Can Digital Inclusive Finance Improve the Quality of Corporate Accounting Information ?---- Based on the Perspective of Financing Constraints and Financing Channels

Huiling Liu [1], Xinran Li[2]

{liuhuiling_whu@163.com[1], 2449981994@qq.com[2]}

China University of Geosciences (Wuhan), China

Abstract: This paper focuses on testing the impact of the development of digital inclusive finance on the quality of corporate accounting information, and it is found that the two are significantly positively correlated, and this positive impact remains significant over a longer period of time. In terms of the impact mechanism, digital inclusive finance can facilitate enterprises' access to bank borrowing and equity investment, which in turn improves the quality of corporate accounting information. Therefore, the uneven and insufficient development of financial technology is a problem to be focused on at this stage, and it is necessary to deepen the application of financial technology and guide digital finance to better serve the real economy, so as to effectively improve the quality of enterprise accounting information.

Keywords: Digital Inclusive Finance; Finance Channel; Quality of Accounting Information; Financing Constraints

1. Introduction

Digital inclusive finance is a new type of financial service vigorously promoted by the state by deeply integrating the traditional financial service industry with digital technology mainly applied by the Internet, big data, cloud computing, blockchain and so on [1]. Digital inclusive finance makes use of digital platforms and massive user data to continuously improve mobile payment tools, provide intelligent investment services, accurately market financial products, improve the credit assessment of small and medium-sized enterprise (SME) loans, and strengthen the transparency of information in the capital market, so as to satisfy the needs of different populations and cover different areas of the population through the provision of low-interest-rate, high-efficiency, and highly predictable financial services [2].

This paper tests the impact of the development of digital finance on the quality of corporate accounting information and its transmission mechanism, and finds that: digital finance can improve the quality of corporate accounting information in all its four dimensions. The possible innovation of this paper lies in the fact that existing studies have found that digital inclusive finance inhibits corporate surplus management behavior by alleviating corporate financing constraints, but they have not explored through which financing channels digital finance inhibits corporate surplus management behavior. This paper examines the mediating effects of bank borrowing, equity financing and bond financing activities respectively, and

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explores in depth through which channels digital finance alleviates corporate financing constraints and improves the quality of corporate accounting information.

2. Theoretical analysis and research hypothesis

2.1 Digital inclusive finance and the quality of corporate accounting information

In the studies of domestic and foreign scholars on the factors affecting the manipulation of accounting information by enterprises, the need for financing is one of the main incentives for enterprises to engage in financial information manipulation, i.e., surplus management. Enterprises will take the risk of being recognized and engage in surplus management in order to obtain the funds needed to satisfy their development, increase the possibility of obtaining financing, obtain higher bargaining power, and reduce the cost of debt [3-5]. Therefore, alleviating financing constraints is an effective way to improve the quality of accounting information. The development of digital finance can reduce the information collection cost and transaction cost in the financial market [6], and prompt banks to optimize the credit technology, adjust the credit structure, expand the supply of credit [7], improve the availability of enterprise financing, and then alleviate the financing constraints of enterprises.

H1:The level of digital inclusive finance development is significantly and positively related to the quality of corporate accounting information.

2.2 Multiple financing transaction channels

Zhong Kai et al. (2022) argued that the development of digital inclusive finance can effectively inhibit enterprises from utilizing commercial credit to allocate bank borrowing funds to other enterprises, enhance the availability of bank borrowing for small and medium-sized suppliers and customers, and reduce the cost of financing [8]; Ruan Jian et al. (2022) argued that digital finance can help to reduce the cost of debt financing for enterprises, and effectively solve the problem of expensive financing for enterprises [9], but it did not bank borrowing and bond financing into a differentiated study. In order to implement risk control and effective supervision, banks will pass strict credit review procedures before providing funds to enterprises, and some restrictive clauses will be added to the debt covenants of banks, and the assumption of the liability for the default of the lender is also clearly explained. Unlike bank loans, which are secured by covenants, bonds are issued with only the prospectus of the public bond offering to impose certain constraints on the debtor, and there are no explicit restrictive clauses within the prospectus to motivate the issuer to fulfill the debt on schedule, nor is there a requirement to provide financial statements and other information. Therefore, the bank's incentive to exercise supervision power is stronger, and the effect of improving the quality of corporate accounting information is obvious, due to the supervision of bond investors there is the phenomenon of "free-riding" and bond issuance of the debtor's binding provisions are less, which may lead to the bondholders of the enterprise's supervision of the incentive is weaker [10].

In order to alleviate the problem of information asymmetry and compensate for the investment risk, the investor aggravates the cost of equity financing by applying the betting agreement, pledge regulation and limitation of control [11]. Zhao Jingjing et al. (2023) argued that digital

finance can reduce the threshold of investor access, effectively reduce the cost of equity financing for enterprises, improve the marketing accuracy of financial products and increase the transparency of capital market information, create conditions for SMEs' equity financing [12,13], and effectively improve the quality of corporate accounting information.

Based on the above analysis, the second block of research hypotheses for this paper is proposed as follows:

H2a: Digital inclusive finance improves the quality of corporate accounting information by enhancing the availability of corporate bank borrowing.

H2b: Although digital inclusion can improve the availability of bond financing, the path effects of bond financing on digital inclusion and firm accounting information quality may not be as significant as compared to bank borrowing, which has a significant creditor monitoring effect.

H2c: Digital inclusive finance improves the quality of corporate accounting information by enhancing the availability of corporate equity financing.

3. Data and modeling approaches

3.1 Research Model and Definition of Variables

The proposed research model for this paper is as follows:

$$Abs\_DA2 = \beta_0 + \beta_1 lndf(lnwidth、lndepth、lndigital) + \Sigma CVs + Ind + Year + \varepsilon \quad (1)$$

$$fc\_all = \beta_0 + \beta_1 lndf + \Sigma CVs + Ind + Year + \varepsilon \quad (2)$$

$$Abs\_DA2 = \beta_0 + \beta_1 lndf + \beta_2 fc\_all + \Sigma CVs + Ind + Year + \varepsilon \quad (3)$$

3.1.1 Intermediate variables

The degree of bank borrowing financing is measured by the "cash received from borrowing" account in the cash flow statement, the difference between the value of the account in the current quarter and the value in the previous quarter, if the difference is greater than 0, then the new variable fc will be taken as 1, otherwise it will be taken as 0. The fc will be summed up to get the frequency of bank borrowing financing in the current year and fc_all1. Equity financing and bond financing are measured in the same way as bank borrowings, by selecting the two accounts "cash received from absorption of equity investment" and "cash received from issuance of bonds" in the cash flow statement, respectively.

3.1.2 Controlled variables

Referring to the relevant literature, this paper controls for variables related to firm characteristics, such as the nature of ownership, audit status, market value of the firm.

3.2 Sample Selection and Data Sources

Table 1 shows the symbols and measures of the main variables. The data in this paper are obtained from the China Stock Market and Accounting Research Database (CSMAR:http://www.gtarsc.com/). After removing missing values and extreme value processing, we obtain a total of 15,934 observations.

Table 1. Definitions of key variables

Variable	Variable Symbol	Definition
Explained Variable	Abs_DA2	Manipulative accrued profits are calculated using the modified Jones model and then the absolute value is taken.The larger the value, the worse the quality of the accounting information.
Explanatory Variable	Lndf、lnwidth、lndepth、lndigital	The general index、coverage breadth index、depth index and digitization degree index of Digital inclusive finance take the logarithm
Multi-purpose	fc_all1	Frequency of bank loans
	fc_all2	Frequency of equity financing
	fc_all3	Frequency of debt financing
Sector	Ind	The value is 1 for a certain sector,and 0 for others
Year	Year	The value is 1 for a certain year,and 0 for others

4. Empirical findings and discussion

4.1 Descriptive statistical analysis

Table 2 reports the descriptive statistics of the main variables. The value of the total digital inclusive finance index (Lndf) is in the range of 5.252-5.862, with a standard deviation of 0.143, indicating that there are some differences in the level of digital inclusive finance development in different cities. The mean and standard deviation of the frequency of enterprises' access to bank borrowing are the highest, followed by equity financing and bond financing respectively, indicating that the sources of external financing vary greatly among listed companies.

Table 2. Descriptive statistics of major variables

Variable	N	Mean	Median	Min	Max	Std
abs_DA2	15934	0.053	0.037	0.001	0.248	0.052
lndf	15934	5.621	5.640	5.252	5.862	0.143
lnwidth	15934	5.604	5.615	5.127	5.891	0.172
lndepth	15934	5.612	5.633	5.233	5.858	0.142
lndigital	15934	5.679	5.714	5.375	5.819	0.109
fc_all1	15934	2.027	3	0	4	1.263
fc_all2	15934	0.618	0	0	3	0.968
fc_all3	15934	0.051	0	0	2	0.282

4.2 Multiple regression analysis results and interpretation

4.2.1 Digital inclusive finance and the quality of corporate accounting information

Table 3 reports the regression results of Model 1. The coefficients of digital financial inclusion in the four regressions are -0.013, -0.009, -0.012, and -0.017, which are significant at the 1% or 5% statistical level respectively. It indicates that the development level of digital inclusive finance is significantly and positively related to the quality of corporate accounting information, so hypothesis H1 is valid. For space reasons, the data of lagged tests are not presented. The coefficients of digital finance variables from lag 1 to lag 5 are negative and significant, indicating that digital financial inclusion can improve the quality of corporate accounting information in the longer term.

Table 3. Regression results of digital finance and enterprise accounting information quality

Variable	(1) Abs_DA2	(2) Abs_DA2	(3) Abs_DA2	(4) Abs_DA2
lndf	-0.013*** (-2.71)			
lnwidth		-0.009** (-2.22)		
lndepth			-0.012*** (-2.88)	
lndigital				-0.017** (-2.27)
_cons	0.130*** (4.75)	0.105*** (4.74)	0.121*** (5.34)	0.151*** (3.61)
Controlled variable	YES	YES	YES	YES
Ind	YES	YES	YES	YES
Year	YES	YES	YES	YES
N	15957	15957	15957	15957

Note: P-values are in parentheses and ***, ** and * indicate significant at the 1%, 5% and 10% levels, respectively.

4.2.2 Digital inclusive finance, finance channels and the quality of corporate accounting information

To further explore the transmission path of digital inclusive finance on firms' accounting information quality, Table 4 reports the mediating effects of the three external financing channels. For bank borrowing financing activities, the coefficient of Lndf in column (1) is positive and significant at the 1% level; in column (2), the coefficients of both Lndf and fc_all1 are negative and both are significant at the 1% statistical level, suggesting that digital finance can facilitate firms' access to bank borrowing and effectively improve firms' accounting information quality. Frequent bank borrowing will also constrain the surplus management behavior of financing enterprises [14]. The results of equity financing activities

are consistent with those of bank borrowing financing activities. Bond financing activities do not pass the intermediation test.

Table 4. Mechanism test for finance channels

Variable	(1) fc_all1	(2) Abs_DA2	(3) fc_all2	(4) Abs_DA2	(5) fc_all3	(6) Abs_DA2
lndf	0.523***	-0.013***	0.809***	-0.012**	0.115***	-0.013***
	(4.90)	(-2.60)	(8.62)	(-2.46)	(4.22)	(-2.69)
fc_all1		-0.001***				
		(-2.86)				
fc_all2				-0.002***		
				(-3.56)		
fc_all3						-0.001
						(-0.51)
_cons	-1.910***	0.128***	-3.490***	0.125***	-0.412***	0.130***
	(-3.25)	(4.65)	(-6.75)	(4.53)	(-2.74)	(4.72)
Controlled variable	YES	YES	YES	YES	YES	YES
Ind	YES	YES	YES	YES	YES	YES
Year	YES	YES	YES	YES	YES	YES
N	15934	15934	15934	15934	15934	15934

Note: P-values are in parentheses and ***, ** and * indicate significant at the 1%, 5% and 10% levels, respectively.

5. Conclusion

The main insights of this paper are as follows: Firstly, digital inclusive finance helps to alleviate the problem of enterprise financing constraints, and repeated bank borrowing will form a constraint mechanism for financing enterprises and improve the quality of enterprise accounting information [15, 16]; Secondly, digital finance mainly alleviates enterprise financing constraints by broadening financing channels [17] and meeting personalized financing needs [18]; Thirdly, regional governments in China should pay attention to the balanced development of various types of economic entities in the financial market and guide digital finance to better serve the real economy. When enterprises realize the virtuous cycle of operation, investment and financing, their financing problems and internal governance will also be improved, so as to create a better business environment and serve the regional economic development.

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