalization degree on auditors' disclosure of key audit matters is tested. The regression results are shown in columns 3 (3) - (4). Auditors will adopt more disclosure of key audit matters in response. This result indicates that auditors maintain a more cautious attitude towards highly digitized enterprises, possibly because auditors in more digitized enterprises face more risks and challenges due to the increased complexity of business models and information systems. In order to reduce audit risk and improve audit quality, auditors may choose to disclose more key audit matters.

Table 3. Number of key audit items regression results

	(1)	(2)	(3)	(4)
Dependent variable	Kamnum	Kamnum	Kamnum	Kamnum
Independent variable	Full sample	Full sample	Low digital level group	High digital level group
DIG	0.151***	0.068***	-0.007	0.098***
	(0.014)	(0.015)	(0.047)	(0.029)
size		0.360***	0.385***	0.338***
		(0.019)	(0.028)	(0.025)
ROA		-4.540***	-4.361***	-4.616***
		(0.413)	(0.655)	(0.540)
Rec		1.789***	1.822***	1.662***
		(0.197)	(0.331)	(0.248)
Debt		0.304**	0.287	0.370**
		(0.119)	(0.176)	(0.163)
Growth		0.221***	0.212***	0.222***
		(0.056)	(0.079)	(0.079)
Mshare		-0.144	0.664***	-0.757***
		(0.153)	(0.235)	(0.203)
Top1		-0.009***	-0.008***	-0.008***
		(0.001)	(0.002)	(0.002)
CFO		-0.680**	-0.295	-1.150***
		(0.306)	(0.455)	(0.421)
SOE		-0.208***	-0.078	-0.344***
		(0.042)	(0.061)	(0.057)
ListAge		-0.147***	-0.096*	-0.173***
		(0.035)	(0.050)	(0.049)
Big4		-0.647***	-0.745***	-0.585***
		(0.076)	(0.122)	(0.097)
Loss		-0.161**	-0.164	-0.136
		(0.068)	(0.103)	(0.091)
cut1	-1.166***	5.825***	6.829***	4.801***
	(0.166)	(0.409)	(0.606)	(0.572)
cut2	1.984***	9.161***	10.200***	8.139***
	(0.167)	(0.414)	(0.615)	(0.578)
cut3	4.516***	11.759***	12.784***	10.756***
	(0.176)	(0.420)	(0.624)	(0.584)
Ind	YES	YES	YES	YES
Year	YES	YES	YES	YES
N	15533.000	15533.000	7039.000	8494.000

Note: ***, ** and * represent significant at 1%, 5% and 10% levels respectively, and heteroscedasticity robust standard error in parentheses, the same below.

(2) Regression analysis of digital transformation and key audit items description

The regression results of the digital transformation and key audit matters description paragraph are shown in Table 4. Columns (1) and (2) report the regression results of Enterprise Digital Transformation (DIG) on the text length (Kaml) of the key audit matters description paragraph without adding control variables after the control year and the fixed effect of the industry, respectively. According to the regression results, after adding control variables, the regression coefficient between the text length of the description paragraph of key audit matters disclosed by auditors and enterprise digital transformation is 0.013, which is significantly positive at 1% level, indicating that enterprise digital transformation can increase the text length of the description paragraph of key audit matters. Further, according to the median digitalization degree of enterprises, the influence of digitalization degree on the text length of the description paragraph of key audit matters is tested. The regression results are shown in columns 4 (3) - (4) in Table 4. It can be found that the text length of the description paragraph of key audit matters is longer in enterprises with higher digitalization degree. This result indicates that auditors have a more cautious attitude towards highly digitized enterprises, possibly because in more digitized enterprises, due to the increased complexity of business models and information systems, auditors need to

describe the key audit matters in more detail and explain the audit methodology and risk assessment process for new information systems. To accurately communicate specific risks faced by the organization and audit responses.

Table 4. Key audit item description section regression results

	(1)	(2)	(3)	(4)
Dependent variable	Kaml	Kaml	Kaml	Kaml
Independent variable	Full sample	Full sample	Low digital level group	High digital level group
DIG	0.033***	0.013***	-0.005	0.017**
	(0.004)	(0.004)	(0.012)	(0.007)
size		0.078***	0.093***	0.065***
		(0.005)	(0.007)	(0.006)
ROA		-0.938***	-0.938***	-0.916***
		(0.099)	(0.159)	(0.128)
Rec		0.380***	0.317***	0.402***
		(0.047)	(0.078)	(0.060)
Debt		0.044	0.071*	0.032
		(0.029)	(0.043)	(0.041)
Growth		0.052***	0.036*	0.065***
		(0.014)	(0.019)	(0.020)
Mshare		0.065*	0.200***	-0.044
		(0.036)	(0.055)	(0.048)
Top1		-0.001***	-0.001**	-0.001***
		(0.000)	(0.000)	(0.000)
CFO		-0.052	-0.049	-0.059
		(0.076)	(0.115)	(0.102)
SOE		-0.043***	-0.018	-0.071***
		(0.010)	(0.016)	(0.014)
ListAge		-0.027***	-0.045***	-0.008
		(0.008)	(0.012)	(0.012)
Big4		0.190***	0.197***	0.187***
		(0.017)	(0.028)	(0.022)
Loss		-0.029*	-0.027	-0.029
		(0.017)	(0.025)	(0.022)
_cons	5.932***	4.290***	3.990***	4.544***
	(0.008)	(0.093)	(0.139)	(0.128)
Ind	YES	YES	YES	YES
Year	YES	YES	YES	YES
N	15533.000	15533.000	7039.000	8494.000
r2_a	0.026	0.083	0.086	0.076
DIG	0.033***	0.013***	-0.005	0.017**
	(0.004)	(0.004)	(0.012)	(0.007)
size		0.078***	0.093***	0.065***

(3) Regression analysis of digital transformation and key audit issues

In this paper, model (3-3) is used to verify the impact of enterprise digital transformation on the response segment of key audit events. After controlling the fixed effect of industry and year, the degree of enterprise digital transformation (DIG) and the text length (Sol) of the response segment of key audit events are regressed. The univariate regression results are shown in column (1) of Table 5. The impact of the degree of enterprise digital transformation (DIG) on the text length (Sol) of the critical audit response paragraph passes a 1% significance test with a correlation coefficient of 0.03. Column (2) of Table 5-6 shows the regression results with the addition of control variables. The correlation coefficient between the degree of enterprise digital transformation (DIG) and the text length (Sol) of the response paragraphs of key audit matters is 0.014, which is still significantly positive at the level of 1%, preliminarily verifying that digital transformation promotes the detailed disclosure of the response paragraphs of key audit matters. Further, according to the median digitization degree of enterprises, the regression results are shown in columns 5 (3) - (4). It can be found that the text length of the response paragraphs of key audit matters is longer in enterprises with higher digitization degree. It shows that the higher the degree of enterprise digital transformation, the more auditors describe the response measures of key audit matters, and the longer the text length of the response paragraphs of key audit matters. This can indicate that our auditors' awareness of this risk factor in the digital transformation of enterprises is reflected in more cautious response decisions.

Table 5. Key audit matters should be subject to regression results

	(1)	(2)	(3)	(4)
Dependent variable	Sol	Sol	Sol	Sol
Independent variable	Full sample	Full sample	Low digital level group	High digital level group
DIG	0.030***	0.014***	-0.000	0.020***
	(0.003)	(0.003)	(0.009)	(0.006)
size		0.052***	0.055***	0.049***
		(0.004)	(0.005)	(0.005)
ROA		-0.475***	-0.370***	-0.539***
		(0.081)	(0.128)	(0.105)
Rec		0.425***	0.415***	0.415***
		(0.039)	(0.063)	(0.049)
Debt		0.121***	0.128***	0.127***
		(0.024)	(0.034)	(0.033)
Growth		0.045***	0.031**	0.055***
		(0.011)	(0.015)	(0.016)
Mshare		-0.029	0.037	-0.081**
		(0.030)	(0.043)	(0.041)
Top1		-0.001***	-0.001***	-0.001***
		(0.000)	(0.000)	(0.000)
CFO		-0.111*	-0.124	-0.117
		(0.061)	(0.089)	(0.084)
SOE		-0.059***	-0.047***	-0.070***
		(0.008)	(0.012)	(0.011)
ListAge		-0.040***	-0.042***	-0.036***
		(0.007)	(0.010)	(0.010)
Big4		-0.067***	-0.058**	-0.071***
		(0.016)	(0.024)	(0.022)
Loss		-0.046***	-0.050**	-0.039**
		(0.013)	(0.020)	(0.018)
_cons	6.431***	5.398***	5.335***	5.436***
	(0.006)	(0.075)	(0.111)	(0.102)
Ind	YES	YES	YES	YES
Year	YES	YES	YES	YES
N	15533.000	15533.000	7039.000	8494.000
r2_a	0.029	0.078	0.068	0.075
DIG	0.030***	0.014***	-0.000	0.020***
	(0.003)	(0.003)	(0.009)	(0.006)
size		0.052***	0.055***	0.049***

4.4. Robustness test

(1) Alternative variable measurement method

In order to avoid the contingency of using Wu Fei (2021) to measure the degree of enterprise digital transformation, the digital transformation measurement method is now replaced with the measurement method of Zhen Red Line (2023). After replacement, digital transformation significantly increased the number of key audit matters, the length of description paragraph text and the length of response paragraph text at the significance level of 1%. The results of regression analysis are consistent with those of baseline regression analysis.

(2) Lag one phase explanatory variable

In practice, the impact of digitalization on auditors' decisions may exist for a certain period of time, and auditors often do not increase the disclosure of key audit matters in the year of enterprise digital transformation, and the word frequency of digital transformation may have a time lag. Therefore, the digital transformation word frequency lag one phase and auditor decision proxy variables are respectively regressed. The digital transformation coefficients of one-stage lag are significantly positive at the significance level of 1%, indicating that the digital transformation of one-stage lag is positively correlated with the number and length of key audit matters.

(3) Propensity score matching

In this paper, propensity score matching method is used to alleviate the problem of sample selection bias and reduce the dependence on functional form assumptions. First, the sample is grouped according to the median degree of digital transformation of enterprises, with values greater than the median of 1.609 being 1 and otherwise 0. Then, the control variables of company size (size), return on total assets (ROA), Debt level, whether the "Big Four" (Big4) and audit opinion (Opin) are selected as matching variables to calculate the propensity score, According to the regression results after matching, there is a significant positive correlation between enterprise digital transformation and the number and length of key audit matters at the level of 1%. It shows that after overcoming the differences in sample characteristics, the role of enterprise digital transformation in reducing audit risks still exists, and the research conclusions of this paper are robust.

5. Conclusion and Suggestions

5.1. Research Conclusions

Based on the current digital economy background, this paper studies the relationship between enterprise digital transformation and auditor decision making, and discusses the impact of enterprise digital transformation on disclosure of key audit matters. Based on the initial sample of A-share listed companies from 2017 to 2023, the impact of enterprise digital transformation on the number and text length of disclosure of key audit matters is analyzed and tested. The following conclusions are drawn from the empirical study: (1) The higher the degree of digital transformation, the more

disclosure, description and response paragraphs, and the more positive tone of the response behavior in the key audit matters. Auditors have adopted appropriate strategies to address the information and operational risks arising from digital transformation. By disclosing more key audit matters and detailed descriptions, auditors communicate to stakeholders the specific risk areas faced by enterprises to improve the information content and decision-making usefulness of audit reports. (2) Robustness test was conducted by replacing digital transformation measurement, one-stage lag explanatory variables and propensity matching score, and the results were consistent with the baseline regression results.

5.2. Suggestion

(1) Government perspective

First, we need to improve relevant policies and regulations. The regulatory authorities should pay close attention to the new changes and problems brought about by the digital transformation of enterprises, formulate and improve the relevant audit standards, accounting standards and information disclosure norms in a timely manner, clarify the information disclosure requirements of enterprises and the responsibilities and obligations of auditors in the context of digital transformation, provide a clear policy basis for auditors to make decisions, and ensure the audit quality and the authenticity and integrity of information disclosure.

Second, strengthen supervision and coordination. Strengthen the supervision of enterprises in the process of digital transformation, strengthen the supervision and inspection of auditors' practice, severely crack down on enterprises' financial fraud and information disclosure violations, and maintain the order of the capital market. At the same time, strengthen the coordination and cooperation between different regulatory departments, form regulatory synergy, jointly cope with the cross-field and cross-industry regulatory challenges brought about by digital transformation, and improve regulatory efficiency and effectiveness.

(2) Enterprise perspective

First, formulate a reasonable transformation strategy. In the process of digital transformation, enterprises should fully evaluate their own resources and capabilities, formulate digital transformation strategies that match the strategic goals of enterprises, and avoid blindly following the trend. At the same time, it is necessary to pay attention to risk management in the transformation process, strengthen the construction of internal control, and reduce the financial risks and operational risks brought by digital transformation, so as to reduce auditors' concerns about enterprise risks, thereby reducing audit costs and improving audit efficiency.

Second, strengthen the quality of information disclosure. Enterprises should actively improve the transparency and quality of corporate information disclosure, and proactively communicate the progress, effectiveness and potential risks of digital transformation to the market. In particular, for non-state-owned enterprises and enterprises with a low degree of digitalization, communication with auditors should be strengthened to provide detailed and accurate information to help auditors better understand the situation of digital transformation of enterprises and make reasonable audit decisions.

(3) Perspective of accounting firms and auditors

It mainly focuses on improving professional competence and optimizing audit procedures and methods. Faced with the changes in the audit environment brought about by digital transformation, auditors need to continuously improve their professional knowledge and skills, especially in information technology, data analysis and other aspects. The "Big Four" accounting firms should give full play to their professional advantages, strengthen experience sharing and technical exchanges in the industry, and provide reference for other audit institutions. At the same time, combined with the characteristics of enterprise digital transformation, establish and improve the procedures related to big data audit. Auditors should maintain professional skepticism and keen risk awareness to identify and assess new and hidden risks arising from digital transformation in a timely manner. According to the characteristics and needs of different enterprises, flexible adjustment of audit strategies and methods to adapt to various changes in the digital environment.

References

[1] Yang Deming, Xia Xiaoyan, Jin Songyu, et al. Big data, Blockchain and audit fees of listed companies [J]. Audit Research, 2020(4): 68-79.

[2] Liu Shuchun, Yan Jinchen, Zhang Sixue, et al. Can digital transformation of enterprise management improve input-output efficiency [J]. Management World, 2021, 37(5): 170-190, 13.

[3] Lu Taiping, Zhang Dongxu. Financing demand, financing constraints and earnings management [J]. Accounting Research, 2014(1): 35-41, 94.

[4] Xu Ziyao, Zhang Lisha. Digital transformation and Enterprise expense Stickiness: An Analysis from the perspective of management self-interest [J]. Research in Financial Economics, 2022, 37(4): 129-142.

[5] Li Rong, Wang Yu, Lu Zhengfei. Does Internet business Model affect the earnings quality of Listed companies? Empirical Evidence from China's securities Market [J]. Accounting Research, 2020(10): 66-81.

[6] Wu Wuqing, Zhao Yue, Su Zihao. Enterprise information construction and audit cost: New evidence in the period of digital transformation [J]. Audit Research, 2022(1): 106-117.

[7] Based on Key Audit Issues [J]. Journal of Nanjing Audit University, 2022, 19(4): 32-40.

[8] Will auditors respond differently to corporate digital transformation? -- Evidence based on key audit matters [J]. Journal of Nanjing Audit University, 2024:1-13.

[9] Wu Fei, Hu Huizhi, Lin Huiyan, et al. Corporate Digital transformation and Capital Market Performance: Empirical Evidence from stock liquidity [J]. Management World, 2021, 37(7): 130-144, 10.

[10] Yao Youfu, Zhou LAN. Does digitalization affect Key audit decisions? [J]. Audit Research, 2023(1): 123-135. (in Chinese)

[11] Zhang Yongshen, Li Xiaobo, Xing Mingqiang. Enterprise digital transformation and audit pricing [J]. Audit Research, 2021(3): 62-71. (in Chinese)

[12] Zhao Chenyu, Wang Wenchun, Li Xuesong. How digital transformation affects total factor productivity of enterprises [J]. Finance and Trade Economics, 2021, 42(7): 114-129.

[13] Yellow ice. Does corporate greenwashing Influence auditor decisions? [J]. Audit Research, 2020(3): 57-67.]

[14] Yao Youfu. Information Technology background of signature accountants and disclosure decision of key audit matters [J]. Business Economics and Management, 2023(4): 74-88. (in Chinese)

[15] Chen Lihong, Yi Bingxin, Yin Minhao, et al. Do industry expert auditors adequately disclose key audit matters? [J]. Accounting Research, 2021(2): 164-175. (in Chinese)

[16] Gao Chong, Shi Xin, Liu Feng. Enterprise digital transformation and auditor decision [J]. Management Science, 2023, 36(3): 116-129. (in Chinese)

[17] Wang Xiaofan. Research on auditor risk response behavior in the context of Enterprise digital transformation [J]. Finance and Accounting Bulletin, 2024(9): 43-47.