

The influence of accounting information quality on capital allocation efficiency of the high-tech enterprises in Henan province

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Abstract. Accounting information quality has a great influence on resource allocation efficiency. This paper takes the high-tech enterprises in Henan province as the research sample from 2014 to 2016 and carries out descriptive statistics, correlation analysis and regression analysis of the impact of accounting information quality on resource allocation efficiency. Basing on the conclusion of empirical analysis, some suggestions such as improving the disclosure of accounting information, obtaining reasonable debt funds, strengthening internal management of enterprises, strengthening the guiding of the government and etc are put forward.

1. Introduction

The high-tech enterprises play an important role in the process of rapid economic development in China. High-tech enterprises which scale and quantity are increasing continuously have become an important part of promoting economic growth in Henan province[1]. As an important part of capital market, accounting information has a great influence on capital market allocation efficiency, and effective accounting information can reduce information asymmetry, alleviates agency problem, optimize resource allocation and promote the health of capital market. Therefore, the research on accounting information quality and resource allocation efficiency of the high-tech enterprises in Henan province is of great significance to improve the investment efficiency of high-tech enterprises, optimize the industrial structure of Henan province, and promote the economic development.

2. Literature review

Many foreign scholars have studied the correlation between accounting information quality and capital allocation efficiency. Wang (2003) [2] used wurgler model and Richardson model to analyze the data of American listed companies from 1967-2000, and the results showed that the capital allocation efficiency was positively correlated with the accounting information quality. Biddle and Hilary (2006) [3] analyzed the data of 34 countries from 1993 to 2004, the results showed that the accounting information quality could improve the efficiency of investment, and it was significantly related to capital allocation efficiency. Taking American listed companies as samples, Menichols and Stubben (2008) analyzed the factors that affected the investment efficiency of the company, the results showed that accounting information quality could improve the investment efficiency of the company[4].

Domestic research also examined the role of accounting information quality in capital allocation efficiency. Chen Qiwei and Mi Jianhua (2008) [5] selected 61 publicly listed companies in A-share market as samples and analyzed them by using the modified Jones model. The results showed that



capital allocation efficiency was positively related to the quality of information disclosed. Sheng Yanmei and Sun Dan (2014) [6] studied the relationship between accounting information quality and capital allocation efficiency, and the results showed that accounting information quality plays a positive role in the effective allocation of macro capital.

In summary, domestic and foreign scholars made empirical analysis on listed companies in different countries and regions, and analyzed the different influences of accounting information quality on capital allocation efficiency, the research showed that accounting information quality could affect the capital allocation efficiency to some extent.

3. Research hypothesis

Accounting information has a great influence on capital market allocation efficiency, and effective accounting information can reduce information asymmetry, alleviate agency problem, optimize resource allocation and promote the health of capital market. Therefore, this paper puts forward the hypothesis that accounting information quality is positively related to capital allocation efficiency.

4. Research and design

4.1 Sample selection and data sources

This paper selects 73 listed companies in Henan province from 2014 to 2016 as the research samples of high-tech enterprises. In the analysis, 45 enterprises are got after excluding companies with incomplete data, excluding financial and insurance companies, and excluding St companies, and the data come from the wind database.

4.2 Variables and measures

The variables and measures selected in this article are shown in table 1 below.

Table 1. Variable definition

Variable symbol	Variable definition	Variable measurement
$Inv_t(Y)$	Company investment level	Fixed assets / total assets
$UnderInv_{i,t}$	Underinvestment	The absolute value of residuals less than 0
$OverInv_{i,t}$	Overinvestment	Value of residuals greater than 0
$AQ_{i,t-1}(X_1)$	Accounting information quality	The absolute value of the residuals of the Jones model
$Growth_{i,t-1}(X_2)$	Enterprise growth opportunities	Increase rate of operating income
$Lev_{i,t-1}(X_3)$	Corporate capital structure	Asset-liability ratio
$Size_{i,t-1}(X_4)$	Company size	Natural logarithm of the total assets of the company at the beginning of the period
$Eps_{i,t-1}(X_5)$	Profitability	Basic earnings per share
$Cost_{i,t-1}(X_6)$	Agency cost	Total asset turnover
$Share_{i,t-1}(X_7)$	Ownership concentration	The shareholding ratio of the top ten shareholders
$Fee_{i,t-1}(X_8)$	Management expense ratio	Manage expenses/ Operating income ^a

^a Management expense ratio= Manage expenses/ Main business revenue, due to the availability of data, this paper uses Manage expenses/Operating income to express Management expense ratio.

4.3 Model construction

According to the specific situation of high-tech enterprises in Henan province, this paper establishes the model of accounting information quality to capital allocation efficiency of high-tech enterprises in Henan province combined with existing research and Richardson model[7], in order to avoid the

potential contemporaneous bias between explained variables and explanatory variables using the same period of data, a lag phase is used to explain variables.

$$\text{Inv}_t = c + a_1 \text{AQ}_{i,t-1} + a_2 \text{Growth}_{i,t-1} + a_3 \text{Lev}_{i,t-1} + a_4 \text{Size}_{i,t-1} + a_5 \text{Eps}_{i,t-1} + a_6 \text{Cost}_{i,t-1} + a_7 \text{Share}_{i,t-1} + a_8 \text{Fee}_{i,t-1} + \varepsilon$$

(Model 1)

$$\text{UnderInv}_{i,t} \text{ or } \text{OverInv}_{i,t} = c + a_1 \text{AQ}_{i,t-1} + a_2 \text{Groth}_{i,t-1} + a_3 \text{Lev}_{i,t-1} + a_4 \text{Size}_{i,t-1} + a_5 \text{Eps}_{i,t-1} + a_6 \text{Cost}_{i,t-1} + a_7 \text{Share}_{i,t-1} + a_8 \text{Fee}_{i,t-1} + \varepsilon$$

(Model 2)

5. Empirical research

5.1 Descriptive analysis

In order to measure the effect of accounting information quality on capital allocation efficiency of high-tech enterprises in Henan province, descriptive statistics are made between variables according to model 1, as shown in table 2 below.

Table 2. Analysis of capital allocation efficiency of high-tech enterprises in Henan province

Variables	Maximum	Minimum	Mean	Standard deviation
UnderInv	0.387175	0.032454	0.190454	0.079967
OverInv	0.804335	0.001464	0.402459	0.135327
AQ _{i,t-1} (X ₁)	2.190278	0.001594	0.195651	0.23695
Growth _{i,t-1} (X ₂)	6.443741	-0.213624	0.286104	0.583553
Lev _{i,t-1} (X ₃)	1.037263	0.059151	0.445988	0.192849
Size _{i,t-1} (X ₄)	15.99193	10.76770	13.03101	1.081895
Eps _{i,t-1} (X ₅)	1.8358	0.012000	0.376519	0.394733
Cost _{i,t-1} (X ₆)	2.47	0.1	0.637333	0.412115
Share _{i,t-1} (X ₇)	0.9528	0.1977	0.563154	0.141873
Fee _{i,t-1} (X ₈)	0.23492	0.007951	0.090962	0.051147

5.2 Correlation analysis

According to model 1, the correlation analysis between each variable is conducted, as shown in table 3 below.

Table 3. Correlation analysis of capital allocation efficiency of high-tech enterprises in Henan province

Variable s	Inv	AQ	Growth	Lev	Size	Eps	Cost	Share	Fee
Inv	1	0.011878	-0.22301	0.347855	0.039993	-0.18935	0.055238	-0.1475	-0.2419
AQ	0.011878	1	0.263107	-0.12991	0.156998	0.215538	0.343355	0.260724	-0.12751
Growth	-0.22301	0.263107	1	-0.0472	0.071809	0.032478	-0.04378	0.171912	-0.02486
Lev	0.347855	-0.12991	-0.0472	1	0.507439	-0.14495	0.037893	-0.06807	-0.42756
Size	0.039993	0.156998	0.071809	0.507439	1	0.395575	0.257846	0.266007	-0.53205
Eps	-0.18935	0.215538	0.032478	-0.14495	0.395575	1	0.483354	0.178788	-0.14619
Cost	0.055238	0.343355	-0.04378	0.037893	0.257846	0.483354	1	0.231802	-0.4955
Share	-0.1475	0.260724	0.171912	-0.06807	0.266007	0.178788	0.231802	1	-0.09098
Fee	-0.2419	-0.12751	-0.02486	-0.42756	-0.53205	-0.14619	-0.4955	-0.09098	1

5.3 Regression analysis

5.3.1 Whole sample regression

Stepwise regression is carried out on model 1, and X₆、X₇、X₅ are eliminated successively, R-squared=0.233706, Adjusted R-squared=0.204004, D-W=1.910843, the fitting effect of the whole model is good, independent variables can well explain the degree of variation of dependent variables, and the regression results are shown in table 4 below.

Table 4. The whole sample regression of capital allocation efficiency of high-tech enterprises in Henan province

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AQ	0.091471	0.053177	1.720134	0.0088
Growth	-0.058435	0.020690	-2.824352	0.0055
Lev	0.323164	0.074363	4.345738	0.0000
Size	-0.03967	0.013940	-2.845713	0.0052
Fee	-0.601758	0.276879	-2.173359	0.0316
C	0.711047	0.182794	3.889890	0.0002
R-squared	0.233706	Durbin-Watson stat	1.910843	
Adjusted R-squared	0.204004			

5.3.2 Partial sample regression

The investment efficiency is measured according to the residual value of model 1, and the absolute value of residual is used as the proxy variable of investment efficiency. The residual value which greater than zero represents over investment expressed in OverInv; The residual value less than zero represents insufficient investment, expressed in UnderInv, and the absolute value of UnderInv is taken in model 2. The greater the absolute value of the residual, the more uneconomical the investment efficiency is; The smaller the residual value, the more economic the investment is. The correlation coefficient of each variable is less than 0.8 after the correlation analysis of the over investment sample and the under investment sample, and regression analysis can be performed, the results are shown in table 5 and table 6.

Table 5. The over investment sample regression analysis of capital allocation efficiency of high-tech enterprises in Henan province

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AQ	0.002429	0.051320	0.047335	0.0024
Growth	-0.063039	0.018063	-3.490050	0.0010
Lev	0.253052	0.081744	3.095664	0.0031
Size	-0.021623	0.015536	-1.391828	0.0097
Fee	-0.843753	0.338702	-2.491139	0.0158
C	0.663408	0.208621	3.179959	0.0024
R-squared	0.410517	Durbin-Watson stat	1.700761	
Adjusted R-squared	0.355936			

Table 6. The under investment sample regression analysis of capital allocation efficiency of high-tech enterprises in Henan province

Variable	Coefficient	Std. Error	t-Statistic	Prob.
AQ	0.033005	0.058173	0.047335	0.0023
Growth	-0.048679	0.027663	-1.759710	0.0029
Lev	0.206355	0.056688	3.640186	0.0005
Size	-0.041370	0.010436	-3.964362	0.0002
Fee	-0.630286	0.179356	-3.514169	0.0008
C	0.705210	0.132013	5.341983	0.0000
R-squared	0.393962	Durbin-Watson stat	1.697747	
Adjusted R-squared	0.350046			

6. Conclusions and Suggestions

6.1 Conclusions

(1) 20 enterprises invest too much and 25 enterprises are under invested of high-tech enterprises in Henan province.

(2) Accounting information quality is positively correlated with the capital allocation efficiency of high-tech enterprises in Henan province. The higher the accounting information quality, the higher the capital allocation efficiency of Henan's high-tech enterprises; The lower the accounting information quality, the lower the capital allocation efficiency.

(3) Enterprise growth opportunities, company size, management expense ratio are negatively correlated with the capital allocation efficiency of high-tech enterprises in Henan province. Although the enterprises have a large scale and a good growth opportunity but not fully grasped. Corporate capital structure is positively correlated with the capital allocation efficiency of high-tech enterprises in Henan province.

(4) Corporate capital structure, management expense ratio and accounting information quality have great influence on the capital allocation efficiency of high-tech enterprises in Henan province.

6.2 Suggestions

(1) Improve the disclosure of accounting information. Accounting information quality is positively correlated with the capital allocation efficiency of high-tech enterprises in Henan province, on the other hand, the capital allocation efficiency also affects the of accounting information quality, so strengthen the initiative of the enterprise to disclose more useful accounting information, increase the government, the public to supervise the accounting information, make the accounting information more fair and transparent, thus effectively improve the capital allocation efficiency of the high-tech enterprises in Henan province.

(2) Obtain reasonable debt funds. Make full use of the issuance and trading of bonds, and use various financing methods to obtain reasonable debt funds, so as to give full play to the role of financial leverage, optimize the capital system of high-tech enterprises in Henan province, and improve the capital allocation efficiency.

(3) Strengthen the internal management of enterprises and optimize their incentive and supervision mechanism. Due to the information asymmetry and agency by agreement, management expense ratio of high-tech enterprises in Henan province is high. So strengthening the internal management of enterprises, reducing adverse selection and moral hazard can improve the efficiency of internal management and ensure the reliability and timeliness of accounting information quality. In addition, optimizing their incentive and supervision mechanism to keep the interests of shareholders, managers, investors and creditors consistent, and improve the capital allocation efficiency.

(4) Strengthen the guiding of the government. Henan Province is in the period of economic development, and the government has a great influence on the economy, therefore the government should strengthen its guiding to enterprises, especially to high-tech enterprises in Henan province, to help them grasp good economic growth opportunities, grasp good market investment opportunities, and avoid potential risks, so as to promote the their development and promote the capital allocation efficiency.

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