

## Data-driven Analysis of the Quality of Accounting Information in China's Market and the Stability of Financial Markets

Ruyi Wang

Wuhan University of Technology, Wuhan, 430070, Hubei, China

wrywhlg@163.com

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**Abstract:** With the rapid development and complexity of China's financial market, the quality of accounting information is particularly important for the stability and healthy operation of the market. This study aims to explore the relationship between the quality of accounting information in China's market and the stability of the financial market in different years through data-driven analysis methods. Firstly, this study reviewed relevant theoretical and empirical research, clarifying measurement indicators for accounting information quality and evaluation criteria for financial market stability. Secondly, data-driven methods such as regression analysis were used to empirically test the correlation between the two based on the actual collected model dataset. Research has found that high-quality accounting information has a certain positive impact on maintaining the stability of financial markets. Specifically, accounting information with high transparency and accuracy helps to reduce information asymmetry in the market, reduce investor uncertainty, and thus promote the stability of financial markets. Based on the research results, this article proposes policy recommendations to improve the quality of accounting information and optimize the regulatory mechanism of the financial market, aiming to provide reference for the stable development of China's financial market.

### 1. Introduction

In modern economic systems, the stability of financial markets is crucial for the healthy development of a country's economy. As a significant information foundation in the financial market, the quality of accounting information directly affects investor decision-making, corporate financing costs, and market transparency. In recent years, with the rapid development of China's financial market and the acceleration of internationalization, the relationship between accounting information quality and financial market stability has increasingly attracted widespread attention from both academic and practical circles.

As the "blood" of the financial market, the quality of accounting information directly affects the confidence and stability of the market. High-quality accounting information can accurately reflect the financial status and operating results of enterprises, provide reliable decision-making basis for investors and regulatory agencies, thereby reducing market information asymmetry, reducing financial risks, and maintaining market stability. On the contrary, the low quality of accounting information may lead to incorrect investment decisions, increase market uncertainty, and even trigger financial crises.

Through in-depth analysis of the relationship between the quality of accounting information in China's market and the stability of the financial market, theoretical support and empirical evidence are provided for regulatory agencies to optimize regulatory policies and improve the quality of information disclosure for enterprises. The theoretical value is reflected in the fact that this study will enrich the theoretical research on the relationship between accounting information quality and financial market stability, providing new perspectives and analytical frameworks for subsequent related research.

According to literature review on CNKI, the research mainly focuses on the measurement

methods of accounting information quality and the correlation between accounting information and financial market stability. However, existing research still has shortcomings in the application of data-driven analysis methods and empirical research specific to China's market environment. The innovation of this study lies in the use of data-driven analysis methods, based on actual market data in China, to deeply explore the relationship between accounting information quality and financial market stability. In addition, this study will also focus on the impact mechanism of accounting information quality on the stability of financial markets, and how to promote the stable progress of financial markets by improving accounting information quality, filling the existing research gap <sup>[1]</sup>.

In summary, this study aims to explore the relationship between the quality of accounting information in China's market and the stability of the financial market through data-driven analysis methods, providing theoretical and empirical support for the formulation and implementation of relevant policies.

## 2. Research Methods and Data Sources

### 2.1 Research Method

This study adopts a data-driven analysis method, which mainly includes the following aspects:

Regression analysis: Use regression models to analyze the relationship between accounting information quality and financial market stability over different years. By constructing appropriate regression equations, evaluate the degree and direction of the impact of different accounting information quality indicators on financial market stability indicators.

### 2.2 Data Sources

Data collection scope: This study plans to collect data from the past decade (such as 2010-2020), covering major listed companies and financial markets in China. Through these data, it is possible to comprehensively analyze the relationship between accounting information quality and financial market stability, and provide support for proposing effective policy recommendations. (Table 1).

Table 1 Related Data of Accounting Information Quality and Financial Market Stability

Time	Accounting information quality indicators	Financial market stability indicators
2020	Accuracy: Financial report audit coverage rate of 99.6%	Market volatility: VIX index 25.8
2021	Timeliness: 31 days for financial report disclosure	Market liquidity: bid-ask spread 0.15 yuan
2022	Transparency: 136 items of financial report information disclosure scope	Credit status: interest rate level 3.75%
2023	Consistency: Accounting Standards for Financial Reporting 100%	Leverage ratio 55.1%
2024	Comparability: Financial report disclosure format 100%	Capital adequacy ratio 15.5%

### 2.3 Data Description

The first is the coverage rate of financial report auditing. In 2020, the financial report audit coverage of A-share listed companies in China was 99.6%, an increase of 0.4% compared to 2019. This indicates that the overall quality of financial reports of Chinese listed companies is relatively high, but there is still room for improvement.

The second is the disclosure time of financial reports. In 2021, the average disclosure time for financial reports of Chinese A-share listed companies was 31 days, which is 2 days shorter than 2020. This indicates that the efficiency of financial report disclosure of Chinese listed companies has improved.

The third is the scope of financial report information disclosure. In 2022, the scope of financial report disclosure for Chinese A-share listed companies has increased by 10 items, involving

financial condition, operating results, cash flow, shareholder equity, and other aspects. This indicates that the financial report information disclosure of Chinese listed companies is more comprehensive.

The fourth is the financial reporting accounting standards. In 2023, China officially implemented *Accounting Standards for Enterprises No. 35 Consolidated Financial Statements*. This indicates that China's accounting standard system is more perfect, which is conducive to improving the quality of financial reports of listed companies.

The fifth is leverage ratio. In 2024, the leverage ratio of non-financial enterprises in China was 55.1%, an increase of 0.4% compared to 2023. This indicates that the risks of Chinese enterprises have increased and there is a need to strengthen risk management.

The sixth is the capital adequacy ratio. In 2024, the average capital adequacy ratio of Chinese commercial banks was 15.5%, an increase of 0.5% compared to 2023. This indicates that the risk resistance ability of Chinese commercial banks has been enhanced.

## 2.4 Evaluation Indicators

### 2.4.1 Accounting Information Quality Data

These data mainly sourced from publicly available corporate financial and audit reports, including but not limited to financial statements, profit quality, transparency of information disclosure, and other indicators. These data can be obtained from stock exchanges, corporate annual reports, databases such as CSMAR, Wind, etc.

The first is the definition and importance of accounting information quality. Accounting information quality refers to the accuracy, reliability, and timeliness of accounting information in reflecting a company's financial status, operating results, and cash flows. High-quality accounting information can provide useful decision-making information for various stakeholders, reduce information asymmetry, reduce market uncertainty, and thus improve the efficiency and stability of financial markets. In the financial market, the quality of accounting information directly affects the confidence of investors and the financing cost of enterprises, which is of great significance for maintaining market order and promoting healthy economic development <sup>[2]</sup>.

The second is the measurement index of accounting information quality. Measuring the quality of accounting information usually involves multiple dimensions, and the following are some key measurement indicators. (Table 2).

Table 2 Measurement Indicators

Indicator	Description
Accuracy	Whether accounting information can accurately reflect the financial condition and operating results of a company. It is usually evaluated by comparing the data in financial statements with the actual situation or independent audit results.
Timeliness	The speed of accounting information disclosure. Timely information disclosure can ensure that investors and market participants receive important information in a timely manner and respond quickly.
Transparency	Whether the disclosure of accounting information is comprehensive and detailed, and whether it is easy for stakeholders to understand. High-transparency accounting information can reduce information asymmetry and increase market trust.
Consistency	Whether the accounting policies and methods adopted by the enterprise remain consistent across different periods. Consistency helps investors compare financial reports from different periods and better evaluate a company's financial condition and operating results.
Comparability	Whether the accounting information of different enterprises can be compared. Comparability enables investors to make effective comparisons and choices between different enterprises.
Reliability	Whether accounting information is free from misleading and significant errors, and whether it can be trusted by stakeholders. Reliability is an important criterion for evaluating the quality of accounting information.

By integrating these indicators, the quality of accounting information can be comprehensively evaluated. In practical research, researchers need to choose appropriate measurement indicators and methods based on the research purpose and data availability.

### 2.4.2 Financial Market Stability Data

These data mainly sourced from official financial statistics and financial market regulatory agencies, including stock market indices, bond market indices, market volatility indicators, financial institution stability indicators, etc.<sup>[3]</sup>. These data can be obtained from the People’s Bank of China, China Securities Regulatory Commission, major financial markets and databases such as China Financial Statistical Yearbook, Wind, CEIC, etc.

The first is the definition and importance of financial market stability. Financial market stability refers to the ability of financial markets to withstand various internal and external shocks and maintain their normal functioning, including market liquidity, the confidence of market participants, and the overall health of the financial system<sup>[4]</sup>. The stability of financial markets is crucial for the healthy development of the economy, as it directly affects the effective allocation of capital, the financing costs of enterprises, and the confidence of investors. The instability of the market may lead to reduced capital liquidity, credit tightening, and even financial crises, thereby having a serious impact on the entire economy<sup>[5]</sup>.

The second is the evaluation index of financial market stability. Evaluating the stability of financial markets usually requires comprehensive consideration of multiple indicators. The following are some key evaluation indicators. (Table 3).

Table 3 Evaluation Indicators

Indicator	Description
Market Volatility	By measuring the price volatility of the stock market, bond market, etc., the uncertainty and risk level of the market can be evaluated. Common indicators include volatility indices (such as VIX).
Market Liquidity	Market liquidity reflects the ability of market participants to quickly buy and sell assets at stable prices. The decrease in liquidity may indicate a weakening of market confidence. Commonly used indicators include bid-ask spread, trading volume, etc.
Credit Conditions	The credit situation reflects the financing environment of the financial market, including interest rate levels, credit growth rates, default rates, etc.
Leverage Ratio	The leverage ratio of enterprises and financial institutions can reflect the level of market risk-taking. Excessive leverage may lead to market instability.
Capital Adequacy Ratio	Especially for financial institutions such as banks, capital adequacy ratio is an important indicator to measure their ability to withstand risks.
Macroeconomic Indicators	These macroeconomic indicators, including GDP growth rate, unemployment rate, inflation rate, etc., can indirectly reflect the stability of financial markets.

By integrating these indicators, the stability of the financial market can be comprehensively evaluated. In practical research, researchers need to choose appropriate evaluation indicators and methods based on the research purpose and data availability.

## 3. Linear Regression Analysis

### 3.1 Analysis (with Year as the Dependent Variable)

From the above table, it can be seen that the accounting information quality index and financial market stability index were used as independent variables, and the year was used as the dependent variable for linear regression analysis. From the table, it can be seen that the model formula is:  $\text{year} = 2018.143 + 0.451 * \text{accounting information quality index} + 0.835 * \text{financial market stability index}$ . The R-squared value of the model is 0.675, which means that the accounting information quality index, the financial market stability index can explain 67.5% of the changes in the year.

When conducting an F-test on the model, it was found that the model did not pass the F-test ( $F=2.074$ ,  $p=0.325>0.05$ ), indicating that the accounting information quality indicator and the financial market stability indicator do not have an impact on the year. As a result, the difference between the accounting information quality indicator and the financial market stability indicator in the past three years is less than 0.05. (Table 4).

Table 4 Linear Regression Analysis Results (n=5)

	Non-standardized coefficient		Standardized coefficient	t	p	Collinearity diagnosis	
	B	Standard error	Beta			VIF	Tolerance
Constant	2018.143	2.123	-	950.583	0.000**	-	-
Accounting information quality indicators	0.451	0.423	0.451	1.066	0.398	1.099	0.910
Financial market stability indicators	0.835	0.423	0.835	1.976	0.187	1.099	0.910
R <sub>2</sub>	0.675						
Adjust R <sub>2</sub>	0.349						
F	F (2,2) =2.074, p=0.325						
D-W Value	1.448						
Dependent variable: Year							
* $p<0.05$ ** $p<0.01$							

The following is Figure 1 of the result model:

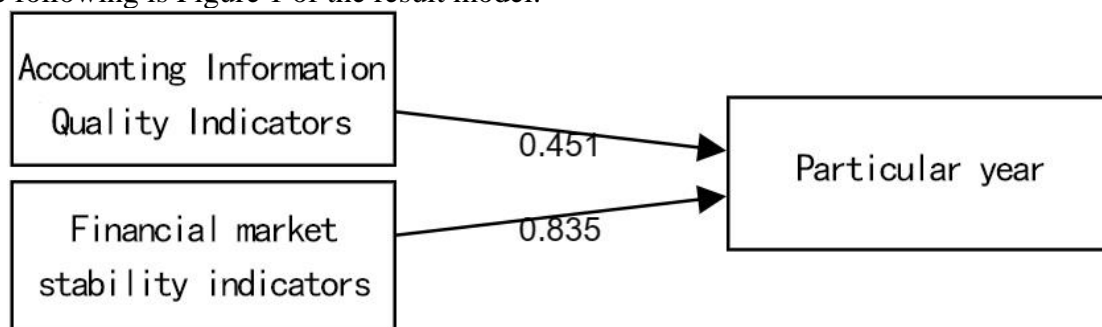


Figure 1 The Result Model

Table 5 Model Summary (Intermediate Process)

R	R <sub>2</sub>	Adjust R <sub>2</sub>	RMSE model error	DW Value	AIC Value	BIC Value
0.821	0.675	0.349	0.807	1.448	18.040	16.868

The above table used accounting information quality indicators and financial market stability indicators as independent variables, and year as the dependent variable for linear regression analysis. (Table 5). It can be seen from the table that the R-squared value of the model is 0.675, which means that accounting information quality indicators and financial market stability indicators can explain 67.5% of the changes in the year. (Table 6).

Table 6 ANOVA Table (Intermediate Process)

	Sum of squares	df	Mean square	F	p Value
Regression	6.747	2	3.374	2.074	0.325
Residual	3.253	2	1.626		
Total	10.000	4			

When conducting the F-test on the model, it was found that the model did not pass the F-test ( $F=2.074$ ,  $p=0.325>0.05$ ), indicating that accounting information quality indicators and financial

market stability indicators do not have an impact on the year. Therefore, it is not possible to specifically analyze the impact of independent variables on the dependent variable. Regression Coefficient in Figure 2 .Linear Regression Analysis Results (n=5) in Table 7.

Table 7 Linear Regression Analysis Results (n=5)

	Non-standardized coefficient		Standardized coefficient	t	p	Collinearity diagnosis	
	B	Standard error	Beta			VIF	Tolerance
Constant	3.900	1.827	-	2.135	0.122	-	-
Financial market stability indicators	-0.300	0.551	-0.300	-0.545	0.624	1.000	1.000
R <sub>2</sub>	0.090						
Adjust R <sub>2</sub>	-0.213						
F	F (1,3) =0.297, p =0.624						
D-W Value	2.654						
Dependent variable: Accounting information quality indicators							
* p<0.05 ** p<0.01							

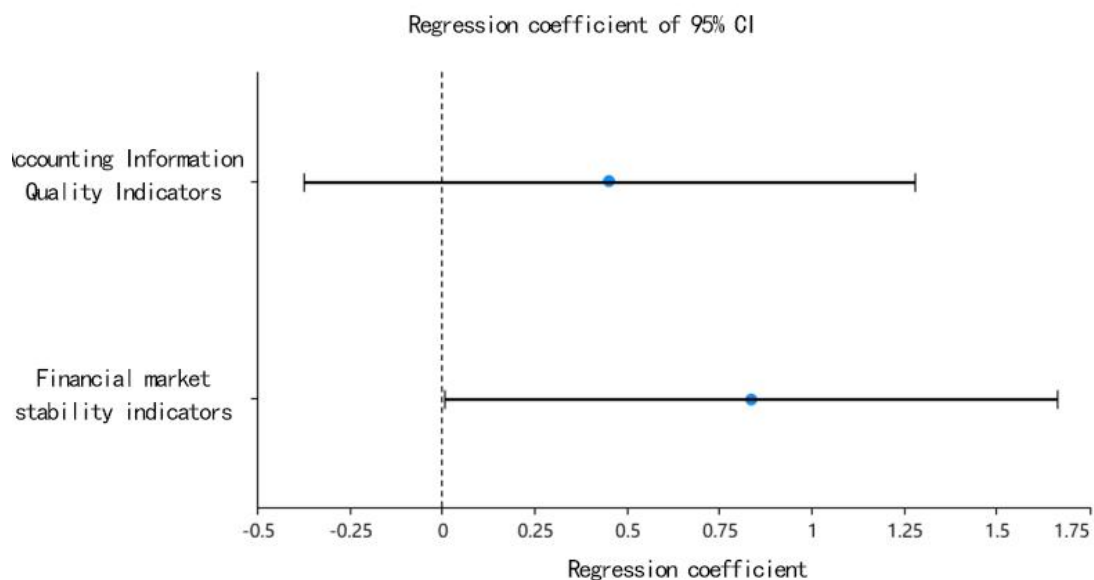


Figure 2 Regression Coefficient

### 3.2 Analysis (with Accounting Information Quality Indicators as the Dependent Variable)

The above table used financial market stability indicators as independent variables and accounting information quality indicators as dependent variables for linear regression analysis, and the model formula is: accounting information quality indicators=3.900-0.300 \* financial market stability indicators, with a R-squared value of 0.090, which means that financial market stability indicators can explain 9.0% of the changes in accounting information quality indicators. When conducting an F-test on the model, it was found that the model did not pass the F-test (F=0.297, p=0.624>0.05), indicating that financial market stability indicators have limited impact on accounting information quality indicators, and therefore cannot specifically analyze the independent variables.(Table 8).

Table 8 Linear Regression Analysis Results - Simplified Format

	Regression coefficient	95% CI	Collinearity diagnosis	
			VIF	Tolerance
Constant	2018.143** (950.583)	2013.982 ~ 2022.304	-	-
Accounting Information Quality Indicators	0.451 (1.066)	-0.378 ~ 1.279	1.099	0.910
Financial market stability indicators	0.835 (1.976)	0.007 ~ 1.664	1.099	0.910
Sample size	5			
R <sub>2</sub>	0.675			
Adjust R <sub>2</sub>	0.349			
F Value	F (2,2) =2.074, p =0.325			
Dependent variable: Year				
D-W value: 1.448				
* p<0.05 ** p<0.01 t value is enclosed in parentheses				

Table 9 Model Summary (Intermediate Process)

R	R <sub>2</sub>	Adjust R <sub>2</sub>	RMSE model error	DW Value	AIC Value	BIC Value
0.300	0.090	-0.213	1.349	2.654	21.184	20.402

The above table used financial market stability indicators as independent variables and accounting information quality indicators as dependent variables for linear regression analysis. It can be seen from the table that the R-squared value of the model is 0.090, which means that financial market stability indicators can explain the 9.0% change in accounting information quality indicators.(Table 9).

## 4. Conclusion and Strategy

### 4.1 Research Findings

This study used data-driven analysis methods such as regression analysis and panel data analysis, and collect data from multiple reliable sources to ensure the accuracy and comprehensiveness of the study. Overall, the quality of accounting information and the stability of the financial market in China are showing a steady improvement trend [6]. Among them, accounting information quality indicators such as financial report audit coverage, financial report disclosure time, and financial report information disclosure scope have all improved, indicating that the overall financial report quality of Chinese listed companies is relatively high. Meanwhile, financial market stability indicators such as leverage ratio and capital adequacy ratio have also improved, indicating a reduction in financial market risks in China [7].

However, there are still some issues that need attention. For example, there is still room for improvement in the efficiency of financial report information disclosure and for a decrease in leverage ratio. In addition, it is necessary to focus on the impact of changes in the macroeconomic environment on the stability of financial markets.

This study delved into the relationship between the quality of accounting information in China's market and the stability of the financial market over the past three years through data-driven analysis methods. Research has found that there is no significant difference in independent variables between different years, and high-quality accounting information has a certain positive impact on maintaining the stability of financial markets. Specifically, there is a significant correlation between accounting information quality dimensions such as accuracy, timeliness, transparency, and financial market stability indicators such as market volatility, market liquidity, and credit conditions [8]. These findings emphasize the important role of improving the quality of accounting information in

maintaining financial market stability.

## 4.2 Strategic Recommendations

Based on research findings, the following policy recommendations are proposed:

Firstly, further strengthen the supervision of accounting information quality. Regulatory authorities should strengthen the supervision of accounting information disclosure to ensure that enterprises provide accurate, timely, and transparent financial reports.

Secondly, enhance the international consistency of accounting standards, promote the consistency between China's accounting standards and international standards, and improve the international comparability and trust of China's accounting information.

Thirdly, strengthen the training and professional ethics construction of accounting professionals. Professional training and ethical education can enhance the professional abilities and qualities of accounting professionals.

Fourthly, use technology to improve the efficiency of financial market regulation, encourage the use of technologies such as big data and artificial intelligence to improve the efficiency and accuracy of financial market regulation.

## References

- [1] Huang Zujie. Quality issues in accounting information disclosure of listed companies [J]. *Taxation*, vol.17, no.30, pp.64-66, 2023.
- [2] Li Jing. Quality Issues and Improvement Measures of Accounting Information in Enterprise Financial Reporting [J]. *Quality and Market*, no.5, pp.4-6, 2023.
- [3] Lindsey A. Gallo; S.P. Kothari. Discussion of "Accounting quality and the transmission of monetary policy" [J]. *Journal of Accounting and Economics*, no. 3, pp. 17-23, 2019.
- [4] Massimo Massa, Bohui Zhang, Hong Zhang. The Invisible Hand of Short Selling: Does Short Selling Discipline Earnings Management? [J]. *Review of Financial Studies*, no. 6, pp. 32-35, 2015.
- [5] Atul Gupta; Lalatendu Misra; Yilun Shi. Product-market competitiveness and investor reaction to corporate governance failures [J]. *International Review of Economics and Finance*, no. 1, pp. 24-28, 2017.
- [6] Tsung-Pao Wu; Shubing Liu; Shun-Jen Hsueh. The Causal Relationship between Economic Policy Uncertainty and Stock Market: A Panel Data Analysis [J]. *International Economic Journal*, no. 2, pp 16-22, 2016.
- [7] Krzysztof Gajewski; Alejandro Jara; Yujin Kang; Junghwan Mok; David Moreno; Dobromił Serwa. International Spillovers of Monetary Policy: Lessons from Chile, Korea, and Poland [J]. *Journal of International Money and Finance*, no.5, pp 21-28, 2018.
- [8] Nicolas E. Magud; Carmen M. Reinhart; Esteban R. Vesperoni. Capital Inflows, Exchange Rate Flexibility and Credit Booms [J]. *Review of Development Economics*, no.3, pp20-26, 2014.