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Research on the Impact of Fintech on Audit Delays

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Abstract: *Using the data of China's A-share non-financial companies from 2014 to 2023 as the research sample to empirically demonstrate the relationship between fintech and audit delay. It is found that fintech significantly increases audit delays, and this effect is more pronounced in non-state-owned enterprises. Further research has found that fintech increases audit delay by increasing business complexity and auditor industry specialization negatively moderates the positive impact of fintech on audit delays.*

Keywords: *Fintech, Audit Delay, Business Complexity, Auditor Industry Specialization*

1. Introduction

As our country's economy enters a critical stage of high-quality development, digital technology is gradually permeating various sectors of the real economy and forming a comprehensive and multi-level deep integration trend with it, driving the economy to develop at a high speed. In the context of the deep integration of modern technology and the financial industry, as technology and finance continue to merge, fintech is exhibiting unprecedented vitality. Fintech refers to the use of technology to harness abundant financial resources to drive financial innovation. It involves the use of artificial intelligence, blockchain, and other technologies to generate new financial business models and provide new products, which has had a significant impact on financial business models and has improved the operational efficiency of the traditional financial industry (Li et al., 2020)[1]. However, the development of fintech has also made financial business processes and structures more complex and introduced new types of risks, increasing the difficulty of risk assessment and bringing significant uncertainty to company audits. Traditional audit methods may be difficult to identify such risks and auditors may need to devote more energy to understanding the new working mode of the business model under financial technology, leading to increased audit difficulty, which in turn affects audit efficiency and causes audit delays.

Fintech can exert a "cost reduction and efficiency enhancement" effect. Most scholars believe that fintech can reduce redundant costs during corporate financing, alleviate financing constraints (Hu et al., 2024)[2], improve information quality, reduce the degree of information asymmetry (Liu et al., 2025)[3], improve investment efficiency (Liu et al., 2018)[4] and improve enterprises performance (Dong and Cai, 2021)[5]. Moreover, fintech can also exert a "resource optimization" effect, promoting the cross-regional flow of resources, reducing resource allocation costs and risks (Wang et al., 2025)[6], and significantly enhancing resource allocation efficiency (Hu et al., 2025)[7]. However, some studies suggest that the continuous innovation of business processes by fintech has disrupted traditional methods of risk identification and assessment, making regulation more challenging (Zhou and Han, 2020)[8], and increasing systemic risks and operational risks.

As an important supervisory governance mechanism, auditing can effectively perform its supervisory functions, monitoring and controlling a series of risks such as potential systemic risks and data security risks arising from fintech. However, fintech has reshaped the business process and service mode , which may render the original audit models unsuitable for the complex business models under fintech, thereby affecting audit efficiency and audit cycles. In light of this, this paper constructs a two-way fixed effect model to study the relationship between fintech and audit delay, and explores the mediating role of business complexity and the moderating role of auditor industry specialization.

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2. Theoretical Analysis and Research Hypothesis

2.1 Fintech and Audit Delays

As a new emerging development model in the financial sector, fintech has created a brand-new financial development model. At the same time, it has also brought new challenges to the audit process, raising higher requirements for audits and prolonging the time required for auditors to issue audit reports.

On one hand, relying on big data and artificial intelligence technology, the development of fintech has led to the emergence of financial participants beyond traditional entities such as banks and securities in the financial market, and has given rise to more complex financial products. These financial products involve different regions and markets, making the financial market extremely complex and highly susceptible to systemic financial risks (Lin and Wang, 2023)[9]. When financial risk increases, auditors become more cautious in their risk assessments, the complexity of risk assessments rises accordingly, and the audit cycle will be extended, leading to audit delays. On the other hand, fintech provides diversified financing channels (Liu and Hu, 2024)[10], promoting the innovation of green financing products and offering more choices for corporate financing. However, when obtaining funds is relatively easy, enterprises tend to choose high-return and high-risk projects, which will increase the operational risk of the company to a certain extent(Du and He, 2025)[11]. From the auditor's point of view, the increase of operational risk will lead to the increase of audit difficulty, which will cost auditors more energy and time to sort out business processes, thus leading to audit delay.

Additionally, fintech exacerbates the degree of information asymmetry between companies and auditors, leading to an increase in the time required to issue audit reports. Although numerous studies have shown that fintech can fully collect customer information to improve information quality and reduce information asymmetry (Song et al., 2021[12]; Huang et al., 2023[13]), but it can not be ignored that new information asymmetry problems may arise due to the complexity of new trading modes and technologies (Zhang and Feng, 2025)[14]. Fintech involves complex model algorithms and technical means. Therefore, due to auditors' lack of understanding of this technology, the audited entity may use technical means to hide transaction information, which makes the auditor unable to fully obtain audit evidence , thereby increasing the degree of information asymmetry. Auditors need to spend more time understanding the business models under fintech and adjust the corresponding audit procedures for the application of digital technologies in the financial sector, leading to increased audit delays. In summary, this paper proposes hypothesis 1:

Hypothesis 1: Fintech increases audit delay.

2.2 The Mediating Role of Business Complexity

With the widespread application of fintech, the audit workload is continuously increasing, and the complexity of audit tasks is increasing, therefore the time required for auditors to issue audit reports may also be extended. Fintech has led to a deep integration of technology and finance, comprehensively updating internal operations and business processes within enterprises, driving them to use more electronic data. Consequently, their business models have changed with the application of financial technology, and auditors are also faced with larger and more complex datasets (Zhang and Feng, 2025)[14], so the complexity of business operations is continuously increasing and the difficulty of audits is also rising. Moreover, the rapid pace of fintech innovation and frequent technological updates have made business processes and transaction methods more complex. As a result, the rapid development of fintech has made it difficult for traditional auditing methods and tools to meet current auditing requirements. Auditors need to continuously learn and master new technical knowledge to deeply understand and evaluate various business models in the fintech environment, so the audit delay increases. Additionally, fintech has made regulation lag behind (Xu and Liu, 2025)[15], leading to the risk of data breaches or tampering. Audit tasks have also become more complex, so auditors will increase their focus on data security issues and implement more tests to ensure the authenticity and reliability of data, thereby increasing the time cost for auditors to complete their work, which in turn leads to audit delays. In summary, this paper proposes hypothesis 2:

Hypothesis 2: Fintech increases audit delay by increasing business complexity.

2.3 The Moderating Role of Auditor Industry Specialization

The auditor industry specialization refers to the specialized knowledge and skills that auditors possess

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in a specific industry, which is a concrete manifestation of professional competence. Auditors with higher industry expertise accumulate richer auditing experience, and are more likely to detect potential issues during the audit process so as to implement more accurate audit procedures, enhance audit efficiency, and effectively curb the increase in audit delays (Li and Liang , 2023)[16]. Fintech drives companies to use more electronic data, promoting the development of online business, which in turn makes accounting methods more complex with the application of fintech. If auditors have a better understanding of the operational mechanisms of fintech and are familiar with the complex data processing workflows and system frameworks of fintech, they can timely obtain sufficient audit information, make professional judgments more easily, identify transaction links with higher risks, and thus allocate audit resources more effectively. This makes the audit work more efficient, shortens the audit cycle, and thereby mitigates the audit delays caused by fintech. In summary, this paper proposes hypothesis 3:

Hypothesis 3: Auditor industry specialization weakens the promoting effect of financial technology on audit delay.

3. Research Design

3.1 Sample Selection and Data Source

This paper selects A-share listed companies from 2014 to 2023 as the research sample and processes the data as follows: (1) exclude samples from the financial industry (2) exclude data from ST and *ST companies, (3) exclude companies with severely missing data. The financial data in this paper comes from the CSMAR database.

3.2 Variable Definitions

3.2.1 Audit Delay

This paper follows the practice of Li et al. (2024)[17], using the natural logarithm of the number of days from the balance sheet date to the signing date of the audit report as an index to measure the audit delay.

3.2.2 Fintech

This paper follows the approach of Huang et al. (2023)[13], using text mining methods to crawl the frequency of 124 fintech keywords in the annual reports of various listed companies. These keywords cover six dimensions: artificial intelligence, blockchain, cloud computing, big data, online services, and mobile services. Finally, the obtained data is processed using logarithmic transformation.

3.2.3 Business Complexity

This paper follows the approach of Yuan et al. (2025)[18], using the logarithm of the number of subsidiaries plus one as a measure.

3.2.4 Auditor Industry Specialization

This paper follows the approach of Liu et al. (2010)[19], using the total assets of clients and the square root of the total assets to calculate their market share in the industry, representing the industry expertise of auditors. The specific calculations are as follows:

$$MSA_{ik} = \sum_{j=1}^{J} ASSET_{ikj} / \sum_{i=1}^{I}\sum_{j=1}^{J} ASSET_{ikj} \quad (1)$$

Among them: $\sum_{j=1}^{J} ASSET_{ikj}$represents the sum of total assets of listed companies audited by auditor i in industry k. $\sum_{i=1}^{I}\sum_{j=1}^{J} ASSET_{ikj}$represents the sum of total assets of all listed companies in industry K.

3.2.5 Control Variable

This paper selects the following variables that have an impact on audit delay. The control variables include company size(Size), return on assets(Roa), loss, integration of two positions(Dual), management shareholding ratio(Mshare), equity balance(Balance), audit institution(Big4) and audit opinion(Opinion).

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3.3 Model Specification

3.3.1 Basic Regression Model

This paper constructs the following model to examine the impact of fintech on audit delay:

$$Delay_{it} = \alpha_0 + \alpha_1 Fintech_{it} + \alpha_2 Controls_{it} + YEAR + INDUSTRY + \varepsilon_{it} \quad (2)$$

Among them: $Delay_{it}$ represents the audit delay of Company i in t year. $Fintech_{it}$ represents the fintech level of company i in t year. YEAR represents year fixed effects, and INDUSTRY represents industry fixed effects. This paper incorporates heteroscedasticity-robust standard errors into all regression models to mitigate the impact of heteroscedasticity.

3.3.2 Mediation Effect Model

To verify the mediating effect of business complexity, this paper follows the approach of Wen and Ye (2024)[20] and constructs the following two models based on the basic model (2) to test hypothesis 2:

$$Complex_{it} = \beta_0 + \beta_1 Fintech_{it} + \beta_2 Controls_{it} + YEAR + INDUSTRY + \varepsilon_{it} \quad (3)$$

$$Delay_{it} = \gamma_0 + \gamma_1 Fintech_{it} + \gamma_2 Complex_{it} + \gamma_3 Controls_{it} + YEAR + INDUSTRY + \varepsilon_{it} \quad (4)$$

3.3.3 Moderating Effect Model

To verify hypothesis 3, this paper constructs the following model (5) for verification, where U represents the moderating variables MSA.

$$Delay_{it} = c_0 + c_1 Fintech_{it} + c_2 U_{it} + c_3 U_{it} \times Fintech_{it} + c_4 Controls_{it} + YEAR + INDUSTRY + \varepsilon_{it} \quad (5)$$

4. Analysis of Empirical Results

4.1 Descriptive Statistics and Correlation Analysis

Table 1 shows the descriptive statistical results. The maximum value of audit delay is 6.4, the minimum value is 2.485, and the median value is 4.682. It can be seen that the audit delay is serious, and there are some differences among different companies. The maximum value of fintech is 7.455, and the minimum value is 0, indicating that there are significant differences in the fintech level of different companies. The descriptive statistics of the remaining control variables are also within a reasonable range, so no detailed description will be provided.

According to the results of correlation analysis, the Pearson correlation coefficient between fintech and audit delay is 0.157, which is significant at the level of 1%. The correlation coefficients between variables are all less than 0.7, which shows that there is no serious multicollinearity. According to the variance expansion coefficient test, VIF values are all less than 5, indicating that there is no multicollinearity problem between variables.

Table 1: Descriptive statistics

Variable	N	Mean	SD	Min	P50	Max
Delay	30949	4.604	0.196	2.485	4.682	6.400
Fintech	30949	3.661	1.322	0	3.689	7.455
Size	30949	22.231	1.309	18.370	22.024	28.697
Roa	30949	0.039	0.072	-1.629	0.040	0.759
Loss	30949	0.113	0.317	0	0	1
Dual	30949	0.334	0.472	0	0	1
Mshare	30949	0.166	0.206	0	0.048	0.900
Balance	30949	0.806	0.635	0.003	0.645	4
Big4	30949	1.939	0.239	1	2	2
Opinion	30949	0.981	0.137	0	1	1

4.2 Baseline regression results

Table 2 reports the regression results of fintech and audit delay. Column (1) only adds the two-way fixed effect of industry and year, and the coefficient of financial technology is 0.009, which is significant at the level of 1%. Column (2) is the benchmark regression result, and the coefficient of financial

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technology is 0.008, which is significant at the level of 1%. The above results indicate that fintech plays a positive role in promoting audit delays, thus supporting the hypothesis 1.

Table 2: Baseline regression results

	(1) Delay	(2) Delay
Fintech	0.009***	0.008***
	(0.001)	(0.001)
Controls	NO	YES
_cons	4.572***	4.472***
	(0.004)	(0.026)
INDUSTRY	YES	YES
YEAR	YES	YES
N	30949	30949
R^2	0.089	0.122

Note: The values in parentheses are standard errors. ***, **, * indicates significance at the 1%, 5%, and 10% levels, same below.

4.3 Robustness Test

4.3.1 PSM Test

In this paper, the tendency score matching method is used to solve the influence of sample self-selection. According to the median of fintech, the samples are divided into treatment groups and control groups, and the 1: 1 nearest neighbor matching method is used, and the caliper range is 0.05. According to the results, the T value of ATT is 14.16, which is significant at 1% level and passes the balance test. According to Table 3, the coefficient of fintech is 0.009, which is significant at the level of 1%, proving that assumption 1 is still valid.

4.3.2 Substitution of Explanatory Variable

This paper references Meng et al. (2020)[21], selecting the Peking University Digital Inclusive Finance Index as a proxy variable for fintech. According to the results in column (1) of Table 3, the coefficient for fintech remains significantly positive at the 1% level, and the hypothesis 1 still holds.

4.3.3 Lagging Explanatory Variable

Because the influence of fintech on audit delay may be lagging behind, this paper re-estimates the benchmark model with a one-period lag for fintech. According to column (3) of Table 3, the lagged fintech coefficient is 0.008, which is significant at the level of 1%, indicating that fintech will still increase the audit delay.

Table 3: Robustness Test

	(1) PSM Delay	(2) Substitution of Explanatory Variable Delay	(3) Lagging Explanatory Variable Delay
Fintech	0.009***		
	(0.001)		
Usage		0.011***	
		(0.002)	
L.Fintech			0.008***
			(0.001)
Controls	YES	YES	YES
_cons	4.490***	4.420***	4.474***
	(0.036)	(0.027)	(0.028)
INDUSTRY	YES	YES	YES
YEAR	YES	YES	YES
N	16591	29971	25529
R^2	0.119	0.121	0.113

5. Further analysis

5.1 The Results of the Mediating Effect of Business Complexity

Table 4 shows the results of business complexity as a mediating variable, and column (1) shows that

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the coefficient of fintech and business complexity is 0.160, indicating that fintech and business complexity are positively correlated. It can be seen from column (2) that the coefficient of business complexity and audit delay is significantly 0.010, and the coefficient of fintech and audit delay is 0.006, both of which are significantly positive at the level of 1%, indicating that fintech increases audit delay by increasing business complexity, assuming that H2 is established.

5.2 The Results of the Moderating Effect of Auditor Industry Specialization

The results of the moderating effect are shown in column (3) Table 4. The interaction term coefficient between auditor industry specialization and fintech is significant at the 1% level, which is contrary to the coefficient of the baseline regression results, indicating that auditor industry specialization plays a negative moderating role, supporting the hypothesis 3.

Table 4: The results of further analysis

	(1) Complex	(2) Delay	(3) Delay
Fintech	0.160***	0.006***	0.008***
	(0.004)	(0.001)	(0.001)
Complex		0.010***	
		(0.001)	
MSA_Fintech			-0.246***
			(0.049)
MSA			-0.056
			(0.090)
Controls	YES	YES	YES
_cons	-8.645***	4.556***	4.462***
	(0.118)	(0.029)	(0.026)
INDUSTRY	YES	YES	YES
YEAR	YES	YES	YES
N	30547	30547	30833
R^2	0.497	0.123	0.119

5.3 The Results of Heterogeneity Analysis

5.3.1 The heterogeneity of Property Rights

Compared with non-state-owned enterprises, state-owned enterprises have stricter supervision and more perfect systems. The audit of state-owned enterprises has formed a relatively perfect audit system after years of development. However, the internal control system of non-state-owned enterprises is not perfect, and the financial information is not transparent enough (Hao et al., 2020)[22], which makes it more difficult for auditors to obtain audit information, thus prolonging the audit cycle. According to the results in Table 5, the fintech coefficients of both state-owned and non-state-owned enterprises are significant, but the coefficient of fintech of non-state-owned enterprises is greater than that of state-owned enterprises, indicating that fintech has a significant role in promoting audit delay in different property rights, and the fintech has a more significant role in promoting audit delay of non-state-owned enterprises.

Table 5: The results of heterogeneity analysis

	(1) state-owned enterprises Delay	(2) non-state-owned enterprises Delay
Fintech	0.009***	0.005***
	(0.001)	(0.002)
Controls	YES	YES
_cons	4.506***	4.296***
	(0.033)	(0.048)
INDUSTRY	YES	YES
YEAR	YES	YES
N	21648	8526
R^2	0.117	0.131

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6. Conclusion

This paper uses A-share listed companies from 2014 to 2023 as research samples and ultimately draws the following conclusions: (1) Fintech significantly increases audit delays. (2) Business complexity plays a partial mediating role, meaning that fintech increases audit delay by increasing business complexity. (3) Auditor industry specialization plays a negative moderating role, as auditors with higher industry expertise are more likely to detect potential issues during the audit process, and effectively suppress the increase in audit delays. Heterogeneity analysis shows that the positive impact of fintech on audit delay is more significant in non-state-owned enterprises.

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