

# Management abilities, financial distress, and audit fees

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## Abstract

The purpose of the present study was to investigate the relationship between management ability and audit fees, considering companies' financial distress. The literature showed a positive relationship between risk and audit fees. However, few studies have investigated how auditors perform concerning risk factors and react to their employer's senior management. For this purpose, the information related to the member companies of the stock exchange was examined during ten years (from 2009 to 2018), and We tested the hypotheses after performing the necessary statistical tests using linear regression and Eviews 10 and SPSS 25. This research uses the multivariate regression method as a statistical method. The research results showed that Management ability has a negative effect on audit fees and managerial ability has an inverse effect on audit fees in companies with and without financial distress.

**Keywords:** audit fee, financial distress, management ability

## Introduction

Accountability to the public is a requirement for implementing the democratic process, but one of the main tools of accountability in economic activities is audit and accountability. Despite the scope of audit work and its application from the highest level of the country's administration to the smallest business unit, the determining factors of the right The fee for this service is not yet known precisely. The results of recent research show that one of the most important factors determining audit fees is the concept of management ability. In accounting literature, management ability is one of the dimensions of human capital of companies, which is classified as an intangible asset. Some researchers define management ability as the efficiency of managers compared to competitors in converting the company's resources into income (Hosni Vassididi, 2016).

The pricing of audit services is one of the topics of interest to many audit researchers, and so far many studies have been conducted in this field. Although the research methods used in these studies are somewhat different from each other, most of them follow one major goal, which is to identify the factors affecting audit fees. Knowing these factors is useful for both the employer and the auditor. For many business owners, the cost of an audit is a significant figure. Although it may be possible for large companies with high sales volume and high liquidity or some government companies, the ability to pay this cost is easily available, but most small business companies or those that do not have a good financial situation, the cost figure can be very high. It is important that companies have to pay it. As a result, from the employer's point of view, by knowing the factors affecting the amount of audit

fees, both by negotiating and bargaining over them and by controlling these factors within the organization, it is possible to reduce such costs and bear them. made it easier (Nikbakht and Tanani, 2018).

Auditors can also price their services appropriately by knowing these factors. The importance of this issue is seen more in recent years and after the establishment of the Society of Official Accountants of Iran in our country, because after the establishment of the society, the monopoly of the auditing work market has been broken and a fierce competition has formed between auditors, an event that happened a long time ago. It has happened in most developed countries. From the early 1970s to the early 2000s, the focus of most auditing firms was on their own growth rather than on professional values (Zeff, 2018). In most of the researches that have been done so far with the aim of explaining the factors affecting audit fees, emphasis has been placed on the special characteristics of the employer company and the audit firm, while recent researches have identified the personality characteristics of managers as one of the most important factors. It examines the determinants of audit fees (Krishnan and Wang, 2015).

The results of previous research (Krishnan and Wang, 2015) show that one of the influencing factors on audit fees is the concept of management ability. Today, intangible assets have become a powerful resource for improving business performance. One of the human capital (as an intangible asset), which plays an important role in converting the company's resources into income and creating wealth for shareholders, are the managers of commercial companies. Information related to the capabilities of company managers, such as their ability to use investment opportunities, provide resources, optimal allocation of resources, and their knowledge and experience, are considered one of the important and valuable dimensions of intangible assets of commercial companies (Namazi). and Ghaffari, 2014).

Determining the main causes of financial distress and bankruptcy is very important. In most cases, several reasons lead to the phenomenon of bankruptcy, so it is not easy to determine them accurately. Despite this, these factors can be classified into two general groups of internal and external management reasons (Bruno and Lidker, 2018). Inefficiency and lack of management are among the most important internal reasons for this phenomenon (Yoten, 2018).

One of the reasons for business failure stems from managers not reacting in certain situations and not their inappropriate reactions. Among its signs, we can mention not having a comprehensive and comprehensible business plan and strategy, not making decisions on time, changing qualified employees a lot, having limited knowledge about customers and market conditions, and not having sufficient powers of managers (Goddard, 2015). Lack of training, experience, ability and initiative by the management makes the survival of the business unit in the field of competition and technology difficult. The largest number of bankruptcies is due to the inefficiency of managers, and it also includes non-cooperation and lack of effective communication between management and professionals (Newton, 2018).

2- Theoretical foundations and an overview of the research background

### **Management ability**

In a general view, the ability to manage and its various metrics is considered one of the dimensions of organizational capital, which is part of intangible assets in a general classification. Demarjian et al. define management ability as the efficiency of managers compared to competitors in converting the company's resources into income. These resources in companies include the cost of inventories, sales, administrative and general expenses, tangible fixed assets, operating rents, research and development costs and other intangible assets of the company (Demarjian, 2012). It is believed that more capable managers have a better understanding of technology and industry trends and can more confidently predict product demand. Also, more appropriate investment in more valuable projects and efficient management of employees are also characteristics of capable managers. It is expected that in the short term, these managers can earn more income by using a certain level of resources, or by using less resources, they can achieve a certain level of income (maximizing the efficiency of the resources used) (Demarjian, 2012). The most famous model for measuring managers' ability is Demarjian et al.'s model (2017). In their study, researchers for the first time designed a model that quantitatively measures management ability using accounting variables. In this model, by measuring the company's efficiency and then entering it in multivariable linear regression as a dependent variable and controlling the inherent characteristics of the company, management ability is calculated. Demarjian et al. (2017) have used data envelopment analysis model in order to measure management ability. The data envelopment analysis model is a type of statistical model that is used to measure system performance using input and output data. In the model used in this research, income from sales as output and 7 other variables, i.e. the cost of goods sold, general, administrative and sales expenses, net property, machinery and equipment, operational rent, research expenses and Development, goodwill, and other intangible assets are considered as inputs, which largely cover management's discretion in achieving desired revenue.

By promoting the use of resources, management can enable the company to undertake and perform appropriate tasks and processes, and produce innovative products and services, thus creating value for the company (Lepak et al., 2019). In fact, managers and the resources under their management have a common role in the success of companies (Holcom et al., 2019). If it doesn't work, the company will eventually fail.

Improper structure in any company, especially in small companies, affects various fields of the company's activity and can indicate problems such as inefficiency in product marketing, inability to use properly, financial distress and similar cases. In recent studies, there are evidences that show that liquidity problems are one of the effective factors of the financial crisis of companies (Kordestani et al., 2019). More capable managers, because they are confident in the financial reporting process of their companies, try to reduce the scope of the audit by negotiation and pay a lower audit fee. Also, the results of recent research on managers who demand less audit services indicate that audit fees are abnormally reduced in the period before financial statements are renewed (Blankley et al., 2017).

### **Financial Distress**

Bankruptcy is a situation where the debts of a company exceed the value of the assets in the company (Gitman, 2016). Financial distress occurs when the realized rate of return for the capital employed in the firm is consistently and significantly lower than the requested rate of return (Altman and Hotchicks, 2016). Considering all the definitions of the two concepts mentioned above, it is clear that there is a difference between the two concepts of bankruptcy and helplessness. Bankruptcy is a legal and legal situation that occurs for a company; But in financial distress, because the company has no legal prohibition, it continues to operate. Financial distress is a stage before bankruptcy; Therefore, it is possible for a company to spend a long time in the helplessness stage; But because there is no legal prohibition, it continues its activity (Mohsani and Rahimian, 2017). From an economic point of view, financial distress can be interpreted as the loss of the company, in which case the company has failed (Falahpour, 2013). Meanwhile, Odom (2019) in his article titled A Neural Network Model for Predicting Financial distress considers mismanagement as the most important reason for companies' financial distress (Odom, 2019). One way to help investors is to provide predictive models about the company's overall outlook. The closer the predictions are to reality, the more correct decisions will be made (Mehrani et al., 2014).

The auditor's fee will be determined based on the cost of the services used in the audit process, plus an estimate of future losses resulting from the auditor's responsibility against the issued report. This process is carried out in three stages. The first stage is the auditor's assessment of the future loss caused by the auditor's judgment that a beneficiary, for example, a shareholder, will suffer in the future. The second stage is the use of resources in the implementation of audit operations, such as human power, until the final benefit of the reduction in the current value of the expected future losses resulting from the audit of financial statements is equal to the final cost of additional audit investment. Finally, the auditor determines the price to cover the cost of the audit. Meanwhile, the auditor's judgment plays an important role in determining the price (Stanley, 2016).

The agency theory recognizes the auditor as an independent representative of shareholders and other interested parties in controlling the accuracy, reliability and relevance of the information prepared and presented by the managers of the business unit. But due to the fact that audit work requires a close relationship between the auditor and the managers of the business unit, therefore, in this theory, it is assumed that the auditors may not maintain their independence in performing their duties and may not do their work properly, in other words, in line with Their own interests and also managers should act (Walker, 2018). Past researches have shown that this theory can be used to interpret the effect of audit fees on audit quality. Studying the subject literature shows that there is a positive relationship between some concepts of risk and audit fees. Therefore, in determining the audit fee, the auditors consider the risk characteristics of their employer and compensate the related risks through higher fees. Also, the results show that auditors should not only emphasize the risk related to financial statements, but should have a broader view of the business behavior of the entrepreneur (Bedard and Johnsvan, 2019).

Charles et al. (2010), also found that in general, the choice of auditor is an economic decision, "the employer buys the services of the auditor at the level of the expected quality at the lowest cost from the seller (auditor) and the change of the auditor is a response to the change in the amount and type of services. It is required by the employer. In addition to this, the results of previous researches show that bonus schemes for managers have a significant effect on the risk of financial reporting, and with the increase in the risk of these schemes, the audit fee also increases (Kanan et al., 2014, Kim et al., 2014).

A reduction in fees can be due to a reduction in audit efforts or an underestimation of the employer's risk by the auditor. Therefore, the ability of managers can cause management to pay less audit fees. Anmol et al. (2015) found that audit fees are more indicative of higher audit quality because the audit performed is associated with more auditor effort.

Loretti and Goris (2012) showed that resource productivity creates value for companies and the abilities of managers of bankrupt companies are lower than those of healthy companies. Also, management ability has an inverse relationship with the duration of financial distress, probability of bankruptcy and bankruptcy costs. In a research, Krishnan and Wang (2015) examined the effect of management ability on audit fees. The results of their research showed that companies with more capable managers pay less audit fees. According to the research results of Beales et al. (2015), the size of the audit firm has a significant negative effect on the relationship between management ability and audit fees. Also, the results of their research showed that management uncertainty has a significant positive effect on audit fees. Koster et al. (2016), in a research, investigated the effect of management

ability on tax avoidance. The results of their research showed that capable managers can align business decisions with tax strategies due to their high understanding of the operating environment of companies. Andrew et al. (2017) concluded that companies with higher managerial ability in They invest more during the crisis period. Also, companies with higher management ability are less vulnerable to financial constraints during the crisis and can invest more. They concluded that capable managers increase the value of the company by reducing investment problems during the crisis period.

Tanani and Nikbakht (2018) investigated the factors affecting audit fees among companies admitted to the Tehran Stock Exchange. The results showed that the variables of the volume of the company's operations (size), the complexity of the company's operations, the type of audit firm and inflation have a significant relationship with the audit fee, but the variables of audit risk and the education and experience of the person responsible for preparing the financial statements have no relationship with the dependent variable (audit fee). There were statistical correlations. Salehi et al. (2017) examines the relationship between audit fees and financial performance of companies. The results showed that audit fees had no significant relationship with performance indicators. Farajzadeh and Heydari (2015), by examining the relationship between management ability and fees and audit opinion regarding the continuity of activity, they came to the conclusion that with the increase in the ability of managers, the audit fee and the possibility of an ambiguity clause in the continuity of activity in the unit audit report. commercial decreases. In general, the findings of this research show that management ability is an influencing factor on auditors' decisions.

Hosni and Sadidi (2016) examined the effect of management ability on audit fees. The results of the hypothesis test show that management ability has a significant negative effect on audit fees. Also, audit firm size moderates the relationship between management ability and audit fees. Based on further investigations, financial leverage variables, company size and asset return rate have a significant relationship with audit fees.

### Game Theory

What is referred to as a game in this theory is a mathematical theory in mutual decision situations. In each stage of the game, some agents make a decision and according to their decision, a series of results are obtained. Each agent obtains a series of results according to his priorities, and these situations are called games, and the agents are called players. The planning of each player that leads to a decision is called strategy. and based on this, each person's interests depend not only on his own behavior but also on the behavior of other people. In any game, one of the most important issues is finding the equilibrium point, which is known as the Nash equilibrium. In expressing the Nash equilibrium, one must He said that if game theory aims to provide a unique solution for a game, the solution should be a Nash equilibrium. That is, let's assume that game theory predicts the combination of strategies as the solution for a game that the players choose. This answer is correct when the players behave according to it and no player is motivated to do so. do not have n

#### 3- Research methodology

The investigated variables are in the form of a mathematical model and the description of how to check and measure the variables is as follows.

First model:

$$\ln AF_{i,t} = \alpha_0 + \beta_1 MGR - ABILITY_{i,t} + \beta_2 LN SIZE_{i,t} + \beta_3 FOREIGN_{i,t} + \beta_4 ROA_{i,t} + \beta_5 LOSS_{i,t} + \beta_6 LEV_{i,t} + \beta_7 QUICK_{i,t} + \beta_8 SGROWTH_{i,t} + \beta_9 EQ_{i,t} + \beta_{10} BING_{i,t} + \beta_{11} SPECIALIST_{i,t} + \beta_{12} LN NAF_{i,t}$$

Second model:

$$\ln AF_{i,t} = \alpha_0 + \beta_1 MGR - ABILITY_{i,t} + \beta_2 DISTR_{i,t} + \beta_3 MGR - ABILITY * DISTR_{i,t} + \beta_4 LN Size_{i,t} + \beta_5 FOREIGN_{i,t} + \beta_6 ROA_{i,t} + \beta_7 LOSS_{i,t} + \beta_8 LEV_{i,t} + \beta_9 QUICK_{i,t} + \beta_{10} SGROWTH_{i,t} + \beta_{11} EQ_{i,t} + \beta_{12} BING_{i,t} + \beta_{13} SPECIALIST_{i,t} + \beta_{14} LN NAF_{i,t}$$

In the hypotheses, the audit fee is the dependent variable, managerial abilities are the independent variable, and financial distress is the independent and moderating variable.

In this research, lnAF is the audit fee. The audit fee is extracted from the notes accompanying the financial statements of the administrative and general expenses or other expenses, and the natural logarithm of the audit fee is used to calculate it. and MGR-ABILITY shows management ability. Demarjian and his colleagues (2012) used data coverage analysis to evaluate the relative efficiency (DEA) of certain inputs (labour, capital, etc.) towards outputs (income, earnings, etc.). The following inputs in the production process Revenues are considered: property, plant and equipment, operating leases; research and development expenses; purchased goodwill; other intangible assets; cost of inventory and selling and administrative expenses. All these inputs contribute to the generation of income. And since every input is subject to managerial discretion, they are affected by managerial ability. In fact, it is the residual sales that are not caused by the six characteristics in the model, which are caused by the ability and presence of the manager. These six characteristics It consists of the size of the company, market share of the company, availability of cash, life cycle, complexity of operations and external operations. The remaining term derived from this regression is a component that reflects managerial ability.

Efficiency shows the efficiency of the company, which is calculated using the data coverage analysis method.

$$MAX_v\theta = \frac{\text{sales}}{v_1cogs + v_2SG\&A + v_3PPE + v_4OPSL\&e + v_5R\&D + v_6Good\ will + v_7other\ intan}$$

=sales revenue from sales

= Cogs cost of goods sold of company i in year t

SG&A = general, administrative and sales expenses of company i in year t

= PPE property, machinery and equipment

=OPSLease Operating lease cost of company i in year t

=R&D R&D expenditure of company i in year t

= Good will, goodwill purchased by company i at the beginning of year t

=other intan Other intangible assets of company i at the beginning of year t

V: A special coefficient is considered for each of the input variables, v, because the effect of all input variables on sales is not the same.

The calculated value for the company's efficiency is in the range of 0 to 1. Companies with an efficiency score of one are companies that are very efficient, and companies whose efficiency score is less than one are below the efficiency limit and must reach the efficiency limit by reducing costs or increasing revenues.

Also, Distress is a symbol of financial distress, which is calculated according to the method of Olsen (1989).

$$\hat{p} = \frac{1}{1 + \hat{\gamma}_{i,t}}$$

$$\hat{\gamma}_{i,t} = -1.32 - 0.407 * SIZE + 6.03 * TLTA - 1.43 * WCTA + 0.0757 * CLCA - 2.37 * NITA - 1.83 * FUTL + 0.285 * INTWO - 1.72 * OENEG - 0.521 * CHIN$$

where in:

= SIZE LOG (total assets)/GNP = CLCA (current liabilities)/(current assets)

= TLTA (Total Debt)/(Total Assets) = WCTA (Working Capital)/(Total Assets)

= NITA (Net Income)/(Total Assets) = FUTL (Operating Budget)/(Total Debt)

= INTWO If the net income in the previous two years is negative, this value is equal to 1, otherwise it is equal to zero.

= OENEG is 1 if total debt is greater than total assets and zero otherwise.

= CHIN NI net income (  $\frac{[NI]_{i,t} - [NI]_{i,t-1}}{[NI]_{i,t-1}}$  )

control variables

In the present study, according to the presented model, the research variables are as follows:

SIZE = company size

= FOREIGN foreign operations of the company (exports)

ROA = return on assets

= LOSS company loss

=LEV financial leverage

=QUICK Instant ratio

=SGROWTH sales growth

=EQ profitability quality

=BIGN size of audit firm

= SPECIALIST auditor expertise in the industry

= NAF non-audit expenses

Foreign= indicates the index of non-oil exports of companies

EQ (gain quality):

$$EQ_{i,t} = \frac{CFO_{i,t}}{OI_{i,t}}$$

In the current research, profit quality has been investigated through the Penman index (2011), which is as follows:

$$[EQ]_{i,t} = \frac{[CFO]_{i,t}}{[OI]_{i,t}}$$

where  $[CFO]_{i,t}$  is the operating cash of company i in year t and  $[OI]_{i,t}$  is the operating profit of company i in year t.

Auditor expertise in the industry

The auditor's expertise is the ratio of the company's share to the total market share, which is calculated through the Herfindahl-Hirschman Index (HHI). One of the most important and practical indicators for expressing the concept of concentration is the Herfindahl-Hirschman index. This index uses the information of all companies in the industry. To obtain this index, the sum of the square shares of production, sales, workforce, and the like of

all companies in the industry or market is used. In fact, this index gives weight to each company according to its share in the market. Herfindahl-Hirschman Index (HHI) is defined as follows:

$$HHI = \sum_{i=1}^N S_i^2$$

N: Number of firms in the industry or market

$S_i^2$ : market square of firm i.

According to the stated contents, the hypotheses of the research are as follows:

- 1- Management ability has a negative effect on audit fees.
- 2- Management ability has a positive effect on audit fees in financially distressed companies.
- 3- Management ability has a negative effect on audit fees in companies without financial distress.
- 4- Findings of the research

In this part, the stability or reliability of the research variables was investigated first. In order to check reliability, Hadri's test was used. The results of this test are shown in Table 1.

**Table 1: Hadri test**

Variable	t	P-value	Variable	t	P-value
Audit fees	8.581	0.000	Financial Leverage	17.114	0.000
Management ability	8.168	0.000	loss of the company	10.566	0.000
Financial Distress	14.101	0.000	instantaneous ratio	12.265	0.000
size of the company	9.014	0.000	return on assets	12.399	0.000
Quality of benefit	12.380	0.000	Auditor expertise in the industry	16.203	0.000
Export	7.567	0.000	Non-audit expenses	16.203	0.000
Sales growth	14.239	0.000	The size of the audit firm	7.952	0.000

According to the results of table (1) of this test, because the P value is less than 0.05, all the variables are stable during the research period. This means that the mean and variance of the variables over time and the covariance of the variables have been constant between different years. As a result, the use of these variables in the model does not cause false regression.

#### 5-4) Chow's test

In order to properly diagnose the estimation of the regression model, it must first be checked whether there is heterogeneity or individual differences or not. In case of heterogeneity, tabular data method is used, otherwise, combined method is used. For this reason, Chow's test is used to determine the use of the fixed effects model against the integration of all data (integrated). The assumptions of this test are as follows:

H0: Pooled Model

H1: Panel Model

**Table 2. Chow test results**

Test	value	D.F.	Prob.	result	hypothesis
F	22.274302	(85,410)	0.000	Panel data model	The first hypothesis
chi	457.393	85	0.000		
F	11.595661	(117,999)	0.000	Panel data model	The second hypothesis
chi	975.358599	117	0.000		
F	8.271286	(117,1006)	0.000	Panel data model	The third hypothesis
chi	765.605342	117	0.000		

The results of Chow's test show that the p value in the model is less than 0.05, so the hypothesis H\_0 is rejected and the hypothesis H\_1 is confirmed, so it can be concluded that individual heterogeneity (unobservable individual effects) There is and panel data method should be used to estimate the model. As a result, to determine the use of the fixed effect model versus the random effect model, the Hausman test is performed in the next step.

#### 6-4) Hausman test

The Hausman test is based on the presence or absence of a relationship between the estimated regression error and the independent variables of the model. The assumptions of this test are:

H0: Random Effect

H1: Fixed Effect

**Table 3: Hausman test result**

Hypothesis	Result	P-value	Dof.	Chi squared
The first hypothesis	Random effect	0.0987	12	18.598
The second hypothesis	Fixed effect	0.211	12	23.880
The third hypothesis	Fixed effect	0.0211	12	23.880

As Table 7-4 shows, the value of P is less than 0.05, which means that there is a relationship between the estimated regression error and the independent variables, so the hypothesis H0 is rejected and the hypothesis H1 is accepted. According to the results of Chow test and Hausman test, the most suitable method for estimating the hypothesis test is the fixed effects model.

The results of the first research hypothesis test

The results of the first research hypothesis test

$$lnAF_{i,t} = \alpha_0 + \beta_1 MGR - ABILITY_{i,t} + \beta_2 LN SIZE_{i,t} + \beta_3 FOREIGN_{i,t} + \beta_4 ROA_{i,t} + \beta_5 LOSS_{i,t} + \beta_6 LEV_{i,t} + \beta_7 QUICK_{i,t} + \beta_8 SGROWTH_{i,t} + \beta_9 EQ_{i,t} + \beta_{10} BING_{i,t} + \beta_{11} SPECIALIST_{i,t} + \beta_{12} LN NAF_{i,t}$$

The first hypothesis of this research is the negative effect of managerial ability on audit fees. This hypothesis is estimated using model (1) in the form of panel data as follows:

**Table 4:** The results related to the estimation of the first research model

	Variables	Factor	Standard error	T	P	Result
intercept	C	5.182	0.506	10.237	0.000	
Management ability	TAVANAI	-0.274	0.131	-3.088	0.037	confirmed
Financial Distress	P	-0.231	0.086	-2.697	0.007	confirmed
size of the company	SIZE	0.000	0.000	-0.013	0.990	rejected
Return on assets	ROA	0.000	0.000	0.015	0.988	rejected
Financial Leverage	LEV	0.012	0.016	0.714	0.476	rejected
loss of the company	LOSS	-0.067	0.053	-1.270	0.205	rejected
Sales growth	GROWTH	0.000	0.000	-1.075	0.283	rejected
Quality of benefit	EQ	0.346	0.143	2.410	0.016	confirmed
Export	FOREGHN	0.000	0.000	-0.104	0.917	rejected
instantaneous ratio	QUICK	0.000	0.000	0.465	0.642	rejected
The size of the audit firm	SPCIALIST	0.000	0.000	-1.433	0.153	rejected
Industry experts	BIGN	0.095	0.370	0.256	0.798	rejected
Non-audit expenses	NAF	0.000	0.000	-1.592	0.112	rejected
F: 20.936 P: 0.000		Coefficient of determination 0.844				
Durbin watson 1.721		Adjusted 0.803				

According to the results of Table 4, the amount of F statistic and its significance level is less than 0.05, so the null hypothesis is significant with 95% confidence and based on the available data, it is well able to express the dependent variable. Also, according to the coefficient of determination, about 84% of dependent variable changes are expressed by independent and control variables. Durbin-Watson's statistic with a value of 1.72 shows that the residuals in the regression do not have autocorrelation. According to the t-statistic of management ability with a value of -2.088 and the significance level of this test, which is less than 0.05 and is equal to 0.037, the existence of a significant and inverse relationship between management ability and audit fees has been confirmed. And the first hypothesis is accepted. Also, considering the t-statistic of financial distress with the value of -2.697 and the significance level of this test which is less than 0.05 and is equal to 0.007, the existence of an inverse and significant relationship between financial distress and audit fees is confirmed. . In the first model of this research, among the control variables, only profit quality with a t-statistic value of 2.410 and a significance level of less than 5% with a value of 0.016 has a direct and significant relationship with audit fees. But the other control variables in this model have no significant relationship with the audit fee due to having a p-value greater than 0.05.

According to the findings of the above table, the estimated regression model of the first hypothesis is as follows:  
 $LNFA = 5.182 - 0.274 * MGR - ABILITY_{i,t} - 0.230 * DISTRS_{i,t} - 0.000 * SIZE + 0.000 * ROA + 0.012 * LEV - 0.067 * LOSS - 0.000 * GROWTH + 0.346 * EQ - 0.000 * FOREGHN + 0.000 * QUICK + 0.000 * SPCIALIST + 0.094 * BIGN - 0.000 * NAF + \epsilon_i$

The results of the second research hypothesis test

The second hypothesis of this research is that management ability has a positive effect on audit fees in financially distressed companies. This hypothesis is estimated using model (2) in the form of panel data as follows:

$$lnAF_{i,t} = \alpha_0 + \beta_1 MGR - ABILITY_{i,t} + \beta_2 DISTRS_{i,t} + \beta_3 MGR - ABILITY * DISTRS_{i,t} + \beta_4 LN Size_{i,t} + \beta_4 FOREIGN_{i,t} + \beta_5 ROA_{i,t} + \beta_6 LOSS_{i,t} + \beta_7 LEV_{i,t} + \beta_8 QUICK_{i,t} + \beta_9 SGROWTH_{i,t} + \beta_{10} EQ_{i,t} + \beta_{11} BING_{i,t} + \beta_{12} SPECIALIST_{i,t} + \beta_{13} LN NAF_{i,t}$$

**Table 5:** The results related to the estimation of the second research model

Variables	Symbol	Factor	Standard error	T	P	result
Width from the origin	C	3.312	0.810	4.087	0.000	
Management ability	MGR – ABILITY	-0.734	0.151	-4.861	0.000	Confirmed
Financially distressed companies	DISTRS	0.986	0.281	3.506	0.001	confirmed
Management ability * companies with financial helplessness	MGR – ABILITY <sub>i,t</sub> * DISTRS <sub>i,t</sub>	0.977	0.821	1.189	0.235	rejected
size of the company	SIZE	-0.198	0.120	-1.643	0.101	rejected
Export index	FOREGHN	0.000	0.000	0.710	0.478	rejected
return on assets	ROA	0.000	0.000	1.411	0.159	rejected
loss of the company	LOSS	-0.000	0.000	-1.678	0.094	rejected
Financial Leverage	LEV	-0.037	0.063	-0.597	0.551	rejected
instantaneous ratio	QUICK	0.057	0.028	2.065	0.039	confirmed
Sales growth	GROWTH	0.000	0.000	-0.365	0.715	rejected
Quality of benefit	EQ	0.000	0.000	-1.101	0.271	rejected
The size of the audit firm	BIGN	-0.062	0.150	-0.416	0.677	rejected
Industry experts	SPCIALIST	0.295	0.231	1.279	0.201	rejected
Non-audit expenses	NAF	-0.000	0.000	-2.285	0.023	confirmed
F :7.859 p :0.000			Coefficient of determination .504			
Durbin watson 1.637			Adjusted Coefficient of determination 0.439			

According to the results of Table 5, the amount of F statistic and its significance level is less than 0.05, so the null hypothesis is significant with 95% confidence and based on the available data, it is well able to express the dependent variable. Also, according to the coefficient of determination, about 50% of the changes in the dependent variable are expressed by the independent and control variables. Durbin-Watson's statistic with a value of 1.63 shows that the residuals in the regression do not have autocorrelation. According to the t-statistic of management ability with a value of -4.861 and the significance level of this test, which is less than 0.05 and is equal to 0.000, there is a significant and inverse relationship between management ability and audit fees in companies has confirmed financial distress and the second hypothesis is not accepted. Also, considering the t statistic of companies with financial distress with a value of 3.506 and the significance level of this test which is less than 0.05 and equal to 0.001, the existence of a direct and significant relationship between companies with financial distress and The audit fee is confirmed. Therefore, companies that have financial distress must pay more fees for auditing. In the second model of this research, among the control variables, only the instantaneous ratio, with a t-statistic value of 2.065 and a significance level of less than 5% with a value of 0.039, has a direct and significant relationship with the audit fee. And non-audit costs with a negative t-statistic and a p-value of less than 5% have an inverse and significant relationship with audit fees. But other control variables in this model do not have a significant relationship with audit fees due to having a p-value greater than 0.05.

According to the findings of the above table, the estimated regression model of the second hypothesis is as follows:

The results of the third hypothesis test of the research

The third hypothesis of this research is that managerial ability has a negative effect on audit fees in companies without financial distress. This hypothesis is estimated using model (3) in the form of panel data as follows:

$$InAF_{i,t} = \alpha_0 + \beta_1 MGR - ABILITY_{i,t} + \beta_2 NonDISTR_{i,t} + \beta_3 MGR - ABILITY * DISTR_{i,t} + \beta_4 LN Size_{i,t} + \beta_4 FOREIGN_{i,t} + \beta_5 ROA_{i,t} + \beta_6 LOSS_{i,t} + \beta_7 LEV_{i,t} + \beta_8 QUICK_{i,t} + \beta_9 SGROWTH_{i,t} + \beta_{10} EQ_{i,t} + \beta_{11} BING_{i,t} + \beta_{12} SPECIALIST_{i,t} + \beta_{13} LN NAF_{i,t}$$

**Table 6:** The results related to the estimation of the third research model

Variables	Symbol	Factor	Standard error	t	P	result
Width from the origin	C	4.520	0.974	4.640	0.000	
Management ability	MGR-ABILITY	-0.682	0.167	-4.072	0.000	confirmed
Companies without financial helplessness	DISTRS	-1.295	0.297	-4.365	0.000	confirmed



Management ability * Companies without financial helplessness	MGR – ABILITY <sub>i,t</sub> * NonDISTR <sub>i,t</sub>	-1.237	0.277	-4.472	0.000	confirmed
size of the company	SIZE	-0.153	0.120	-1.276	0.202	rejected
Export index	FOREGHN	0.000	0.000	-0.094	0.925	rejected
return on assets	ROA	0.000	0.000	1.615	0.107	rejected
loss of the company	LOSS	0.000	0.000	-1.776	0.076	rejected
Financial Leverage	LEV	-0.027	0.064	-0.421	0.674	rejected
instantaneous ratio	QUICK	0.057	0.028	2.046	0.041	confirmed
Sales growth	GROWTH	0.000	0.000	-0.210	0.834	rejected
Quality of benefit	EQ	0.000	0.000	-0.867	0.386	rejected
The size of the audit firm	BIGN	-0.107	0.160	-0.670	0.503	rejected
Industry experts	SPCIALIST	0.116	0.260	0.448	0.655	rejected
Non-audit expenses	NAF	0.000	0.000	-2.695	0.007	confirmed
F7.535 : p0.000 :		Coefficient of determination .512				
Durbin watson1.655		Adjusted Coefficient of determination.444				

According to the results of Table 6, the amount of F statistic and its significance level is less than 0.05, so the null hypothesis is significant with 95% confidence and based on the available data, it is well able to express the dependent variable. Also, according to the coefficient of determination, about 51% of dependent variable changes are expressed by independent and control variables. Durbin-Watson's statistic with a value of 1.65 shows that the residuals in the regression do not have autocorrelation. According to the t-statistic of management ability with a value of -4.072 and the significance level of this test, which is less than 0.05 and is equal to 0.000, there is a significant and inverse relationship between management ability and audit fees in the company. those without financial distress are confirmed and the third hypothesis is accepted. Also, considering the t-statistic of companies without financial distress with a value of -4.365 and the significance level of this test which is less than 0.05 and is equal to 0.000, there is an inverse and significant relationship between companies without financial distress and The audit fee is confirmed. Therefore, companies that do not have financial distress should pay less fees for auditing. In the third model of this research, among the control variables, only the instantaneous ratio, with a t-statistic value of 2.046 and a significance level of less than 5% with a value of 0.041, has a direct and significant relationship with the audit fee. And non-audit costs with a negative t-statistic and a p-value of less than 5% have an inverse and significant relationship with audit fees. But the other control variables in this model have no significant relationship with the audit fee due to having a p-value greater than 0.05.

According to the findings of the above table, the estimated regression model of the first hypothesis is as follows:  

$$LNFA = 4.520 - 0.681 * MGR - ABILITY_{i,t} - 1.295 * NonDISTR_{i,t} - 1.237 * MGR - ABILITY_{i,t} * NonDISTR_{i,t} - 0.152 * SIZE - 0.000 * FOREGHN - 0.000 * ROA - 0.000 * LOSS - 0.026 * LEV + 0.057 * QUICK - 0.000 * GROWTH - 0.000 * EQ - 0.107 * BIGN + 0.116 * SPCIALIST - 0.000 * NAF + \epsilon_i$$

## Discussion and conclusion

The first hypothesis of this research is about the negative effect between managerial ability and audit fees. According to the results of the research, the existence of the reverse effect of management ability on the audit fee is confirmed and the first hypothesis is accepted. Therefore, it can be said that with the increase of managerial abilities, the audit fee decreases. In other words, the more capable the manager is, the less fee he should pay for the audit. The findings of the first hypothesis of the current research with the results of studies by Blanki et al. (2012), Loretto and Grace (2012), Anmol et al. (2016) is in line with the researches of Krishnan and Wang (2015).

The second hypothesis of the research is about the positive effect of management ability on audit fees in financially distressed companies. According to the findings of the research, it was found that there is an inverse and significant effect between management ability and audit fees in financially distressed companies, and the second hypothesis is not accepted. No research has been done in this regard so far. Also, considering the t statistic of companies with financial distress with a value of 3.506 and the significance level of this test, which is less than 0.05 and equal to 0.001, there is a direct and significant effect between companies with financial distress and right The audit fee is confirmed. Therefore, companies that have financial distress must pay more fees for auditing. In this regard, the results of this research are in line with the findings of Gol Bakhsh's research (2017).

In the second model of this research, among the control variables, only the instantaneous ratio, with a t-statistic value of 2.065 and a significance level of less than 5% with a value of 0.039, has a direct and significant

relationship with the audit fee. And non-audit costs with a negative t-statistic and a p-value of less than 5% have an inverse and significant relationship with audit fees. However, company size, exports, return on assets, company losses, financial leverage, sales growth, audit firm size, and industry experts in this model do not have a significant relationship with audit fees due to having a p-value greater than 0.05. In this regard, the findings of the present study are contrary to the results of Tanani and Nikbakht's research (1389) in terms of the relationship between the size of the company and the type of audit firm, and in terms of the relationship between performance indicators and accounting fees, they are in line with the findings of Salehi et al. (2012). is. Also, the third hypothesis of the research is about the negative and significant effect between management ability and audit fee in companies without financial distress.

According to the findings of the research, it was found that there is an inverse and significant relationship between management ability and audit fees in companies without financial distress, and the third hypothesis is confirmed. No research has been done in this regard so far. Also, considering the t-statistic of companies without financial distress with a value of -4.365 and the significance level of this test which is less than 0.05 and is equal to 0.000, there is an inverse and significant effect between companies without financial distress and The audit fee is confirmed. Therefore, companies that do not have financial distress should pay less fees for auditing. In the third model of this research, among the control variables, only the instantaneous ratio, with a t-statistic value of 2.046 and a significance level of less than 5% with a value of 0.041, has a direct and significant relationship with the audit fee. And non-audit costs with a negative t-statistic value and a p-value value of less than 5% have an inverse and significant relationship with audit fees, but company size, exports, asset returns, company losses, financial leverage, sales growth, size In this model, the audit institute and industry experts have no significant relationship with the audit fee due to having a p-value greater than 0.05. In this regard, the findings of the present study are contrary to the results of Tanani and Nikbakht's research (1389) in terms of the relationship between the size of the company and the type of audit firm, and in terms of the relationship between performance indicators and accounting fees, they are in line with the findings of Salehi et al. (2012). is.

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