



MULTI-CRITERIA STATISTICAL-BASED ANALYSIS ON THE EFFECT OF ACCOUNTING INFORMATION QUALITY ON EFFICIENCY OF INVESTMENT BY EMPHASIZING UPON AUDITOR SPECIALTY IN INDUSTRY IN ACCEPTED CORPORATIONS IN TEHRAN STOCK EXCHANGE

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ABSTRACT

The role and importance of investment in the process of economic growth and development of communities have been emphasized in most views of economic growth and development. Due to the lack of investment resources, it is necessary to identify the relative advantages of a country for optimal allocation of investment resources to stimulate economic growth, and by directing investment resources to the most productive and efficient sectors, the use of efficient restricted resources to accelerate economic growth. Considering the limited financial resources, in addition to the issue of investment development in Tehran Stock Exchange, increasing the efficiency of investment is very important issues. This study explains the effect of accounting information quality on investment efficiency, with emphasis on the role of auditor's expertise in the industry. This research has been conducted using 2014-2017 data, with a sample selected 143 companies using a systematic screening method. With regression, the analytical result indicates that the auditor's specialty in the industry has a significant and positive effect on the investment effectiveness, as well as the quality of accounting information on investment efficiency. Finally, the result of the third hypothesis test suggests that the auditor's specialty in the industry does not have a significant effect on the relationship between the quality of accounting information and investment efficiency.

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1. INTRODUCTION

Role and importance of investment in economic growth and development is emphasized in all theories and economic development.as for a shortage of investment and necessity of optimal devotion

of resources for economic stimulation, it is necessary to identify investment resources and to provide the best resources by directing investment into the most efficient sections to accelerate economic domain. As for financial limitations, as well as the development of investment in Tehran stock exchange organization, increase investment efficiency is so vital. Commercial units when are defined as efficient which have positive value, thus, in the conditions where there is no friction including maladaptive section with agency cost, inefficient investment is to avoid from investment opportunities with low positive value, as well inefficient investment including select projects with negative value (pre-investment), thus the aim of this research is investigating the effect of accounting information on efficient of investment according to the role of mediator variable, auditor specialty in accepted Corporations in Tehran Stock Exchange.

2. RESEARCH PROBLEM

As for variations which happened in developing countries and encounter with important threats, the countries need a suitable strategy to use better facilities and natural wealth to solve their economic problems. In this regard, development and extension of investment are important (Tehrani and Nourbakhsh, 2005; Hosseini & Jamshidinavid, 2019). As for the limitations of resources, development of investment, increase efficiency is so important too. Minimally, two important factors are to investment efficiency. First, a company needs to increase capital in order to supply finance for investment. In a perfect market, all projects with positive value shall be financed, although, investment texts stated that the companies encounter with finance limitations (Hubbard, 1998). A result is that the company by shortage of finance, avoids positive value because of finance limitation which is resulted in less investment and the second factor is that if a company decides to increase investment, there is no warrant to perform accurate investment and researches showed that bad selection of a project directs company into more investment (Estine, 2003). Quality of accounting information can be pertaining to the efficiency of investment. First, it was discussed that financial reporting reduces asymmetrical information between the company and investors and maladaptive costs (Verchia, 2001). From an empirical point of view, expert auditors play a limited role in the industry and by high custodial in order to maintain their professional fame and avoid from their judicial role in accruals (Defond et al., 2000). As well the auditors find a specialty in the industry, their specialty knowledge increaser and it is anticipated that compared with non-specialty auditors, they have more attention in fake reports (Balsam et al., 2003). Krishnan (2003) tested negative relation in the audit industry and optional accruals and found a negative relationship between them, also, Schauer (2003) tested asymmetrical relation between information and specialty in auditory industry and concluded that the companies which are governed by expert's auditors, have low informational asymmetric compared than companies don't use it. It is anticipated that the increase of supervision by applying expert auditor is a key mechanism to reduce ethical problems and manager' opportunity (Elaouda and Jarbouib, 2017). Thus, it is anticipated that expert of auditor helps to investment efficiency. As for contents, the question is that what does the quality of accounting information influence on the efficiency of investment? Meanwhile, does the expert of auditory influence on the relationship between the quality of accounting information and efficiency of investment?

Yeganeh et al. (2017) discussed the relationship between the perfection of earnings predication

with the efficiency of investment. The time period of this research was considered 5 years from early 2009 to the end of 2013 and the sample size was 133 corporations in Tehran Stock Exchange. In order to perform statistical analysis, multivariable regression was done and 10 control variables were used, the results showed that perfect of prediction has a positive relationship with the efficiency of investment and it has a negative relation with low investment and more investment.

Mashdaei et al., (2016) discussed renewal relation for financial statements with the change of auditor, management performance and market performance in accepted Corporations in Tehran Stock Exchange, and the statistical population consists of 133 accepted Corporations in Tehran Stock Exchange, during the time period 2010-2014 and considered by logistic regression.

When independent auditor changed, it increases renewal for financial statements, in other words, there is a positive and significant relationship between two variables. Also, the findings showed that there is a negative and significant relation between management performance and market performance by the renewal of financial statements. Finally, the controllable variable analysis showed that growth and yield of assets variables have a positive and significant effect on renewal of financial statements.

Nasirzadeh and Hedayatipour (2015), discussed the relationship between financial reporting, debt mature and efficient of investment and results showed that higher financial reporting proved significant relation and short debt and positive relation for the efficiency of investment, as if, short debt has a significant and positive effect on the quality of financial reporting and efficiency of investment.

Namazi et al. (2011) discussed the relationship between auditor quality and earnings management by using 61 observations during 2007-2001. The results showed that there is no relation between the size of auditor and earnings management but there is a positive and significant relation between auditor custodian and earnings management.

Noraveshsh and Mirhosseini (2009) discussed the relationship between quality of corporation disclose (including reliability and on time) and earnings management among 51 corporations in Tehran Stock Exchange during 2002-2007. In this research, two criteria like on time and reliability were used to measure the quality of disclose and earnings management was used by Jones modified scale. The findings showed that there is a negative relation between qualities of corporation disclose and earnings management.

Sajjadi et al. (2008) considered effective factors on benefits management in accepted corporations in Tehran Stock Exchange. In this research, in order to analyze data, logistic regression index, correlation coefficient, Chi-two and comparison of pairs were used. According to results, they were significant in 5% level for factors like change in company performance and prediction of earnings and future earnings but there is no significant relation between earnings management and parameters like company size, ownership structure.

Daseu and Panditte (2018) discussed the relation between the quality of auditing and efficient investment by emphasizing upon the life cycle of the company and studied the risk of cash amounts. The results showed that modifying the effect of auditing quality is so important for all companies and

this causes more investment. The results conform to the quality of auditing and reduce information conflict which prevents investment.

Petersen (2009), discussed relation for auditor and internal control in America exchange and the results showed that by the change of auditor, new auditor planned and performed auditing as if there is sufficient witness to obtain weakness.

Daliwell et al. (2016) in their study with the title “does efficiency of investment restore internal weakness? Concluded that efficient of investment was restored by disclosing internal weakness significantly.

Braam et al. (2015) studied real earnings management based on accruals and political relations, discussed the balance between strategies of real earnings management and earnings based on accruals in companies having political relation and lacking political relations. The results showed that in the companies having political relations, real earnings management replaced with earnings based on accruals.

Saidi et al. (2017) focused on manipulation of real activities and decisions for the auditor, discussed the effect of manipulation of real activities by management to change auditor and concluded that instead of manipulation of real activities by extra production, opportunity operational decision has a direct and positive relationship with change of auditor.

Yaghoobnezhada et al. (2014) performed research as moment’s management, the role of earnings management based on accruals against real earnings management in the evaluation of secondary stocks: the results showed that earnings management has close and predication relation with weakness of performance after offering secondary stock when manipulated real activities.

3. RESEARCH OBJECTIVES

Main Objective

Examine the relationship between the quality of accounting information with the efficiency of investment by emphasizing upon expert role in the industry

Research Minor Objectives

Investigating the effectiveness of expert of the auditor on investment efficiency in industry

- 1- Investigating the effectiveness of accounting information quality on investment efficiency
- 2- Investigating the effectiveness of accounting information quality and investment efficiency as for the specialty role of the auditor in industry.

Research Hypothesizes

- 1- Quality of accounting information has a significant effect on investment efficiency
- 2- Expert of the auditor has a significant effect on investment efficiency
- 3- Expert of the auditor in the industry has a significant effect on the relation between the quality of accounting information and the efficiency of investment

4. RESEARCH CONCEPTUAL MODEL

This study model follows a model given by Elaouda and Jarbouib (2017), *see* Chart 1.

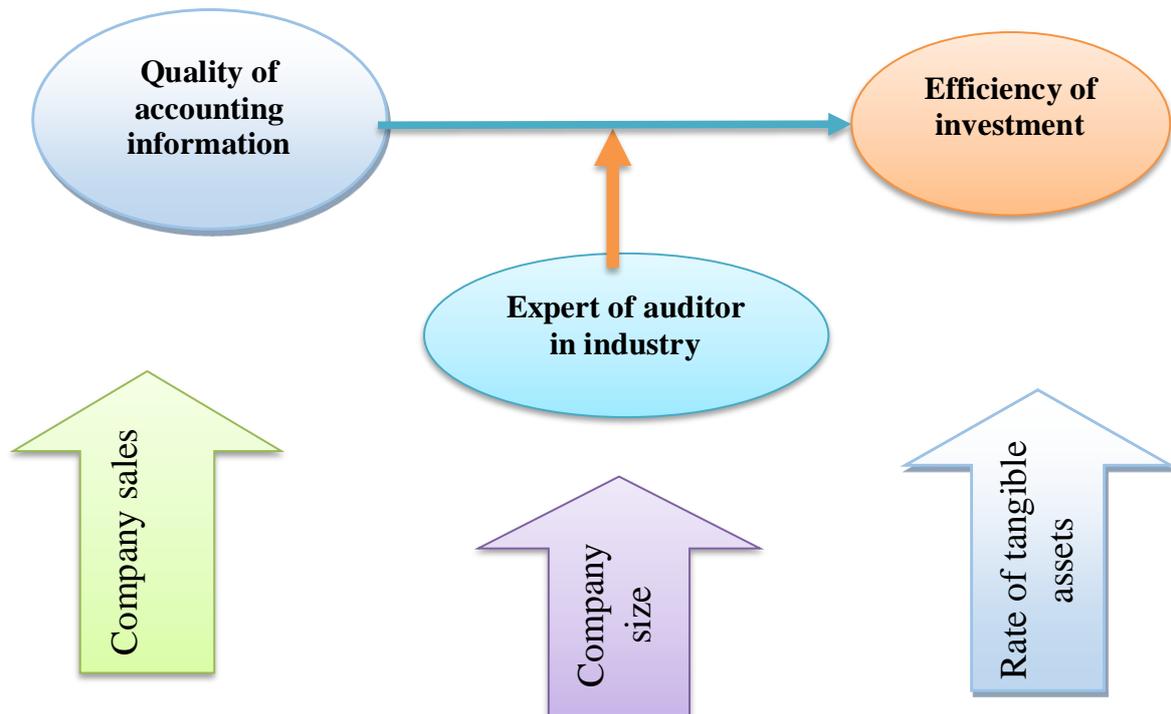


Chart 1: Conceptual model of research (after Elaouda, and Jarbouib, 2017).

5. STATISTICAL MODEL OF RESEARCH

Regression model for discussing the first and second hypothesis

$$\text{InvEF} = \beta_0 + \beta_1 \text{AIQ} + \beta_2 \text{Spau} + \beta_3 \text{LnSales} + \beta_4 \text{LnAge} + \beta_5 \text{Tang} \quad (1).$$

Regression model for discussing the third hypothesis

$$\text{InvEF} = \beta_0 + \beta_1 \text{AIQ} + \beta_2 \text{Spau} + \beta_3 \text{AIQ} * \text{Spau} + \beta_4 \text{LnSales} + \beta_5 \text{LnAge} + \beta_6 \text{Tang} \quad (2),$$

In which

- InvEF = efficiency of investment
- AIQ = accounting information quality
- Spau = specialty of the auditor in industry
- LnSales = company sales
- LnAge = company age
- Tang = rate of tangible assets

6. RESEARCH METHOD

Based on the aims of the research, a statistical method is from compound correlation (time series and occasional) that is the relation between variables is on regression. For measurement of the independent and dependent variables, it has used yearly data.

7. STATISTICAL POPULATION

The statistical population consists of all corporations in Tehran Stock Exchange for during time 2013-2017 that it is 143 companies and the data was collected by yearly data. It is necessary to remember that selection of accepted corporations in Tehran Stock Exchange as a statistical population is the most used information in relation with Iranian companies and the companies which transacted in the stock exchange. In this research, a systematic deletion method has been used that the statistical population was selected in terms of terms and limitations:

- 1- The financial period is ended to 1st march to locate data and apply in the form of tableau or combined mode (in terms of terms)
- 2- During the research, there is no change in the financial period to compare financial performance.
- 3- It is not part of companies operating in the financial domain since Institutes are different from nature of the activity and their main income is derived from investment and dependent on companies, thus, it is different from other researches.
- 4- Data required was for during time 2013-2017 to perform a calculation without defects.
- 5- It has three months delay

Total 143 companies are selected for this studied.

8. FINDING

Statistical analysis result is given in Table 1 and 2. Since the value of Kolmogorov Smirnov probable test is less than 0.05 for the efficiency of investment, thus, the dependent variable was not normal and shall be normalized. In this research, Johnson conversion in Minitab software has been used.

Table 1: Descriptive statistics for research variables (n = 715)

Variables	Symbol	Elongation	Skidding	Variance	SD	Middle	Mean
Efficiency of investment	InvEF	186.249	12.969	.070	.263	.077	.118
Accounting information quality	AIQ	246.921	14.471	.049	.221	.087	.149
Specialty of auditor in industry	Spau	142.500	8.527	.022	.149	.113	.143
Company sales	LnSales	.209	.026	.887	.941	7.295	7.291
Company age	LnAge	-1.023	-.413	.017	.130	1.278	1.252
Rate of tangible assets	TANG	0.609	0.744	0.16	.125	.225	.233

Table 2: Kolmogorov–Smirnov test for investigating the normality of research variables (n = 715)

Variables	Z Kolmogorov–Smirnov	The biggest difference			Normal Parametric		p value
		negative	positive	Absolute value	SD	mean	
InvEF	.326	-.326	.244	.326	.263665	.11896	.000c
AIQ	.295	-.295	.226	.295	.221975	.14958	.000c
Spau	.169	-.169	.130	.169	.149797	.14384	.000c
LnSales	.024	-.021	.024	.024	.941545	7.29151	.200c,d
LnAge	.112	-.112	.086	.112	.130778	1.25262	.000c
TANG	.000c	.060	-.036	.060	.060	.125925	.23343

9. RESULTS OF HYPOTHESIS RESEARCH

Result of regression analysis is shown in Table 3, for the first and second hypothesis testing.

Table 3: results of the research model

Parameters	VIF	Coefficient value	t-value	Prob.	Result
Fixed value	-	0.230572	0.424314	0.6715	Not significant
AIQ	1.018	0.114040	3.673837	0.0007	Significant and positive
Spau	1.047	-0.200136	-3.720038	0.0018	Significant and negative
LnSales	1.030	-0.005494	-2.102899	0.0181	Significant and negative
LnAge	1.033	1.223419	1.767892	1.4429	Significant and positive
TANG	1.064	1.982723	14.21808	<0.001	Significant and positive
statistics F	2.8469		Prob.F	<0.001	
Watson-Durbin	2.0450		Determination coefficient	0.732964	
Estimated model:					
$InvEF = 0.114040AIQ - 0.200136Spau - 0.005494LnSales + 1.982723Tang$					

T statistics is 3,673837 (by beta 0.114040) for explanatory variable AIQ and its significant level is 0.0007 which is positive and significant in level 95% confidence. To be positive of t statistics and its significant shows positive and important effect of a variable. This result shows that by increasing quality of accounting information, the efficiency of investment is increased and vice versa (Table 3), thus the first hypothesis is confirmed, in fact, quality of accounting information has a positive and significant effect on the efficiency of investment at confidence level 95 percent.

T statistics is -3,720038 by beta -0.200136 for explanatory variable Spau and its significant level is 0,0018 which is significant and negative in confidence level 95%. To be negative of t statistics and significant level showed negative and unimportance effect of a variable. These results show that by increasing specialty of efficiency investment, investment efficiency is reduced (Table 3) and the second hypothesis is confirmed. In fact, the quality of accounting information has a significant effect in confidence level 95% on the efficiency of investment.

T statistics is -2,102899 by beta -0.005454 for LnSales and its significant level is 0.0181 which is negative and significant at confidence level 95% (Table 3). T statistics is 1.767892 by beta 1.223419 for LnAge and its significant level is 1.4429 which is significant at confidence level 95% (Table 3). T statistics is 14.21808 by beta 1.982723 for TANG and its significant level is 0.0000 which is significant and positive at confidence level 95%, to be positive of t statistics shows the positive and important effect on the dependent variable (Table 4).

Table 4: Results of Research Model

Parameters	VIF	Regression Coefficient	t-value	Prob t
Fixed value	-	0.094	2.18	0.091
AIQ	1.874	0.055	2.91	0.036
Spau	1.693	-0.060	-2.87	0.039
AIQ*Spau	1.822	0.069	2.68	0.044
LnSales	1.750	0.051	2.97	0.031
LnAge	1.795	1.043	2.05	0.027
TANG	1.657	-0.059	-2.88	0.037
Determination coefficient	Adjusted determination coefficient	Prob F	Watson-Durbin Test	Jarque and Bera test
0.56	0.54	0.0002	2.09	0.1268
F Test	19.864	White Test	0.2148	-

T statistics for AIQ*Spau is 2.68 with beta 0.068 and its significant level is 0.44 which is positive and significant in confidence level 95%. To be positive and significant of this variable, it shows that reducing or increasing the degree of auditor's expertise changes the relationship between the quality of accounting information and investment efficiency in the industry. thus (Table 4), thus the third hypothesis is confirmed. In fact, the specialty of the auditor has a significant and positive effect on the quality of accounting information and the efficiency of investment.

Table 5: summary of hypothesis and results

Description	Confirmation or rejection	Effect	Direction	Sign
Quality of accounting information has a significant effect on efficient of investment	Confirmation	Positive	Direct	+
Description: By increasing or reduction of a unit if the quality of accounting information, the efficiency of information is increased or reduced as 0.114040				
The specialty of the auditor has significant on the efficiency of investment	Confirmation	Positive	Direct	+
Description: By increment or reduction of a unit in the specialty of accounting, the efficiency of investment is changed in convert direction as 0.200136.				
The specialty of the auditor has a significant effect on the relation of efficiency of investment and quality of accounting information	Confirmation	Positive	Direct	+
Description By increment or reduction of a unit in the specialty of the auditor, there is no effect on the quality of accounting information and efficiency of investment				

10. CONCLUSION

Root of lacking effectiveness is looking for research of Elaouda and Jarbouib (2017) because as for equality of data, the data collected were used from Tunisia stock exchange but data required are selected from Tehran stock exchange, thus, as for basic difference between two models, in economic discussions for Iranian stock exchange, in many cases, there is deep gap between terms of our exchange and global standards, so that background of Tehran stock exchange is returned into 1967 but before 2001, the stock exchange had not activity, as stated, Iranian stock exchange is an emerging market and influenced under fluctuations of oil price. The volume of Iranian stock exchange transactions is so low compared to other stocks and this caused the exchange of our country is on a low level compared others. The dependency of Iranian stock exchange to fluctuations of oil price caused many people to prefer to use more risky investment instead of investment, it is worth to say that sanctions and lacking political stability caused there are not stable terms in the capital market and investors' concern on Iranian stock exchange. Also, there is more distance between comparative discussion on Tehran stock exchange with other small and great companies in the world.

Results of the first hypothesis showed that the quality of accounting information has a significant effect on the efficiency of investment. In other words, the results of the research showed that the quality of accounting information can promote the efficiency of investment by lowering investment.

Therefore, this research provides another witness on the suitability of accounting information in the field of investment. This finding can enhance providers to offer accounting information by low quality to respond in society' needs and promote users of accounting information as for safety information. As well, equations and information can help researchers on the quality of accounting information and efficiency of investment. Results obtained in terms of theoretical basis are true. In other words, it shows that the quality of accounting information is one of the available resources on capital markets and plays an important role in the development of the investment. As for second hypothesis and its confirmation on the positive and negative effect of the specialty of the auditor on the efficiency of investment, it can predicate that it shall pay attention to other factors like quality of auditing and auditing institute with high quality and increase efficiency investment. Thus, it is advised that general counsel of companies use well-known auditing institutes and it is advised that stock exchange organization to pay attention in selecting auditing institutes and the investors shall pay attention specialty of auditing in purchasing the stock of companies.

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