



Research Paper

## Meta-Analysis of Auditor Characteristics and Profit Quality (Considering Auditor Characteristics Indicators)

Parisa Mohammad Rahimi<sup>a</sup>, Mojgan Safa<sup>a, \*</sup>, Majid Zanjirdar<sup>b</sup>, Hossein Jahangirnia<sup>a</sup>

<sup>a</sup> Department of Accounting, Qom Branch, Islamic Azad University, Qom, Iran

<sup>b</sup> Department of Financial Management, Arak Branch, Islamic Azad University, Arak, Iran

### ARTICLE INFO

#### Article history:

Received 2020-11-29

Accepted 2021-10-12

#### Keywords:

meta-analysis

profit quality

auditor characteristics

### Abstract

The aim of this study is to conduct a meta-analysis to explore the relationship between auditor characteristics and profit quality. Utilizing the meta-analysis methodology, a quantitative statistical approach, we aim to integrate findings from various research studies and identify factors that influence the connections between auditor characteristics and profit quality. For the study's implementation, we collected data from domestic scientific research journals during the years 2005-2020, serving as the statistical population for this research. Through a systematic elimination process, we narrowed down the selection to 50 studies for analysis. The results of these studies, conducted within the specified timeframe, suggest a degree of heterogeneity. To investigate the root causes of this heterogeneity, we categorized the studies based on different criteria for measuring auditor characteristics and calculated chi-square statistics. These results demonstrate that various criteria for auditor characteristics moderate the relationship between auditor attributes and profit quality. Notably, there is a significant correlation between auditor independence and profit quality. Similarly, significant relationships exist between auditor rotation and profit quality, auditor size and profit quality, non-audit services provided by the auditor and profit quality, fees paid to the auditor and profit quality, as well as auditor expertise in the industry and profit quality.

## 1 Introduction

The role of auditing in validating corporate earnings information in the bankruptcy of large corporations has been significant. From the perspective of users, especially shareholders, auditing is useful when auditors review and evaluate the continuity of business, the absence of errors in the financial statements, misconduct, significant fraud, and illegal acts affecting the unit's operations and declare their agreement with the above [5]. Therefore, investors' influence on the value burden of auditor-approved information is important because increases of the predictive power of data such as profits on which all aspects of the organization's performance are built on it can greatly divert investors' decisions from distortions and help them make the most appropriate predictions for the company's future and profits. On the other hand, managers have a lot of incentives to manipulate profits and reduce the

\* Corresponding author.

E-mail address: [mojgansafa@gmail.com](mailto:mojgansafa@gmail.com)

quality of profits so that they can fulfill the predictions of financial analysts, and auditing can be one of the ways to prevent and reduce profit manipulation and reduce the quality of profits. Because it is believed that companies that provide audited financial statements have better quality information content and profits. This means that the higher the companies' profit manipulation, the lower their profit quality will be [13] and according to studies conducted so far, no research has examined meta-analysis of auditor characteristics and profit quality; therefore, this issue has a research gap. [30] showed that audit independence is associated with low accruals. Some researchers [27] showed a negative relationship between audit independence and earnings management. On the other hand, a positive relationship between audit independence and profit quality has been identified by other researchers. [21] show that there is a positive and significant relationship between auditor tenure and earnings management. [24] argues that non-audit services undermine the independence of auditors and thus reduce the quality of financial reporting and thus the quality of profits.

Based on the contradictory results of previous researches in this regard, this research will perform a meta-analysis of this part of the literature by identifying and collecting the relevant experimental studies in which through integrate the results and identify the causes of diversity in the results of studies make it possible to better understand the effect of auditor's characteristics on profit quality. In the meantime, making the necessary decisions to achieve high quality profit content cannot be unrelated to audit fees. It seems that in companies whose level of profit quality is high, the costs paid for performing audit services in order to reveal various aspects that reflect the quality of profit will be higher. Audit has a supervisory role over the contract so that any breach of contract is brought to the attention of securities holders. Also, audit responsibility is not limited to overseeing the financial reporting process; rather, auditing serves as the ultimate gatekeeper of financial disclosure. A company with an accounting expert is more likely to drive management profits more accurately [15]. It is also less likely that large corporations will give in to a particular customer because they have multiple customers and offer a variety of services. However, a small company that earns a large portion of its revenue from a particular customer is more likely to surrender to that customer more easily. There are two different views on the tenure of auditors and the quality of financial reporting. The first view states that the shorter the auditor's tenure, the lower the quality of earnings. Proponents of auditor change believe that in the event of a forced rotation, auditors will be more able to withstand the pressures of client management and make more impartial judgments.

## **2 Theoretical Foundations and Research Background**

According to profit quality theory, higher quality profit provides more information about different aspects of a company's financial performance. In addition, from the point of view of agency theory, independent auditing helps shareholders in controlling and supervising the management activities of the company. [15] stated that independent auditors are more effective in overseeing management and reducing the ability to report erroneously by minimizing management intervention [20] On the other hand, resource dependency theory states that the role of auditing in providing resources in a professional and experienced way for companies to gain a competitive advantage, especially in the quality of financial reporting, is so effective. Based on agency theory and resource dependency theory, it can be thought that academic financial expertise reduces discretionary accruals and improves profit quality. Another feature that has been identified in previous researches as a factor affecting earnings quality is the size of the auditor. According to agency theory, internal and external oversight mechanisms are needed to reduce conflicts of interest between managers and stakeholders, and increasing the quality

of oversight can also reduce information asymmetry [9]. Also, with the increase of the auditor permanence years in a company, his knowledge of that company increases and he knows what issues should be paid special attention to in order to audit it. However, there are other interpretations in this field. One interpretation is that auditors have less independence in the early years of auditing. There is a favorable view of the auditor's rotation in the face of evidences that an increase in the tenure of auditors leads to the reporting of low quality earnings [4]. [24] argues that, despite this legal restriction, evidences from academic researches show that non-audit services undermine the independence of auditors and thus reduce the quality of financial reporting and thus the quality of profits.

Also, if the risk of manipulating the client's profit is greater, then auditors are required to reduce audit risk in general through additional testing methods or allocating additional resources to audit transactions, which is likely to lead to significant distortion of financial reporting. [11] In this regard, in the country, [19], in a study entitled Factors affecting the quality of profits of pharmaceutical companies found that there is a significant and direct relationship between profit quality and stock value and company size and there is a significant inverse relationship between the profit quality and gender diversity of members of the board. Moradi in a study entitled The relationship between earnings quality and auditing fees with dividend policy showed that there is a direct and significant relationship between earnings quality and auditing fees with dividend policy and there is a significant inverse relationship between financial leverage and the ratio of accruals with dividend policy. [18]. Heydari in examining the effect of audit quality on earnings management show that there is a significant negative relationship between earnings quality and auditor's fee. [10]. Moradi Shahkooh, in examining the relationship between the characteristics of the audit committee and profit quality, show that the size of the audit committee and the financial expertise of the audit committee increase the quality of companies' profits. [17]. Piri, Parviz, in examining the relationship between tenure and change of auditor with the quality of earnings show that increasing the tenure of auditors increases the amount of accruals and as a result decreases the quality of earnings, while increasing the amount of auditor change reduces the amount of accruals and increases the quality of the profit. [23].

Goran, in examining the effect of audit quality on earnings quality showed that the size of the audit institute has a positive and significant effect on earnings quality. The auditor's tenure has a positive and significant effect on earnings quality. [7]. Francis, in examining the effect of auditor characteristics on profit quality and performance, show that the auditor's special characteristics limit the opportunistic and profiteering behavior of managers and thus will improve the quality of accounting profits and company performance and as a result, investors will have more trust in the capital market. [6]. Safarzadeh, in his research entitled The role of auditor characteristics in improving earnings quality found that the index introduced to the auditor with the criteria of accrual quality, profit stability, profit smoothing and profit conservatism, has a significant inverse relationship and with the timeliness of profit has a direct and significant relationship, but does not have a significant relationship with predictable profit and value indices. [26]. Mehrani et al, in examining the role of auditor characteristics in earnings quality, found that there is no significant relationship between auditor characteristics and the studied dimensions of earnings quality. In other words, the auditor's tenure has not had a significant effect on earnings quality. [16]. Torabi Nejad, in a study entitled The effect of tenure and auditor size on earnings quality shows that there is a positive and significant relationship between auditor tenure and profit quality. Also, the auditor's short tenure does not have a significant effect on profit quality and there is no significant relationship between auditor size and earnings quality. [29]. Abroad as well; Al-Badal et al., in a study entitled "Characteristics and quality of the audit committee" showed that

some of the characteristics of the audit committee affect the quality of profits. [2]. Sai Lim and Kitisik, in a study entitled Audit Committee and Profit Quality show that the audit committee reduces profit management activities in companies. Profit management was usually found where the majority of the audit committee was composed of non-independent managers. The audit committee should be independent and have an impartial role in the development of the firm. [26].

Khalilov et al in a study examining accounting conservatism and corporate profitability, show that conditional (unconditional) conservatism is associated with lower (higher) sales profitability, and conservatism affects the profitability of purchases. [13]. Song et al showed the relationship between the expertise of the audit committee members and the quality of earnings according to the meta-analysis method that the expertise of the audit committee has a positive relationship with profit quality and of course the accounting expertise shows a stronger relationship. [28]. El-Rasas and Camardin in a study entitled - Profit quality and auditing characteristics in the high market of centralized ownership showed that the independence of the audit committee and investment in internal audit has a positive relationship with profit quality and concentration of ownership is along with lower profit quality. [6]. Inailo and Manag found that the auditor's independence in providing non-audit services appeared to have a positive relationship with the abnormal working capital of accruals, which is an indicator of lower quality of profit. [12]. Suleiman and Raqab in a study entitled Audit Committee Effectiveness, Audit Quality and Profit Manipulation, showed that the independence of the audit committee; experience of members of the audit committee; audit committee meetings and audit quality have a negative and significant relationship with discretionary accruals and there was a significant relationship between the size of the audit committee and the level of discretionary accruals. [27].

Hamilton et al in a study entitled "Does the auditor's rotation affect profit quality?" found that the auditor change was associated with lower accruals (higher profit quality). This relationship is more intense for larger institutions. [9] Barva in examining the criteria for measuring the quality of profits, showed that companies with relevance and high profit reliability compared to companies with low relevance and profit reliability, have higher profit response coefficient and explanatory power of profit/cost regression. [3]

### 3 Hypotheses

According to the proposed theoretical framework, the research hypothesis is presented as follows:

Main Hypothesis: Different criteria of auditor characteristics moderate the relationship between auditor characteristics and profit quality.

Sub-hypothesis 1- There is a significant relationship between auditor independence and profit quality.

Sub-hypothesis 2 - There is a significant relationship between auditor rotation (auditor tenure) and profit quality.

Sub-Hypothesis 3 - There is a significant relationship between auditor size and profit quality.

Sub-hypothesis 4- There is a significant relationship between the providing the auditor non-audit services and profit quality.

Sub-Hypothesis 5- There is a significant relationship between the fee paid to the auditor and the quality of the profit.

Sub-Hypothesis 6- There is a significant relationship between auditor expertise in the industry and profit quality.

## 4 Research Methodology

Differences in applications, measurement tools, research methods and situations make it difficult to compare research. Therefore, applying contradictory researches results, publishing, interpreting, evaluating and recognizing their weaknesses requires a solution that is based on proper review and analysis of the research, using evidences and using a combined method. The meta-analysis provides an estimate that will not be affected by the size of the sample groups. For data collection, the library method has been used and the statistics used in the meta-analysis include Z, P-Value, Chi-square, F and t statistics, and these statistics should convert to a common scale that is called effect size. The purpose of using the effect size is to formulate various statistical findings of studies in a common numerical index and measurement to allow comparison and combination of statistical results of studies.

### 4.1 Statistical Population and Sample Selection

The study population in this study are articles (from experimental studies done) related to the impact of auditor characteristics on earnings quality worldwide and from the website of foreign journals (articles published during 2005-2020) and the websites of domestic scientific research journals (articles published during 2005-2020) were identified and collected. Finally, out of a total of 277 collected studies, 50 studies were analyzed according to the applied limitations and using the systematic removal method.

### 4.2 Research Models and Variables

#### 4.2.1 Dependent Variable

A- The dependent variable is the profit quality, the indicators of which are described below:

1- Quality of accruals: Measured by Decho and Dechio (2002) in model (1):

$$WC - ACC_{i,t} = \alpha + \int 1 CF_{i,t-1} + \int 2 CF_{i,t} + \int 3 CF_{i,t+1} + e_{i,t} \quad (1)$$

CF: Operating cash distributed over the previous year's total assets for homogenization; WCACC: The sum of working accruals obtained in Model (2):

$$WC - ACC_{i,t} = (\Delta CA_{i,t} - \Delta CL_{i,t} - \Delta Cash_{i,t} + \Delta STD_{i,t}) / A_{i,t-1} \quad (2)$$

$\Delta CA$ : changes in current assets;  $\Delta CL$ : changes in current debt;  $\Delta Cash$ : cash changes;  $\Delta STD$ : changes in short-term received facilities; A: Total assets.

2- Profit stability: which is examined based on the regression model (3)

$$PTBI_{t+1} = \gamma_0 + \gamma_1 PTBI_t + \varepsilon_{t+1} \quad (3)$$

PTBI<sub>t+1</sub>: Profit before tax deduction on total assets in period t + 1

PTBI<sub>t</sub>: Profit before tax deduction on total assets in period t

3- Profit predictability: Based on the Francis et alwork, using the square root of variance, the error estimated from the profit stability equation is measured as described in model (4) [26]

$$Pred_{j,t} = \sqrt{\delta^2(v)} \quad (4)$$

On this scale,  $\sigma^v(\hat{v}_{i,t})$  shows the variance of the remnants of the profit stability model, larger values for Pred indicate lower predictability of profit and, consequently, lower quality of profit.

4. Profit smoothing: is examined through model (5):

Profit smoothing: Standard deviation of operating profit to first total assets

Standard deviation of the operating cash flow ratio to total assets (5)

A lower ratio means more profit smoothing and therefore lower profit quality, which means a higher probability of profit smoothing.

5. Timeliness of profit: Using the Roanidek model as described in model (6):

$$EY = b_1 + b_2 * R_{i,t} + e_{i,t} \quad (6)$$

In this model, b2 is the profit timeliness index.

6. Profit conservatism: Khan and Watts (2009) criteria are used as described in model (7):

$$NI_{jt} = \beta_{1t} + \beta_{2t}D_{jt} + (\mu_{1t} + \mu_{2t}MKV_{jt} + \mu_{3t}MTB_{jt} + \mu_{4t}LEV_{jt}) * R_{jt} + (\lambda_{t1} + \lambda_{t2}MKV_{jt} + \lambda_{t3}MTB_{jt} + \lambda_{t4}LEV_{jt}) * D_{jt}R_{jt} + (\delta_{1t}MKV_{jt} + \delta_{2t}MTB_{jt} + \delta_{3t}LEV_{jt} + \delta_{4t}D_{jt}MKV_{jt} + \delta_{5t}D_{jt}LEV_{jt}) + \epsilon_{jt} \quad (7)$$

:  $NI_{jt}$  : Net profit before contingent items to market value of equity j at the end of the year t.

:  $R_{jt}$  : Return on stocks of company j during fiscal year t.

$D_{jt}$ : virtual change. If  $R < 0$  is equal to 0, otherwise is equal to zero.

:  $MKV_{jt}$  : Natural logarithm of market value of company equity j during fiscal year t.

$MTB_{jt}$ : ratio of market value to book value of company equity j at the end of fiscal year t;  $LEV_{jt}$ : the debt-to-equity ratio of company j at the end of fiscal year t;  $\xi_{jt}$ : Residual or model residue

Model (7) is estimated using annual cross-sectional regression and relation (8) is calculated using conditional conservatism:

$$C - SCORE = \lambda_{1t} + \lambda_{2t}MKV_{jt} + \lambda_{3t}MTB_{jt} + \lambda_{4t}LEV_{jt} \quad (8)$$

#### 4.2.2 Independent Variable

The independent variable is the characteristics of the auditor, the indicators of which will be described:

1. Auditor independence: which the model (9) is used:

$$RI = 1 - \left(\frac{HC}{I}\right) * 100 \quad (9)$$

RI: Auditor Independence Ratio, HC: Audit Fee in the Target Year, I: Total Audit Firm Revenue in the Target Year. In this model, it is assumed that the smaller the amount of the auditor's receipts from employer location, then the auditor will be more able to resist the employer's opportunistic behaviors.

2. Auditor rotation (tenure): The number of years that the auditor audits in a company.

3. The size of the auditing firm: Mofid Rahbar Auditing organization and auditing firm as a large firm with a high reputation and credit (grade 1) and in contrast to other auditing firms (auditing firms

that are members of the Society of Certified Public Accountants), whose size compared to the auditing organization is smaller, considered as an institution with low reputation and credit (grade 2).

4. Provision of non-audit services: If the auditor has performed non-audit services is equal to one and otherwise is equal to zero.

5. Fee paid to the auditor: The natural logarithm of the audit fee has been used to calculate it. Audit fee information is extracted from the accompanying notes to the financial statements of the administrative, public and definite expenditure sector of other expenses.

6. Expertise of the auditor in the industry: Using two approaches, the market share and the portfolio share of the auditing firm is calculated which in this research, the market share approach is used. Auditors' market share is also calculated as described in Model (10):

$$\left(\frac{1}{(IF)}\right) * \left(\frac{1}{2}\right) < \left(\frac{EA}{(EAT)}\right) \tag{10}$$

The total assets of all the owners of a particular auditing firm in a particular industry (EA) are divided by the total assets of the total owners in the industry (EAT). Institutions in this research are considered as industry experts whose market share (i.e. the phrase to the right of the equation) more than the phrase one on the number of companies in an industry (IF) multiplied by one divided by two (i.e. the expression to the left of the equation) (Hajiha and Sobhani).

### 5 Analysis of Research Data

In the present study, articles published in domestic and foreign journals have been used and in the present study, an attempt has been made to observe all four mentioned steps.

A- Information coding: In the following, in the form of Tables (1) and (2), we will examine the research variables in the collected studies separately

**Table 1:** List of domestic articles used for meta-analysis

row	researcher	Publish year	Research country	sample	Dependent variable	Independent variable	result	Statistic type	Statistic value
1	Mehrani et al.	2013	Iran	217	Quality of benefit (inclusive of): The value of propulsion And caution ((conservatism	Auditor tenure	Lack of significant relationship	t	-1.44 and 1.09 2.07 -0.60
						Auditor size	Lack of significant relationship		
2	Piri & Sedqiani	2016	Iran	83	Profit quality (accruals)	Auditor tenure	Positive and significant relationship	z	5.94
3	Jahanshah & Lavasani	2013	Iran	102	Profit conservatism	Auditor tenure duration	Positive and significant relationship	t	2.155
						Auditor type (auditor size)	Lack of significant relationship		-0.510
4	Khoramabadi et al.	2019	Iran	128	Profit quality ((accruals	Auditor tenure	Positive and significant relationship	t	2.5307
5	Khalilzadeh vet al.	2012	Iran	72	Profit conservatism	Auditor tenure	Lack of significant effect	t	-0.049
					profit stability		Lack of significant effect		-0.913
6	Khajavi & Hosseininia	2014	Iran	69	Profit conservatism	Auditor tenure	Lack of significant relationship	t	-1.088
7	Khoshkar et al.	2019	Iran	119	financial reporting	Audit fee	Negative and significant	t	-6.87

**Table 1:** List of domestic articles used for meta-analysis

					quality of optional accruals		relationship		
8	Rajabi et al.	2015	Iran	70	financial reporting quality Quality of optional accruals	Audit fee	Lack of significant relationship	t	0.149
9	Ramezani	2019	Iran	105	financial reporting quality Quality of optional accruals	Audit fee	Positive and significant relationship with profit quality	t	1.537458
10	Salehi et al.	2016	Iran	184	profit stability	Audit institute size	Existence of a positive and meaningful relationship	t	4.7213
						Audit expertise in industry	Existence of a positive and meaningful relationship		4.7213
						Auditor tenure	Lack of significant relationship		1.7781
11	Safarzadeh	2014	Iran	212	Accruals quality	Auditor rotation	Lack of significant relationship	t	-0.501
					profit stability		Negative and significant relationship		-2.162
					Profit smoothing		Negative and significant relationship		-4.390
					Profit conservatism		Negative and significant relationship		-2.648
					Profit timeliness		Positive and significant relationship		3.628
					Profit Predictability		Lack of significant relationship		1.246
					Accruals quality	Auditor institute size	Lack of significant relationship		-0.420
					profit stability		Lack of significant relationship		0.706
					Profit smoothing		Lack of significant relationship		0.178
					Profit conservatism		Lack of significant relationship		0.620
					Profit timeliness		Lack of significant relationship		1.670
					Profit Predictability		Lack of significant relationship		-0.149
					Accruals quality	Auditor expertise in industry	Negative and significant relationship		-2.495
					profit stability		Negative and significant relationship		-2.298
					Profit smoothing		Lack of significant relationship		-1.286
					Profit conservatism		Lack of significant relationship		-0.491
Profit timeliness		Positive and significant relationship	3.273						



**Table 1:** List of domestic articles used for meta-analysis

					Profit Predictability		Lack of significant relationship		0.761
12	Kashanipoor et al.	2018	Iran	127	Profit conservatism	Rotation (rotation / tenure) of the partners of the auditing institute	Positive and significant relationship	significance	0.049
13	Karami & Bazrafshan	2010	Iran	58	Profit conservatism	Auditor tenure	Negative and significant relationship	t	-5.713
14	Marfoo & Amiri	2014	Iran	102	Optional accruals	Audit institute size	Negative and significant relationship	t	-2.92
						Auditor expertise in industry	Negative and significant relationship		-4.38
15	Malekian & Abdi poor	2014	Iran	63	Audit institute change	Profit conservatism	Positive and significant relationship	t	3.556
16	Nasir zadeh et al.	2017	Iran	137	Profit conservatism	Audit committee independence	Positive and significant relationship	t	2.350
						Audit committee size	Positive and significant relationship		4.746
17	Vakili Fard & Maranjooi	2014	Iran	49	Profit conservatism	Auditor tenure	Positive and significant relationship	t	3.078
18	Vakili Fard et al.	2014	Iran	342 auditor's change observation	accruals	Audit institute size	Lack of significant relationship	t	-1.504
19	Alavi Tabari & Bazrafshan	2013	Iran	68	accruals	Auditor tenure	Negative and significant relationship	t	-2.459
20	Etemadi et al.	2009	Iran	117	accruals	Auditor expertise in industry	Lack of significant relationship	t	-1.452
21	Aqayi & Nazemi	2012	Iran	117	accruals	Auditor expertise in industry	Lack of significant relationship	t	-0.139
22	Jabarzadeh et al.	2011	Iran	72	Optional accruals	Audit institute size	Lack of significant relationship	t	-1.237
						Auditor tenure	Lack of significant relationship		0.388
23	Khodadadi et al.	1395	Iran	82	Profit stability	Audit fee	Negative and significant relationship	t	-5.211
24	Azizkhani & Safarvandi	1391	Iran	1626 year-company	Profit Predictability	Auditor tenure	Negative and significant relationship	t	-2.15
25	Hassani	2013	Iran	155	Profit conservatism	Audit institute size	Positive and significant relationship	p-value	0.0409
26	Shams Al-dini et al.	2017	Iran	819-year-company	Profit stability	Auditor tenure	Lack of significant relationship	t	1.307
					Accruals quality		Lack of significant relationship		-0.810
					Profit stability	Audit institute size	Lack of significant relationship		1.295
					Accruals quality		Negative and significant relationship		-1.982
27	Taghizadeh Khanqah	2013	Iran	100	Accruals quality	Auditor tenure	Negative and significant relationship	t	-4.143
28	Khodadadi et al.	2014	Iran	100	Report timeliness	Auditor comment	Positive and significant relationship	t	3.84

**Table 2:** List of foreign articles used for meta-analysis

row	researcher	Publish year	Research country	sample	Dependent variable	Independent variable	result	Statistic type	Statistic value
1	Husseini	2009	England	4417	Profit predictability	Audit institute size	Positive and significant relationship	p-value	0.001
2	Suparsoto et al.	2018	Indonesia	116	Combined variable with factor analysis of (quality of accruals, profit stability, profit predictability and auditor expertise in (the industry)	Audit institute size	Lack of significant relationship	t	-0.294
						Auditor tenure	Negative and significant relationship		-2.661
						Auditor expertise in industry	Lack of significant relationship		1.563
3	Silvester et al.	2018	Brazil	186	discretionary accruals	Audit rotation	Positive and significant relationship	t	9.210
4	Rasmin	2010	Australia	325	discretionary accruals	Non-audit services	Lack of significant relationship	t	0.682
						Auditor expertise	Lack of significant relationship		-0.941
5	Al-Zui	2017	Jordan	72	discretionary accruals	Auditor tenure	Negative and significant relationship	t	-2.97
						Audit institute size	Negative and significant relationship		-2.56
						Auditor expertise in industry	Lack of significant relationship		-1.87
						Auditor independence	Negative and significant relationship		-4.98
6	Ata Paula	2018	Portugal	4723	discretionary accruals	Audit institute size	Negative and significant relationship	p-value	0.000
7	Hamdan et al.	2012	Oman	39	Profit conservatism	Audit institute size	Negative and significant relationship	t	-3.164
						Auditor fee	Lack of relationship		-0.830
						Industry expertise	Lack of relationship		-1.906
8	Hamdan	2020	Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates	59	Profit conservatism	Auditor independence	Positive and significant relationship	t	5.224
						Audit institute size	Positive and significant relationship		2.480
9	Leong et al.	2017	China	739	accruals	Auditor tenure	Negative and significant	t	-2.30

**Table 2:** List of foreign articles used for meta-analysis

10	Kramer et al.	2011	U.S.A	11643	Profit conservatism	Auditor rotation	relationship Positive and significant relationship	p-value	0.000
11	Day et al.	2002	U.S.A	207	Accruals and timeliness	Auditor independence ( non-audit services)	Positive and significant relationship	t	0.039
12	Jahmani	2017	Bahrain	31	discretionary accruals	Auditor independence	Lack of significant relationship	t	0.974
						Audit institute size	Negative and significant relationship		-2.111
13	Aqustin	2014	Nigeria	342	discretionary accruals	Auditor independence	Lack of significant relationship	p-value	0.948
						Auditor tenure	Lack of significant relationship		0.235
14	Goul et al.	2009	China	32777	discretionary accruals	Audit tenure	Negative and significant relationship	t	-5.9
15	Tour et al.	2015	Malaysia	1002	discretionary accruals	Audit institute size	Lack of significant relationship	t	-0.815
16	Al-Rassas	2015	Malaysia	508	discretionary accruals	Auditor independence	Negative and significant relationship	t	-2.38
17	Iyanlu	2013	Italy	147	Unusual accruals	Auditor independence (Non-audit services)	Positive and significant relationship	t	3.49
18	Tourman	2007	Malaysia	548	discretionary accruals	Audit institute size	Lack of significant relationship	t	0.400
						Auditor independence	Negative and significant relationship		-2.094
19	Chandrasgram et al.	2013	Malaysia	153	discretionary accruals	Audit institute size	Lack of significant relationship	p-value	0.958
						Auditor independence	Lack of significant relationship		0.778
20	Peterson	2017	Africa	347	Profit smoothing	Audit institute size	Lack of significant relationship	t	1.38
21	Hog et al.	2015	India	7308	smoothing	Audit institute size	Negative and significant relationship	t	-4.10
22	Frankel et al.	2002	U.S.A	3074	Profit management	Non-audit services	Lack of significant relationship	Significance level	0.07

Source: researcher’s findings

### 5.1 Statistical Description of Variables

The average effect size calculated for different studies in this study is 0.166, which is considered as a relatively average effect size; also, to investigate the publication bias, a funnel sample was drawn

by the comprehensive meta-analysis software; in this study, it can be said that the publication bias has been minimized, so the statistical results are significant and reliable.

## 5.2 Results of Research Findings

The results of performing meta-analysis on the whole statistical sample, including internal and external studies, are reflected in separate tables. In the meta-analysis approach to test the research hypotheses, first the effect size heterogeneity test is justified in order to determine the type of meta-analysis model used to test the considered hypothesis. If the data is homogeneous, the fixed effects pattern is used, and if it is heterogeneous, the random effects pattern is used, the results of which are presented in Table 3:

**Table 3:** Effect size heterogeneity test

Test result	Effect size heterogeneity test			relationship between independent and dependent variables	hypothesis
	I2 value	Significance level	Q statistic		
Random effects	80.58	0.000	41.19	Auditor independence and profit quality	Sub. 1
Random effects	89.01	0.000	191.08	Auditor rotation (auditor tenure) and profit quality	Sub. 2
Random effects	82.26	0.000	95.83	Auditor size and profit quality	Sub. 3
Random effects	79.19	0.008	9.61	Provide non-audit services by the auditor and profit quality	Sub. 4
Random effects	82.26	0.000	22.55	fee paid to the auditor and profit quality	Sub. 5
Random effects	78.53	0.000	27.95	Auditor expertise in industry and profit quality	Sub. 6

Source: researcher's findings

In Table 3, the Q statistic value for all variables is larger than the value of the table and the significance level of Q test is less than the significance level of 0.05. However, since this index is sensitive to increasing the number of effect size, and with increasing the number of effect sizes, the power of this test to reject homogeneity increases, so I square is another index that is used for this purpose; a I2 value for the considered variables is greater than 75%, indicating that the effect size heterogeneity is relatively high; Therefore, hypothesis zero is rejected and hypothesis one on the effect size heterogeneity of the mentioned variables is confirmed; therefore, due to the heterogeneity, a random effects model is used to estimate the effect size of these variables; considering that after reviewing the meta-analysis assumptions, it was concluded that the random effect model should be used to combine the results to report the effect size, so in Table 4, the effect size report of the studies performed in the random model is presented.

In the following, the results obtained from the use of meta-analysis models including point estimation (average based on sample size weighting) and interval estimation (confidence interval), effect size of studies along with test statistics and significance level in Table (5) are presented. In Table (5), out of 50 articles, 3 cases equal to 6% was in the lower class, 42 cases equal to 84% in the middle class and finally 5 cases equal to 10% in the upper class; therefore, the size of the effect obtained in the first interval (i.e. less than 0.1) is small and the study hypothesis is not strong enough. Also, when the value of r is in the second interval (i.e. between 0.1 and 0.3), the effect size is moderate, and finally, when the value of r is in the third interval, the intensity of the effect is evaluated as high. According to this classification, 84% of the size of the effects is evaluated in the middle group; therefore, it can be said

that based on the results of meta-analysis, the auditor's characteristics and profit quality had a moderate relationship.

**Table 4:** Research Sub-Hypotheses Test Based On Fixed or Random Effects Pattern

hypothesis	Relationship between variables	Average weight size of effect	Effective size confidence interval	Z statistic	significance	result
1	Auditor independence and profit quality	0.214	(0.097 and 0.326)	3.55	0.000	confirm
2	Auditor rotation (auditor tenure) and profit quality	-0.208	-0.254 - 0.160)	-8.35	0.000	confirm
3	Auditor size and profit quality	-0.172	-0.225 and- 0.118)	-6.12	0.000	confirm
4	Providing non-audit services by the auditor and profit quality	0.089	(-0.551 and 0.226)	1.24	0.213	reject
5	fee paid to the auditor and profit quality	-0.347	-0.123 and -0.538)	-2.97	0.003	confirm
6	Auditor expertise in industry and profit quality	-0.232	(-0.099 and - 0.356)	-3.39	0.001	confirm

Source: researcher’s findings

**Table 5:** Frequency Distribution of Effect Size Classes of Variables

Amplitude of effect intensity change	frequency	Frequency percentage
(Low effect intensity (less than 0.1 or greater than -0.1	3	0.06
(Moderate effect intensity (between 0.1 to 0.3 or between -0.1 to -0.3	42	0.84
(High impact intensity (greater than 0.3 or less than -0.3	5	0.10
Sum.	50	100

Source: researcher’s findings

**5.3 Investigation of Research Hypotheses**

To examine the main hypothesis of the research, we examine the related sub-hypotheses, the results of which are shown in Table 7.

**5.3.1 the First Sub-Hypothesis of the Research**

The results of meta-analysis of the first sub-hypothesis of the research are presented in Tables 6 and 7.

**Table 6:** Effect Size Heterogeneity Test

Hypothesis name	relationship between independent and dependent variables	Effect size heterogeneity test			Test result
		Q statistic	Significance level	I2 value	
Sub.1	Auditor independence and profit quality	41.19	0.000	80.58	Random effects

**Table 7:** effect size Average and confidence interval

hypothesis	Relationship between variables	Weight average of effect size	effect size confidence interval	Z statistic	Significance level	result
Sub. 1	Auditor independence and profit quality	0.214	(0.097 and 0.326)	3.55	0.000	con-firm

Source: researcher’s findings

In Table 6, 9 studies selected the auditor's independence as a characteristic of the auditor and examined its relationship with profit quality, the results of their meta-analysis is shown in Tables (4-4 and 5-4). The positive confidence interval reported from this number of studies (0.326 and 0.097) as well as the

positive number, mean Z indicates a significant positive relationship between auditor independence and profit quality. Homogeneity test between studies with a value of 41.19 shows a lot of heterogeneity.

### 5.3.2 Second sub-hypothesis of the research

The results of meta-analysis of the second sub-hypothesis of the research are presented in Tables 8 and 9.

**Table 8:** Effect Size Heterogeneity Test

Hypothesis name	relationship between independent and dependent variables	Effect size heterogeneity test			Test result
		Q statistic	Significance level	I2 value	
Sub. 2	Auditor rotation (auditor tenure) and profit quality	191.08	0.000	89.01	Random effects

**Table 9:** Average Effect Size and Confidence Interval

Hypothesis name	relationship between variables	Effect size weight average	effect size confidence interval	Z statistic	Significance level	Hypothesis result
Sub. 2	Auditor rotation (auditor tenure) and profit quality	-0.208	(-0.254 and -0.160)	-8.35	0/000	confirm

Source: researcher’s findings

Also, 22 cases selected the auditor rotation (auditor tenure) as a feature of the auditor and examined its relationship with profit quality which the results of their meta-analysis are presented in Tables (4-4 and 5-4). The positive confidence interval reported from this number of studies (-0.160 and -0.254) as well as the negative number, mean Z indicates a significant negative relationship between auditor rotation (auditor tenure) and profit quality. The homogeneity test between studies with a value of 191.08 shows a large heterogeneity.

### 5.3.3 Third sub-hypothesis of research

The results of meta-analysis of the third sub-hypothesis of the research are presented in Tables (10) and (11):

**Table 10:** Effect size heterogeneity test

hypothesis	Relationship between independent and dependent variables	Effect size heterogeneity test			result
		Q statistic	Significance level	I2 value	
Sub. 3	Auditor size and profit quality	95.83	0.000	82.26	Random effects

**Table 11:** effect size Average and confidence interval

Hypothesis name	Relationship between variables	Effect size weight average	effect size Average confidence interval	Z statistic	Significance level	result
Sub. 3	Auditor size and profit quality	-0.172	(-0.118 and -0.225)	-6.12	0.000	confirm

Source: researcher’s findings

18 studies selected the size of the auditor as a feature of the auditor and examined its relationship with profit quality, the results of their meta-analysis are presented in Tables (4-4 and 5-4). The positive

confidence interval reported from this number of studies (-0.118 and -0.225) as well as the negative number, mean Z indicates a significant negative relationship between auditor size and profit quality. Homogeneity test between studies with a value of 95.83 shows a lot of heterogeneity.

**5.3.4 Fourth sub-hypothesis of the research**

The results of meta-analysis of the fourth sub-hypothesis of the research are presented in Tables 12 and 13.

**Table 12:** Effect size heterogeneity test

hypothesis	relationship between independent and dependent variables	Effect size heterogeneity test			Test result
		Q statistic	Significance level	I2 value	
Sub.4	Providing non-audit services by the auditor and profit quality	9.61	0.008	79.19	Random effects

**Table 13:** effect size Average and confidence interval

Hypothesis name	relationship between variables	Effect size weight average	effect size Average confidence interval	Z statistic	Significance level	result
Sub. 4	Providing non-audit services by the auditor and profit quality	0.089	(-0.051 and 0.226)	1.24	0.213	reject

Source: researcher’s findings

Three studies selected the non-audit services provided by the auditor as a characteristic of the auditor and examined its relationship with profit quality which the results of their meta-analysis are presented in the tables. The positive confidence interval reported from this number of studies (0.226 and -0.051) as well as the positive number, mean Z indicates a positive and non-significant relationship between non-audit services provided by the auditor and profit quality; therefore, this hypothesis is also rejected; the homogeneity test between studies with a value of 9.61 shows a large heterogeneity.

**5.3.5 Fifth Sub-Hypothesis of the Research**

The results of meta-analysis of the fifth sub-hypothesis of the research are presented in Tables (14) and (15):

**Table 14:** Effect size heterogeneity test

hypothesis	relationship between independent and dependent variables	Effect size heterogeneity test			Test result
		Q statistic	Significance level	I2 value	
Sub.5	Fee paid to the auditor and profit quality	22.55	0.000	82.26	Random effects

**Table 15:** Effect Size Average and Confidence Interval

Hypothesis name	relationship between variables	Effect size weight average	effect size Average confidence interval	Z statistic	Significance level	result
Sub. 5	Fee paid to the auditor and profit quality	-0.347	(-0.538 and -0.123)	-2.97	0.003	confirm

Source: researcher’s findings

5 studies selected the fee paid the auditor as a characteristic of the auditor. The positive confidence interval reported from this number of studies (-0.123 and -0.538) as well as the negative number, mean Z indicates a negative and significant relationship between fee paid to the auditor and profit quality;

the homogeneity test between studies with a value of 22.55 shows a relatively large heterogeneity.

### 5.3.6 Sixth Sub-Hypothesis of Research

The results of meta-analysis of the sixth sub-hypothesis of the research are presented in Tables 16 and 17.

**Table 16:** Effect Size Heterogeneity Test

hypothesis	relationship between independent and dependent variables	Effect size heterogeneity test			Test result
		Q statistic	Significance level	I2 value	
Sub.6	Auditor expertise in industry and profit quality	27.95	0.000	78.53	Random effects

**Table 17:** Effect Size Average and Confidence Interval

Hypothesis name	relationship between variables	Effect size weight average	effect size Average confidence interval	Z statistic	Significance level	result
Sub. 6	Auditor expertise in industry and profit quality	-0.232	(-0.356 and -0.099)	-3.39	0.001	confirm

Source: researcher’s findings

**Table 18:** Research grouping based on criteria for calculating auditor characteristics

Auditor characteristic	Related researches
Auditor independence	Nasirzadeh; Al-Zawi; Hamdan; Day; Jahmani; Augustine; Al-Rassas; Ianloo and Chandrasgram
Auditor rotation	Mehrani, Piri; Jahanshad; Khorramabadi; Khalilizadeh; Khajavi, Safarzadeh, Kashanipour; Karami; Vakili, Alavi; Jabarzadeh; Azizkhani; Shams al-Dini; Taghizadeh; Suparsono; Sylvester Al-Zawi; Leung; Kramer; Augustine and Goole
Auditor size	Mehrani; Salehi; Safarzadeh; Maroof; Vakili; Jabbarzadeh; Shams al-Dini; Hussaini ; Suparsono, Al-Zawi;, Anna Paula; Hamdan; Hamdan, Jahmani, Noor; Norman); Chandrasgram and Petersen
Non-audit services	Day and Ianloo and Huak
Auditor fee	Khoshkar; Rajabi; Ramezani; Khodadadi and Hamdan
Expertise in industry	Safarzadeh, Maroof; Etemadi; Aghaei, Suparsono; Rasim and Al-Zawi

Source: researcher’s findings

**Table 19:** research grouping based on profit quality calculation criteria

Profit quality criteria	Related researches
Accruals quality	Piri Khoramabadi, Khoshkar, Rajabi,Ramezani, Safarzadeh, Maroof, Vakili, Alavi, Etemadi, Aqayi, Jabarzadeh, Shams Al-dini, Taqi zadeh, Soparsoto, Sylvester, Rasmin , Al-Zawi, Atapaula (), Leong), Dey, Jahmani , Agastin),Goul, Tour, Al-Rassas, Iyanlu, Tourman, Chandrasgram
Profit stability	Khalilizadeh; Salehi; Safarzadeh; Khodadadi; Shams al-Dini; Suparsono
Profit predictability	Mehrani Safarzadeh Azizkhani Hosseini Vesoparsono
Profit smoothing	Safarzadeh and Peterson and Khodadadi et al
Profit timeliness	Safarzadeh and Dey and Faramkal et al
conservatism	Mehrani Jahanshad; Khalilizadeh Khajavi,Safarzadeh), Kashanipour; Karami; Nasirzadeh; Vakili Fard; Hamdan; Hamdan and Kramer

Source: researcher’s findings

Also 7 studies selected the auditor expertise in industry and profit quality as a characteristic of the auditor and examined its relationship with profit quality which the results of their meta-analysis are presented in the tables (4-4 and 5-4). The positive confidence interval reported from this number of studies (-0.099 and -0.356) as well as the negative number, mean Z indicates a negative and significant relationship between the auditor expertise in industry and profit quality; homogeneity test between studies with a value of 27.95 shows a lot of heterogeneity. In the following, in Tables (18) and (19), the research is grouped based on the criteria for calculating the characteristics of the auditor and the



quality of profit. Regarding the main hypothesis of the research, the results of 50 studies on the relationship between auditor characteristics and profit quality indicate that these studies are heterogeneous. Therefore, by combining documented correlation statistics in this research, no specific conclusion can be reached about the existence and extent of such a relationship. Thus, in order to identify the cause of this heterogeneity, we can investigate this issue by dividing the researches based on different criteria of the auditor's characteristics and calculating the analysis of intergroup variance. Therefore, to test the main hypothesis of the research and examine whether this criterion of classification, i.e. different criteria for measuring the profit quality is a factor moderating the relationship between the two main variables of research (auditor characteristics and profit quality) or not; the statistical value obtained from the intragroup and intergroup homogeneity test is calculated and presented. The results of the homogeneity test of the main hypothesis subgroups are shown in Table 20.

**Table 20:** Results of the homogeneity test of the main hypothesis subgroups

index	sum of squares	F statistic value	Significance level
intergroup	77.44	1.35	0.254
intragroup	662.2		

Source: researcher's findings

As can be seen in Table 20, the value of the intragroup homogeneity test is non-significant; therefore, the different criteria used in the research have been one of the factors of contradiction in the research results; therefore, the studies within the classes are homogeneous and the researcher has done well in identifying key variables (i.e. auditor independence, auditor rotation (auditor tenure), auditor size, providing non-audit services; auditor paid fees and auditor expertise in the industry) and the second main hypothesis of the research is confirmed.

## 6 Discussion and conclusion

The present study seeks to meta-analyze the characteristics of the auditor and the profit quality. Finally, the results of the main hypothesis of the research showed that different criteria of auditor characteristics moderate the relationship between auditor characteristics and profit quality and there is a significant relationship between auditor independence and profit quality; there is also a significant relationship between auditor rotation and profit quality, auditor size and profit quality, non-audit services provided by the auditor and profit quality, between fee paid to auditor and profit quality and between auditor expertise in industry and profit quality and the main research hypothesis also confirmed. Research evidence generally suggests that the factors that measure the characteristics of the auditor have been able to play an important role in changing the quality of companies' profits. In this regard, Safarzadeh (2014) and Moradi and Arab (2017), using the information of 73 companies listed on the Tehran Stock Exchange during 2011-2015 showed that the auditor's characteristics are effective in improving profit quality which is in line with the results of the present study. The results are in accordance with the research of Reguera et al. and Aqayi and Nazemi Ardakani who showed that there is an inverse relationship between the auditor's expertise in industry and the management of discretionary accruals. In addition, Song et al. showed that the expertise of audit committee has a significant relationship with profit quality which is in line with the results of the present study.

According to the research hypotheses, it is suggested to the stock exchange organization to adopt rules and regulations to determine the real value of companies, transparency of information and better understanding of performance, which as much as possible during the many years use existence of high-quality auditors to audit financial statements. In addition, one of the necessary measures is to

more emphasize and control of the stock exchange organization and the auditing organization as a reference for compiling accounting standards on the phenomenon of accounting information quality and also profit quality. Investors and creditors, as external users, are also suggested to pay attention to the profit quality phenomenon when using financial statements to decide to invest in corporate stocks or sell stocks; in addition, investors can benefit from the reliable results of meta-analytic researches to assess the inherent risk of accounting information when making securities trading decisions. This research provides an integrated view for the audiences while providing a clear view of the reasons for the contradictions around the different criteria of auditor characteristics. Researchers are suggested to investigate the following topics in their future researches:

From a more comprehensive perspective, examine the role of items such as the history of the audit firm, the competitive environment of the audit services market, the nature of the audit firm's partners and the quality rating of the audit firms along with other common characteristics used in terms of profit quality [27-30]. Due to the role of changes in the economic and business environment and the activities of companies in various industries that are not focused on in the present study, it is recommended to researchers to consider additional organizational conditions, competitive environment and economic status, and conduct coherent additional researches. Meta-analysis of the impact of audit committee features on profit management. Conducting additional researches focusing on the effectiveness of the performance and characteristics of the audit committee along with the characteristics of the auditor to increase profit quality and conducting additional researches focusing on the effectiveness of internal controls and attention to control weaknesses along with the characteristics of the auditor to increase the profit quality.

## Resources

- [1] Albedal, F., Hamdan, A., Zureigat, Q., *Audit Committee Characteristics and Earnings Quality: Evidence from Bahrain Bourse*, 2020. Doi: 10.4018/978-1-5225-9607-3.ch002.
- [2] Al-Rassas, A.H., and Kamardin, H., *Directors' independence, internal audit function, ownership concentration and earnings quality in Malaysia*, Asian Social Science, 2015, **11**(15), P. 244-256. 122980. Doi: 10.1016/j.physa.2015.122980
- [3] Braua, A., *Using the FASB qualitative characteristics in earning quality measures*, pro Quest information and learning company, UMI number, 2006, P..320-8143. Doi:10.1016/j .jclepro.2006.118557
- [4] Defond, P., skinner. D., *Earnings management:reconciling theviewsofaccountingacademics, practitionersandregulators*. AccountingHorizons. 2000, P.235-250. Doi: 10.15722/JDS .17.9.201909.103
- [5] Dehdar, F., *The Impact of the Audit Committee and Audit Quality on Profit Management Prevention*, Quarterly Journal of New Researches in Management and Accounting, 2016, **16**(1), P.1-11. Doi:10.15722/JDS.17.9.201609.103
- [6] Francis, J., Olsson, P., Schipper, K., *Costs of equity and earnings attributes*, The Accounting Review, 2006, **79**(1), P.967-1010.
- [7] Goran, F., Ghanbari, M., *Investigating the Impact of Audit Quality on Profit Quality, Fourth National Conference on Management*, Economics and Accounting, Tabriz: East Azerbaijan Industrial Management Organization, University of Tabriz.2016.

- [8] Hajiha, Z., Subhani, N., *Investigating the effect of auditor expertise in industry on capital cost and interest rate of borrowing companies listed on Tehran Stock Exchange*, Accounting and Management Auditing Knowledge, 2012, **1**(3), P.35-46. Doi:10.22103/jak.2012.523
- [9] Hamilton, J., Ruddock, C., Stokes, D., Taylor, S., *Audit Partner Rotation, Earnings Quality and Earnings Conservatism*, Working Paper, School of Accounting, University of New South Wales, Australia.2011.
- [10] Heydari, M., Narenji, M., *The Effect of Audit Committee Effectiveness on Timeliness of Financial Reporting*, M.Sc. Thesis, Razi University, Faculty of Social Sciences.2016.
- [11] Hogan, C. E., Wilkins. M. S., *Evidence on the audit risk model: Do auditors increase audit fees in the presence of internal control deficiencies?* Contemporary Accounting Research, 2008, **25**(1), P. 219-242.
- [12] Ianniello, G. J., Manag Gov., *The effects of board and auditor independence on earnings quality: evidence from Italy*, Journal of Management and Governance, 2015, **19**(1), P. 229–253.
- [13] Khalilov, A., Garcia, O., Beatriz., *Accounting Conservatism And The Profitability Of Corporate Insiders*, Doi:10.2139/SSrn.3362468.
- [10] Lin, J.W., Li, J.F., Yang, J.S., *The effect of audit committee performance on earningsquality*, Managerial Auditing Journal, 2006, **21**(9), P. 921-933.
- [11] Liu, M. C., Tiras, S. L., Zhuang, Z., *Audit committee accounting expertise, expectations management, and nonnegative earnings surprises*, Journal of Accounting and Public Policy, 2014, **33**(2), P. 145-166.
- [12] Mehrani, S., Moradi, M., Nakhai, M., Motma'en, M., *The role of auditor characteristics in profit quality*, Financial Accounting Research, 2013, **5**(2), P. 93-108.
- [13] Moradi Shahkooh, Z., Arab, R., *Investigating the relationship between the characteristics of the audit committee and profit quality in companies listed on the Tehran Stock Exchange*, National Conference on New Accounting and Management Research in the Third Millennium, Karaj: Conference Secretariat.2017.
- [14] Moradi, M., Safarpour, M., Nik Toreh Monfared, S., *Relationship between profit quality and auditing fee with dividend policy of companies listed on the Tehran Stock Exchange*, Accounting and Management Perspective, 2019, **2**(12), P.1-16. Doi: 10.1016/j.iref. 2019.06.003.
- [15] Mosalla, M., Pirayesh, R., Mozaffari, S., *Factors Affecting the Profit Quality of Pharmaceutical Companies Listed on the Tehran Stock Exchange*, Quarterly Journal of New Research Approaches in Management and Accounting, 2020, **4**(29), P.60-76.
- [16] Mustafa, S.T., Youssef, N.B., *Audit committee financial expertise and misappropriation of assets*, Managerial Auditing Journal, 2010, **25**(3), P.208-225.
- [17] Namazi, M., Bayazidi, A., Jabbarzadeh Kangarloui, S., *Investigating the relationship between audit quality and profit management*, Journal of Accounting and Auditing Researches, 2010, **9**(1), P. 1-9.
- [18] Phil Sarai, M., Rouhani, S., *Investigating the Impact of Auditor Characteristics on Profit Quality and Company Performance*, 2nd International Conference on Management and Information and Communication Technology, Tehran: Bartar Services Company, 2016.

- [19] Piri, P., Barzegari Sedghiani, S., *Investigating the relationship between auditor tenure and change with the profits quality of companies listed on the Tehran Stock Exchange based on the Kasnik model*, accounting advances, 2016, **2** (consecutive 3.71).
- [20] Romano, R., *The Sarbanes-Oxley Act and the making of quack corporate governance*, Yale Law Journal, 2005, **114**(7), P.1521–1612. Doi:10.22034/AMFA.2019 .583911.1172.
- [21] Sae-Lim, Patipan, Jermstittiparsert, Kittisak, *Audit Committee and Earnings Quality*, 2019, **6**(2), P. 335-347.
- [22] Safarzadeh, M. H., *The role of auditor characteristics in improving profit quality*, financial accounting knowledge, 2014, **1**(3), P.85-106.
- [23] Soliman, M.M., and Ragab, A.A., *Audit committee effectiveness, audit quality and earnings management: an empirical study of the listed companies in Egypt*, Research Journal of Finance and Accounting, 2014, **5**(2), P. 155-166. Doi:101610. 10.1016/j.frl.20140. 101610.
- [24] Song, B., Chen. S., Komal, B., *Audit committee financial expertise and earnings quality: A meta-analysis*, Journal of Business Research, 2018,**84** (c), P.253-270. Doi:10.22034/ AMFA.2018.576127.1118.
- [25] Torabi Nejad, E., *Investigating the effect of auditor tenure and size on profit quality*, Ministry of Science, Research and Technology, Shahid Bahonar University of Kerman, Faculty of Management and Economics.2012.
- [26] Yunos, R.M., *The effect of ownership concentration, board of directors, audit committee and ethnicity on conservative accounting: Malaysian evidence*, Doctoral dissertation, Edith Cowan Universit.2011.
- [27] Izadikhah, M., *A Fuzzy Goal Programming Based Procedure for Machine Tool Selection*, Journal of Intelligent & Fuzzy Systems, 2015, **28**(1), P. 361-372, Doi: 10.3233/IFS-141311
- [28] Izadikhah, M. *Financial Assessment of Banks and Financial Institutes in Stock Exchange by Means of an Enhanced Two stage DEA Model*. *Advances in Mathematical Finance and Applications*, 2021, **6**(2), P. 207-232. Doi: 10.22034/amfa.2020.1910507.1491
- [29] Zanjirdar, M., *Overview of Portfolio Optimization Models*. *Advances in Mathematical Finance and Applications*, 2020. **5**(4), P.419-435. Doi: 10.22034/amfa.2020.674941.
- [30] Zanjirdar, M., Kasbi, P., Madahi, Z., *Investigating the effect of adjusted DuPont ratio and its components on investor & quot; s decisions in short and long term*, Management Science Letters, 2014, **4**(3), P.591-596. Doi: 10.5267/j.msl.2014.1.003