Study on the Relationship between Audit Quality, Earnings Management and Investment Performance

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Abstract: Based on the theory of information asymmetry, this paper takes investment performance, audit quality and real earnings management of listed companies as explained variables, explanatory variables and intermediary variables respectively, and selects the data of A-share listed companies in A total of 10 years from 2012 to 2022 as samples to study the relationship between the three. The empirical research shows that audit quality has a positive impact on the investment performance of listed companies in China, which can reduce the earnings management behavior of listed companies, and excessive earnings management behavior is not conducive to good investment performance of companies. Earnings management can play a part of intermediary effect between audit quality and investment performance. The results of this study provide reference for listed enterprises to improve investment performance and improve capital investment..

Keywords : Investment performance, audit quality, real earnings management

1. Introduction

At present, investment performance is a topic with high attention. Improving the investment performance of a company is conducive to obtaining more profits. Optimizing the investment decision of enterprises can help enterprises obtain more stable cash flow and make enterprises develop better. However, China's investment market is currently in the stage of development, there are many problems such as asymmetric information, imperfect system, and the quality of external audit is also uneven, so that enterprises can not make good investment, not only easy to make wrong decisions, but also affect the overall economic environment of China. In this case, I searched the data of A-share listed companies, studied whether audit quality has an impact on investment performance, and tested whether earnings management can play A part of the intermediary effect to provide theoretical support for listed companies to improve investment performance.

2. Theoretical basis and research hypothesis

Liao Yu (2017) studied A-share listed companies and found that audit quality has A positive impact on investment efficiency, and accounting conservatism can replace audit in this impact [1]. Ke Jie (2019) takes A-share non-financial listed companies as the research object and holds that high-quality audit can provide stakeholders with timely and complete corporate financial

information, ensure the fairness and authenticity of financial information, and thus improve investment efficiency [2]. It can be concluded that in capital transactions, audit quality can affect investment efficiency. Better audit quality can reduce the degree of information asymmetry and thus increase investment efficiency. Therefore, I propose my first idea:

H1: Audit quality is significantly positively correlated with investment performance of listed companies.

Earnings management is the behavior of company managers using legal means to beautify financial statements, which will affect the degree of information disclosure and make investors carry out wrong investment activities. Fan Tianqi (2021) studied the relevant data of A-share listed high-tech enterprises and believed that internal audit quality would negatively affect earnings management [3]. Bangladeshi scholars Nitai Chandra Debnath and Safaeduzzaman Khan (2022) studied audit quality and real earnings management and found a negative correlation between the service of the "Big Four" audit firms and the level of actual earnings management practice [4]. As an independent third party, external audit is more likely to disclose relevant information than internal audit. So I propose a second idea:

H2: Audit quality is significantly negatively correlated with real earnings management.

Among foreign scholars, Indian scholars Khushboo and Karamjeet Singh (2021) believe that audit quality can be replaced by earnings management from the perspective of agency theory [5]. Jordanian scholars Malik Muneer Abu Afifa and Isam Hamad Saleh (2021) studied whether audit quality and earnings management will have an impact on corporate performance in the normal operation process, and whether earnings management will have an intermediary effect [6]. The third party audit can restrain the degree of earnings management of listed companies, reduce the information is not bad, and make the company's investment performance better. SO my third idea is:

H3: Earnings management can partially mediate the relationship between audit quality and investment performance.

3. research design

3.1 Data source

This paper studies on A-share listed companies from 2012 to 2022, and the relevant data are obtained from guotai'an CSMAR database. By eliminating ST, PT, * ST, financial companies and financial data listed within one year, 29,134 data samples were finally obtained. Regression analysis was performed based on these sample data. Data processing was done by using Stata18.0 and Excel2019.

3.2Variable selection and description

1). Explained variable: I take investment performance (ROA) as the explained variable. Referring to the research of other scholars, ROA is chosen as the measurement index.The average total assets is calculated as the average sum of assets at the beginning of the year and the end of the year.

2). Explanatory variable: Audit is selected as the explanatory variable in this paper. Because the four major companies have been established for a long time, strong personnel ability, and have certain requirements in selecting customers, we choose whether the customer company is audited by the four major companies as the standard to measure the audit quality.

3). Intermediary variable: In this paper, real earnings management (REM) of listed companies is selected as the intermediate variable. We used the Roychowdhury (2006) model to calculate REM. We first calculate the Ab_CFO, Ab_PROD and Ab_DIS-EXP of the enterprise, and then measure REM according to the indicators calculated by the following model.

$$REM_{i,t=}(-1)Ab\_CFO + (-1)Ab\_DIS - EXP + Ab\_PROD$$

It is the sum of abnormal production costs minus abnormal operating cash flow and abnormal operating expenses.

4). Control variables:

Leverage (Lev):We believe that the ratio of assets to liabilities will affect whether a business can run smoothly. Companies operate with more liabilities than assets in order to use leverage to achieve greater returns. But in this case, the operation of the company will be more dangerous, even if it will be more profitable. Therefore, this variable can be used as a control variable to study the relationship between the two.

Major shareholder's shareholding Rate (L Holder Rate) :The more half of the equity is concentrated, the better the value of the enterprise will be. If the equity is more dispersed, the shareholders' ability to supervise the company will decline, and the supervision intensity will be worse. On the contrary, major shareholders will supervise the management more effectively and participate in enterprise management more actively. Therefore, this indicator is selected as the control variable to study the relationship between the two.

Total asset turnover (Ato) :This is used to reflect the operating efficiency of an enterprise. The larger the value of this is, the faster the turnover will be, and the greater the natural income will be. Through the research on this, we can reflect the investment performance from the shortcomings in the operation process of the selected enterprise. So it can be used to study the relationship between them.

The definitions of each variable are shown in Table 1:

Table 1 Variable interpretation

class	name	variable symbol	explain
explained variable	Investment performance	ROA	Retained profit / Average general assets
explanatory variable	Audit quality	Audit	The audit report issued by the four is 1, otherwise 0
metavariable	Real surplus management	REM	It is calculated by using Roychowdhury (2006) model
	financial leverage	Lev	Total liabilities / total assets
controlled variable	Major shareholder shareholding	L Holder Rate	The largest shareholder shareholding ratio
	turnover of total capital	Ato	Average balance of operating income / total assets

3.3model design

In order to study the impact of audit quality on enterprise investment performance, we construct model (1).Investment performance is taken as the explained variable, audit quality is taken as the explanatory variable, and financial leverage, shareholding ratio of major shareholders, total asset turnover rate and annual virtual variables are taken as the control variables.

model (1):

$$ROA = \beta_0 + \beta_1 Audit + \beta_2 Lev + \beta_3 L\ Holder\ Rate + \beta_4 Ato + \sum Year \qquad (1)$$

If the β_1 previous coefficient is positive and significant, it can be concluded that the Audit has a good influence on enterprise investment performance.. If the β_1 previous coefficient is significantly negative, it can be concluded that the Audit has a negative impact on the investment performance of listed companies. If the β_1 previous coefficient is not significant, it indicates that the Audithas no influence on enterprise investment performance.

To verify the impact of the Audit on real earnings management, we built a model (2). The investment performance in the model (1) was changed to real earnings management.

model (2):

$$REM = \beta_0 + \beta_1 Audit + \beta_2 Lev + \beta_3 L\ Holder\ Rate + \beta_4 Ato + \sum Year \qquad (2)$$

If the β_1 previous coefficient is positive and significant, it shows that the Audit has a good impact on the real earnings management of enterprises. If the β_1 previous coefficient is significantly negative, it shows that the Audit has a bad impact on the real earnings management of listed companies. If the β_1 previous coefficient is not significant, it indicates that the audit quality has no impact on the investment performance of enterprises.

In order to test the impact of Audit and earnings management on enterprise investment performance, and to study whether the real earnings management has an intermediary effect, this paper constructs a model (3). There is an additional earnings management compared to model (1).

model (3):

$$ROA = \beta_0 + \beta_1 Audit + \beta_2 REM + \beta_3 Lev + \beta_4 L\ Holder\ Rate + \beta_5 Ato + \sum Year \qquad (3)$$

The explained variables, explanatory variables, mediation variables and control variables were regressed out, and the hypothesis was determined by analyzing the coefficient before the explanatory variables and intermediary variables.

4. Empirical results and analysis

4.1 Descriptive statistical

We analyzed the descriptive statistics in Table 2. It is not difficult to see from the table that the minimum value of investment performance of A-share listed companies is -0.238, the max value is 0.241, and the standard deviation is 0.0661., in the sample of the investment performance difference is obvious, and some companies' investment performance is not

optimistic, in addition, according to the financial leverage data can be seen in the listed companies remain relatively stable level of debt is more. At the same time, there are great differences in the earnings management, shareholding ratio of major shareholders and total asset turnover of enterprises in the sample.

Table 2: Descriptive statistical

Variable	Obs	Mean	Std.dev.	Min	Max
ROAC	29,098	0.0360	0.0661	-0.238	0.241
Audit	29,098	0.0614	0.240	0	1
REM	29,098	-0.00430	0.259	-6.791	7.128
LHolderRate	29,098	33.54	14.74	8.420	73.82
Lev	29,098	0.434	0.202	0.0615	0.900
Ato	29,098	0.637	0.434	0.0720	2.610

4.2Correlation analysis

We analyze correlations in Table 3, from which we can see that there is no problem of multicoll inearity among the explained variables, explanatory variables, mediation variables, and control variables. Multivariate regression can be performed.

Table 3: Correlation analysis

	ROAC	REM	Audit	LHolde Rate	Lev	Ato
ROAC	1					
REM	-0.336***	1				
Audit	0.043***	-0.051***	1			
LHolderRate	0.138***	-0.035***	0.149***	1		
Lev	-0.347***	0.169***	0.100***	0.056***	1	
Ato	0.193***	-0.070***	0.039***	0.088***	0.140***	1

4.3 Regression analysis

The audit quality is based on the relationship between the REM of enterprises, and the real earnings management is taken as the intermediary variable. The regression is shown in Table 4:

Among them, the first column is the regression of model (1), and the β_1 of Audit is 0.0148, which is positive, proving that Audit has a good impact on investment performance, and the impact is quite significant. Let's say it's true. The second column is the regression of model (2). The β_1 of Audit is-0.0676, which is negative, proving that Audit has a bad impact on earnings management, and the impact is quite significant. Suppose two is established. The third column is to study the relationship between the intermediary variable and the explained variables. The coefficient of earnings management is-0.0662, indicating that earnings management has a negative impact on investment performance. The fourth column is the regression of the model (4). The β_1 of the Audit is 0.0103, and the Audit still has a good

impact on the investment performance. It proves that the audit quality plays a good role in restricting the earnings management behavior, which is conducive to improving the investment performance of listed companies, and the earnings management can play an intermediary role. Suppose three is established.

Table 4. Analysis of the multiple regression results

	(1)ROAC	(2)REM	(3)ROAC	(4)ROAC
Audit	0.0148***	-0.0676***		0.0103***
	(10.08)	(-10.76)		(7.34)
LHolderRate	0.000591***	-0.000496***	0.000582***	0.000559***
	(24.80)	(-4.85)	(25.67)	(24.41)
Lev	-0.129***	0.243***	-0.111***	-0.113***
	(-73.87)	(32.50)	(-65.79)	(-66.25)
Ato	0.0358***	-0.0545***	0.0322***	0.0322***
	(44.22)	(-15.73)	(41.32)	(41.30)
REM			-0.0662***	-0.0656***
			(-50.53)	(-50.01)
_cons	0.0484***	-0.0542***	0.0441***	0.0448***
	(41.42)	(-10.81)	(39.38)	(39.91)
N	29098	29098	29098	29098
adj.R2	0.202	0.042	0.264	0.265

4.4 Robustness test

This paper uses the variable substitution method to test the robustness of the regression results, and uses the natural logarithm of audit fees to substitute whether the report is issued by the four major companies to measure the audit quality. The results are shown in Table 5. It can be seen from the table that the audit quality and investment performance still have a positive impact and are relatively significant. There is a significant negative correlation between audit quality and earnings management and earnings management and investment performance at 1% level. Earnings management and investment performance if audit quality and earnings management are added at the same time, earnings management and investment performance are still significantly negatively correlated at the level of 1%. In summary, the model regression results in this paper are robust and the empirical conclusions are reliable.

Table 5: The robustness test

	(1)ROAC	(2)REM	(3)ROAC	(4)ROAC
Aud it	0.00584***	-0.0276***		0.00403***
	(11.02)	(-12.17)		(7.91)
LHolderRate	0.000596***	-0.000511***	0.000582***	0.000562***
	(25.08)	(-5.02)	(25.67)	(24.65)
Lev	-0.134***	0.270***	-0.111***	-0.117***
	(-72.37)	(33.93)	(-65.79)	(-64.22)
Ato	0.0352***	-0.0521***	0.0322***	0.0318***
	(43.51)	(-15.01)	(41.32)	(40.79)
REM			-0.0662***	-0.0655***
			(-50.53)	(-49.89)
_cons	-0.0293***	0.313***	0.0441***	-0.00878

	(-4.15)	(10.36)	(39.38)	(-1.30)
N	29098	29098	29098	29098
adj.R2	0.203	0.043	0.264	0.265

5. Conclusion and recommendations

5.1 Conclusion

1.Audit quality was significantly and positively correlated with investment performance. It shows that improving the Audit can improve the investment performance . The higher the Audit, the better the investment performance.

2.Surplus management and enterprise investment performance at 1% level significantly negative correlation, excessive earnings management may lead to financial reporting distortion, cover up the company's real operating conditions and financial performance, make investors are difficult to accurately assess the value of the company, thus affect the investment decisions and performance, earnings management can play a part of the intermediary effect.

3.High-quality audit can effectively supervise earnings management behavior, limit companies from improper earnings management, reduce information asymmetry, improve the reliability of financial reports, so as to reduce the company's misjudgment and losses, and further improve investment performance.

5.2 Recommendations

Enterprises should improve the audit quality, strengthen the internal control and transparency, and avoid excessive earnings management behavior in order to achieve better investment performance.

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