

# Company characteristics and audit report lag: A meta-analysis

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*(Communicated by Zakieh Avazzadeh)*

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## Abstract

The purpose of this research is to use the meta-analysis approach to analyze and combine the conflicting and inconsistent results obtained in past researches in the field of investigating the effects of the characteristics of companies on the audit report lag. Company characteristics include company size, company profitability, company age, Company loss and company leverage. In the research conducted in the past years, the audit report lag is known as the dependent variable and the specific characteristics of the companies as the independent variable. To achieve the research objectives from the approach [28] and also, to apply Cochran-Egger's Q tests, Including 77 studies including 27 domestic studies during the years 2013 to 2022 and 50 foreign studies during the years 2010 to 2023 were reviewed. The results indicate that there is no significant relationship between the size of the company and the independent audit report lag, But there is a negative relationship between profitability, age and the independent audit report lag, Also, there is a positive relationship between the leverage and the loss of the company with the audit report lag.

Keywords: audit report lag, company size, meta-analysis  
2020 MSC: 62P10

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## 1 Introduction

The main purpose of the research is to investigate the specific factors of the company on the audit report lag with a meta-analysis approach. With the increase in competition and the size of companies, the owner entrusts the management of the company to the broker (manager). Agency theory defines the basic problem as the conflict of interest between the manager and the shareholder. The shareholder seeks to maximize his benefits and wealth, and the manager seeks to manipulate his profits and interests. Therefore, There is a possibility that the manager will not act in the interest. of the shareholder and cause the shareholder to suffer. One of the most important factors in the demand for auditing is the increase in agency fees and conflict of interest [37]. Although the auditors' reports are part of the responsibility of the companies towards their stakeholders inside and outside the organization, it can be a basis for knowing the financial status, financial performance and flexibility of the organization for decision making by the company's management and shareholders [8]. The final and reliable product for users is an independent auditor's report, Because of the value of information from the point of view of its relevance, it has always been the attention of the standard setter and the legislator, and it is usually in a certain majority to describe the audited financial statements, It covers the responsibilities of the board of directors and the auditor [44]. Timely information is useful for investors to make decisions in the capital market [44]. Considering that the independent auditor's report is the most

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important part for users and it should be available on time[2]. Delayed information can have very negative effects of investor uncertainty in the capital market. In addition, the delay has many negative effects on the quality of financial statements because late reporting shows the low quality of financial statement information [10]. In general, the audit report lag in Rule 404, Sarbins-Oxley has reduced the reporting period from 90 days to 60 days over a 3-year period, which has made most companies submit their reports on time. Also, according to the legal requirements that the Securities and Exchange Organization has for companies, it has obliged the listed companies to submit a report four months after the approval of the financial statements[29]. Many researches conducted in foreign countries and Iran have been conducted in the field of independent audit report lag. But due to reasons such as differences in sampling, different statistical population and different methods in data analysis, different and contradictory results have been achieved. In examining the effects of company size on the audit report lag, researchers such as Mohammad Rezaei et al. [33]. They found a negative and significant relationship between these two variables, while in researchers like Oradi [36] and Gontara [19], no significant relationship is seen.

By examining past researches, we can come to the conclusion that there is no comprehensive and complete reference for researchers to obtain a general result, and also conducting research for the future requires this that the researcher has full knowledge of the limitations, records, challenges and how the implementation process is carried out. The present meta-analytical research by examining 77 studies including (27 studies in Iran and 50 foreign studies). It focuses on the identification of special characteristics of the company and the audit report lag using the approach [28].

Because the special characteristics of the company are among the main factors causing the audit report lag. Company characteristics include company size, company profitability, company age, company loss and company leverage. Using the meta-analysis approach, this research can provide a basis for solving the crisis of the audit report lag through guidance for future researchers in order to provide the best possible information for the factors that cause delay, a basis for the legislator to create legal restrictions to prevent From the delay, it is an incentive for managers, accountants, auditors to identify related and effective factors on the delay and transparency for investors and creditors to obtain reliable, quality and timely information of audited financial statements. Therefore, according to the above contents, the current research seeks to find answers to the following questions through meta-analysis. What are the special characteristics of the company on the audit report lag? And what effect does each have on the audit report lag?

## 2 Theoretical and background of research

The main purpose of the company in providing information on financial statements is to respond to internal users (managers and employees) and external users [8]. Although financial statements are a framework of the company's responsibility towards their users, it is a very important role in knowing the financial status, financial performance of the company and a basis for the decisions of the CEO [8]. Decision making by users of financial statements depends on providing clear and timely information that shows the very important function of financial statements for users. Therefore, The investor's trust in the quality of the news provided by the companies is based on the financial statements [35]. In order to gain investors' trust, companies must provide information that has the characteristics of timeliness, transparency, and comparability [15].

Companies have financial statements that are characterized by comparable characteristics that can use information, past or current events, to predict future events for decision-making purposes[12]. Companies with good performance are able to present their financial statements as the main source of decision making for their users immediately after the end of the financial year. and their usefulness and quality are affected [8]. Also, the delay can deceive the stakeholders to make investment decisions without confirming the correctness of the information, whereby the use of information from unofficial channels can provide false information and mislead people in their decision making [25]. The auditor's report delay is the time between the end of the financial year and the audit report lag [4]. The average delay in a study in 2022 in Tunisia is 89 days [19]. Also, the average delay in Iran is 82 days [33].

The current research examines the influencing factors from the perspective of the company's specific characteristics, including company size, company profitability, company age, leverage and loss-making of the company with a meta-analysis approach.

### Company size and audit report lag

One of the important and fundamental characteristics of companies is the size of the company. Users of financial statements consider the number and amount of assets owned by the company to assess the size of the company, since total assets are more stable than stock market value and other measures [24, 41]. Therefore, The size of the company is determined based on the amount of the company's total assets. Large companies are usually in the focus of investors and potential and actual creditors, so these companies want to present their financial reports on time [32], because

users' decisions are based on financial reports. In many past researches, the existence of a significant relationship between the size of the company and the audit report lag has been confirmed. In these studies, researchers believe that smaller companies submit their audit reports later than larger companies. Because, due to the establishment of strong internal control systems in large companies, the possibility of deliberate and inadvertent mistakes is greatly reduced, and as a result, the independent auditor can rely more on the company's internal control systems and significantly reduce content tests [26].

Some research shows that the size of the company increases the audit report lag [7, 19]. On the other hand, some other researchers have come to the conclusion that there is an opposite relationship between company size and audit report lag [27].

First hypothesis: company size has an effect on the auditor's reporting lag.

Company profitability and audit report lag

A company's ability to earn profits through the management of economic resources can be measured by return on assets [3]. Profitability can also predict potential future fluctuations in economic resources [32]. The profit and loss statement can be the company's profit and loss, which is good or bad news for the company. In companies that have losses, managers tend to report their financial statements late to avoid negative consequences for the company. Therefore, their main desire is that the auditors do their reporting with a delay. In this context, profitability has been considered as a variable that affects the duration of the implementation and completion of audit operations. A negative relationship is conceivable between profitability and auditor report lag. This means that profitable companies start and complete their audit reports earlier than unprofitable companies [17]. Some research shows that the profitability of the company reduces the audit report lag [7, 21]. On the other hand, some other researchers have come to the conclusion that profitability has no effect on the audit report lag [19].

Second hypothesis: the profitability of the company has a positive effect on the lag of the auditor's report.

Age of the company and audit report lag

Widiastuti et al. [43] The age of the company is the company's ability to run its business since its establishment. Long-lived companies have good internal control and can quickly collect the information required by the auditor. In stock companies, new companies have a longer audit process due to the opening of branches or business in several areas. The longer the age of the company, the faster the auditor's report will be [43]. According to the agency theory, the age of the company can help in dealing with agency problems because the older the company, the more skill and experience the company has in terms of reporting. It has more skills and experience. These skills and experiences help management as a factor in speeding up the audit process so that the audited reports can be received by managers in time for decision and at the same time reduce the problems of information asymmetry. Some research shows that the age of the company has an effect on the audit report lag [21, 40, 41]. On the other hand, some other researchers have come to the conclusion that the age of the company does not affect the audit report lag [9, 12].

The third hypothesis: the age of the company has an effect on the audit report lag.

Company leverage and audit report lag

One of the things that shows that a company can pay its debts on the due date is financial leverage. Many previous researches have found a direct relationship between leverage and the audit report lag [19, 21, 36]. The justification of this relationship between the leverage of the company and the delay of the auditor's report is that usually the debt audit takes more time than the capital audit, especially if the number of creditors is more [9]. Also, a number of studies have found a negative relationship between the leverage of the company and the audit report lag [5, 18, 27].

The fourth hypothesis: the leverage of the company has a positive effect on the audit report lag

The loss of the company and audit report lag

Timely information that reports a company's profitability is much easier for the fiscal year than loss information that reports bad news for the company because it may have an adverse effect on stock prices and other indicators [36]. Also, a company that has been unprofitable in the financial period may ask the auditor to start the audit on a different date, which causes a audit report lag [14]. Some researches show that the company's unprofitableness has a positive relationship with the audit report lag [19, 21, 36]. Also, some other researchers have come to the conclusion that the loss of the company does not affect the audit report lag [7, 38].

The fifth hypothesis: the loss of the company has a positive effect on the audit report lag

### 3 Research objectives

The main purpose of the research is to investigate the specific factors of the company on the audit report lag with a meta-analysis approach

### 4 Research method

This study was conducted during 12 months and during a systematic search in scientific study databases including ProQuest, Science Direct, Scopus, Emerald, Springer for studies published from 2010 to 2023. The search strategy was based on the two keywords of delay in the independent auditor's report and timely reporting in both Farsi and English languages. In the end, it was selected from all the articles that were published in valid articles inside and outside. The independent variable of all studies has been the delay of the auditor's report. Pearson's linear correlation coefficient between the audit report lag and each of the independent variables investigated in them or any other statistic that can be converted into Pearson's linear correlation coefficient should be significant [44]. Therefore, the number of studies conducted for meta-analysis includes 77 studies, including 27 internal studies and 50 external studies.

Table 1: Domestic and foreign researches

Description	Foreign studies	Description	Internal studies
The total number of foreign studies	231	Total number of domestic studies	43
Invalid journal articles will be deducted	(176)	Invalid journal articles will be deducted	(11)
Articles unrelated to the specific characteristics of the company are deducted	(5)	Articles unrelated to the specific characteristics of the company are deducted	(5)
total	50	total	27

In this study, the audit report lag is known as a dependent variable. Company characteristics including company size, company profitability, company age, company loss and company leverage are known as independent variables. In general, in this research, in order to achieve a common scale of effect size, (X<sup>2</sup>, t, f, and p-value) statistics have been collected using a library method from valid domestic and foreign articles [28].

$$r = \frac{t}{\sqrt{t^2 + df}} \quad (4.1)$$

$$r = \frac{\sqrt{x^2}}{n} \quad (4.2)$$

$$r = \frac{\sqrt{f}}{\sqrt{f + n_1 + n_2 - 2}} \quad (4.3)$$

$$ESzr = \log \left[ \frac{1+r}{1-r} \right] \quad (4.4)$$

The sample size of each data is indicated by (n). Each step average effect size is calculated. It is possible only if the correlation coefficient distribution is normal. But usually, due to the non-normality of the effect size, these numbers should be converted to Fisher's z according to the following formula.

Then the consistency or homogeneity of the size of the works is tested, if the sizes of the works are homogeneous, they are combined with each other. Otherwise, it is divided into subgroups based on the key variables that are likely to cause the variance of population effects. This procedure continues until the studies within the strata are consistent and there is no unexplained effect size variance left [44]. To perform the present meta-analysis and perform the necessary calculations, including calculating the effect size, after collecting the desired variables from the relevant researches, comprehensive meta-analysis software CMA2 has been used, which is the most suitable software that can be used in meta-analysis.

## 5 Research findings

The description of the conducted researches is based on the year of publication of the mentioned year, categorized and based on frequency and percentage of frequency. As can be seen, the internal researches that have examined the specific characteristics of the company and the audit report lag, related to the years 2022 with a frequency of 22.22% and the researches of the years 2020 and 2019 with 3.70% have the lowest frequency. dedicated. Also, regarding the foreign researches, the most researches are related to the year 2022 with 18% and the lowest frequency percentage is related to the year 2010 with 1%.

Table 2: Domestic and foreign researches

Foreign studies			Internal studies		
Year of publication	Frequency	Frequency%	Year of publication	Frequency	Frequency%
2022	9	18	2022	6	22.22
2021	7	14	2021	2	7.40
2020	7	14	2020	1	3.70
2019	3	6	2019	1	3.70
2018	2	4	2018	5	18.51
2017	5	10	2017	2	7.40
2016	6	12	2016	2	7.40
2015	2	4	2015	2	7.40
2014	3	6	2014	4	14.80
2013	2	4	2013	2	7.40
2012	1	2	2012		
2011	2	4	2011		
2010	1	2	2010		
total	50	100	total	27	100

In table 2, the frequency of each of the independent variables related to the specific characteristics of the company, whose effect on the dependent variable of the delay of the independent auditor's report, has been examined and analyzed according to the scope of the researches used in the meta-analysis.

Table 3: Frequency of independent research variables

Variable name	territory	Number	Variable name	territory	Number
	total	77		total	47
company size	Foreign studies	50	Company profitability	Foreign studies	33
	Internal studies	27		Internal studies	14
	total	13		total	41
Company age	Foreign studies	7	Company loss	Foreign studies	27
	Internal studies	6		Internal studies	14
	total	48			
Company leverage	Foreign studies	29			
	Internal studies	19			

The findings in Table 3 show that among the specific characteristics of the company, the highest frequency is related to the company size variable with 77 items and the lowest frequency value is related to the company age variable with 13 items.

The results of the first research hypothesis test

The results of Table 4 show the results of the meta-analysis of all the studies that have used the variable of company size as an independent variable affecting the audit report lag.

According to the data in the table 4, the value of the confidence level in the heterogeneity test in this hypothesis is less than (0.05) Therefore, information related to random effects is used to draw conclusions in the first hypothesis. The weighted average of fixed effects is (0.120). The confidence interval of the effect of company size on the audit report lag is in the area of (0.071 and -0.029). Considering that the significance level of testing this hypothesis using random effects is greater than (0.05), this hypothesis is not accepted. In other words, at the 95% confidence level, it

Table 4: The meta-analysis results of the company size variable

Row	Model	Weighted mean effect size	confidence interval 95%		Null hypothesis test		Heterogeneity test		
			upper line	lower limit	z statistic	Significance level	Q statistic	Statistics I2	Significance level
total	Fixed effects	-0.050	-0.040	-0.060	-9.979	0.0000	1662.70	95.429	0.0000
	Random effects	0.120	0.071	-0.029	0.811	0.417			
Foreign studies	Fixed effects	-0.077	-0.066	-0.087	-14.707	0.0000	1065.45	95.40	0.0000
	Random effects	-0.094	-0.041	-0.146	-3.364	0.0000			
Internal studies	Fixed effects	0.228	0.259	0.197	13.768	0.0000	290.900	91.065	0.0000
	Random effects	0.246	0.350	0.136	4.311	0.0000			

can be said that the size of the company has no effect on the audit report lag. This hypothesis shows the lack of effect of company size on audit report lag at the 95% confidence level in domestic and foreign research.

The results of the second hypothesis test

The results of Table 5 show the results of the meta-analysis of all the studies that have used the company's profitability variable as an independent variable affecting the audit report lag.

Table 5: The meta-analysis results of the company's profitability variable

Row	Model	Weighted mean effect size	confidence interval 95%		Null hypothesis test		Heterogeneity test		
			upper line	lower limit	z statistic	Significance level	Q statistic	Statistics I2	Significance level
total	Fixed effects	-0.046	-0.032	-0.061	-6.308	0.0000	972.087	95.268	0.0000
	Random effects	-0.198	-0.126	-0.268	-5.328	0.000			
Foreign studies	Fixed effects	-0.030	-0.030	-0.045	-3.899	0.0000	41.195	68.443	0.0000
	Random effects	-0.170	-0.170	-0.252	-3.902	0.0000			
Internal studies	Fixed effects	-0.267	-0.267	-0.317	-9.727	0.0000	860.877	96.283	0.0000
	Random effects	-0.271	-0.271	-0.362	-5.373	0.0000			

According to the data in the table above, the value of the confidence level in the heterogeneity test in this hypothesis is less than (0.05). Therefore, information related to random effects is used to draw conclusions in the second hypothesis. The weighted average of fixed effects is (-0.198). The confidence interval of the effect of the company's profitability on the audit report lag is in the area of (-0.126 and -0.268). Considering that the significance level of testing this hypothesis using random effects is greater than 0.05, this hypothesis is accepted, in other words, at the 95% confidence level, it can be said that the company's profitability has a negative effect on the audit report lag. This hypothesis shows the effect of the company's profitability on the audit report lag at the 95% confidence level, according to the territory, in domestic and foreign researches.

The results of the third hypothesis test

The results of the table 6 from the meta-analysis show the total number of studies that have used the company's age variable as an independent variable affecting the audit report lag.

Table 6: Results of meta-analysis of company age variable

Row	Model	Weighted mean effect size	confidence interval 95%		Null hypothesis test		Heterogeneity test		
			upper line	lower limit	z statistic	Significance level	Q statistic	Statistics I2	Significance level
total	Fixed effects	0.086	0.109	0.062	7.120	0.0000	97.226	87.658	0.0000
	Random effects	0.141	0.217	0.065	3.589	0.000			
Foreign studies	Fixed effects	0.201	0.263	0.042	5.216	0.0000	69.763	91.399	0.0000
	Random effects	0.190	0.294	0.014	2.236	0.0000			
Internal studies	Fixed effects	0.068	0.093	0.139	6.188	0.0000	12.674	60.548	0.027
	Random effects	0.110	0.205	0.081	3.401	0.0000			

According to the data in the table above, the value of the confidence level in the heterogeneity test in this hypothesis is less than (0.05). Therefore, information related to random effects is used to draw conclusions in the third hypothesis. The weighted average of fixed effects is (0.141). The confidence interval of the size of the effect of the age of the company on audit report lag is in the area of (0.217 and 0.065). Considering that the significance level of testing this hypothesis using random effects is less than 0.05, this hypothesis is accepted, in other words, at the 95% confidence level, it can

be said that the age of the company has an effect on the audit report lag. This hypothesis shows the effect of the age of the company on the audit report lag at the 95% confidence level in domestic and foreign researches.

The results of the fourth hypothesis test

The results of the table 7 from the meta-analysis show the total number of studies that have used the company's leverage variable as an independent variable affecting the audit report lag.

Table 7: Meta-analysis results of the company's leverage variable

Row	Model	Weighted mean effect size	confidence interval 95%		Null hypothesis test		Heterogeneity test		
			upper line	lower limit	z statistic	Significance level	Q statistic	Statistics I2	Significance level
total	Fixed effects	0.081	0.092	0.070	14.519	0.0000	436.354	89.229	0.0000
	Random effects	0.121	0.159	0.082	6.76	0.000			
Foreign studies	Fixed effects	0.027	0.082	0.059	12.104	0.0000	243.710	88.511	0.0000
	Random effects	0.090	0.128	0.051	4.510	0.0000			
Internal studies	Fixed effects	0.188	0.226	0.150	9.507	0.0000	166.553	89.193	0.0000
	Random effects	0.156	0.273	0.034	2.501	0.0120			

According to the data in the table above, the value of the confidence level in the heterogeneity test in this hypothesis is less than (0.05). Therefore, information related to random effects is used to draw conclusions in the fourth hypothesis. The weighted average of fixed effects is (0.121). The confidence interval of the effect size of the company's leverage on the audit report lag is in the area of (0.159 and 0.082). Considering that the significance level of the test of this hypothesis using random effects is less than 0.05, this hypothesis is accepted, in other words, at the 95% confidence level, it can be said that the company's leverage has a positive effect on the audit report lag. This hypothesis shows the effect of the company's leverage on the audit report lag at the 95% confidence level in domestic and foreign researches.

The results of the fifth hypothesis test

The results of the table 8 from the meta-analysis show the total number of studies that have used the company's unprofitability variable as an independent variable affecting the audit report lag.

Table 8: The meta-analysis results of the company's unprofitability variable

Row	Model	Weighted mean effect size	confidence interval 95%		Null hypothesis test		Heterogeneity test		
			upper line	lower limit	z statistic	Significance level	Q statistic	Statistics I2	Significance level
total	Fixed effects	0.068	0.078	0.059	14.102	0.0000	468.123	91.455	0.0000
	Random effects	0.095	0.133	0.057	4.864	0.000			
Foreign studies	Fixed effects	0.073	0.083	0.063	14.727	0.0000	60.841	93.252	0.0000
	Random effects	0.130	0.173	0.088	5.951	0.0000			
Internal studies	Fixed effects	0.043	0.085	0.001	1.994	0.046	385.297	78.663	0.0000
	Random effects	-0.001	0.095	-0.097	-0.019	0.0984			

According to the data in the table above, the value of the confidence level in the heterogeneity test in this hypothesis is less than (0.05). Therefore, information related to random effects is used to draw conclusions in the sixth hypothesis. The weighted average of fixed effects is (0.095). The confidence interval of the effect of the loss of the company on the audit report lag is in the area of (0.133 and 0.057). Considering that the significance level of testing this hypothesis using random effects is less than 0.05, this hypothesis is accepted. In other words, at the 95% confidence level, it can be said that the loss of the company has a positive effect on the audit report lag. This hypothesis shows the effect of the loss of the company on the audit report lag at the 95% confidence level, according to the territory, in domestic and foreign researches.

Investigation of publication bias

One of the problems that can question the validity of meta-analysis studies is publication bias. Publication bias means that studies on the subject have been investigated, but in meta-analysis, it is because some subjects have not been published for various reasons and that they have not been published in different authoritative journals for various reasons. When there is diffusion bias, the final results of meta-analysis will be affected and the resulting final analyzes will have bias and error [30]. One of the methods that examines the diffusion bias is the linear regression method, in which the hypothesis H0 is the symmetry of the graph and the absence of diffusion bias [16]. The results of this method are described in Table No. 9 in order to check publication bias.

Table 9: Investigating the publication bias of the variables

Variable	Cut (B)	standard error	t-value	Significance level	
				A domain	Two domains
company size	1.774	0.814	2.177	0.036	0.072
Company profitability	-3.143	0.945	3.323	0.000	0.001
company age	2.135	1.412	1.512	0.0466	0.0932
company leverage	1.175	0.685	1.713	0.0466	0.0932
Company loss	1.047	0.783	1.336	0.094	0.189

According to the results obtained from the linear regression method, since the significance level of two domains for each group of studies related to the mentioned variables is more than (0.05), therefore, the null hypothesis of no publication bias for all variables is confirmed.

## 6 Discussion and conclusion

The quality of financial reporting increases when the information has the necessary efficiency. The efficiency of financial reporting refers to the information that reaches the users on time. The faster the information reaches the users, the more efficient it is. As the delay increases, the information that is disclosed has a lower information value [36]. Based on the meta-analysis results of the first hypothesis, no significant relationship was found between the company size and the audit report lag. Therefore, the first hypothesis is not confirmed. In fact, he explained that if the listed companies are large or if these companies are small, there will be no meaningful relationship between the smallness and the size of the company with the audit report lag. This result is consistent with the results of the research [19, 21]. Based on the meta-analysis results of the second hypothesis, a significant negative relationship was found between the company's profitability and the audit report lag. Therefore, the second hypothesis is confirmed. In fact, he explained that if the listed company is profitable, it has higher information transparency, and this causes the auditor to take less time to review the financial statements. This result is consistent with the research results of, Baatwah [7]. Based on the meta-analysis results of the third hypothesis, there is a significant relationship between the age of the company and the audit report lag. In fact, the older the company is, the better internal control it has and the delay of the independent auditor's report will be less. Based on the results of the meta-analysis of the fourth hypothesis, the leverage of the company, and the fifth hypothesis, the loss of the company, auditors more carefully audit companies with weaker performance than companies with stronger performance. This causes them to provide sufficient and reliable documents to support their opinions. According to previous studies, more procedures lead to more delays in the auditor's report [39]. Leverage and loss of companies are among the tools to identify the performance of companies. According to the results of the positive effect of leverage and unprofitability on the audit report lag, increasing the leverage and unprofitability of the companies causes an increase in the audit report lag.

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