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In the Name of God, the Compassionate, the Merciful

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Structure of second page until the end of manuscript is as follow:

- *Introduction* Some paragraphs contain explaining the problem, literature review, object (purpose), importance and necessity of it.
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- *Results* including the findings compare it with the findings of previous and interpretation of compliance or inconsistency of findings with research findings and theories.

- *Conclusion* includes a summary of the problem, provide a summary of the results and overall conclusion and recommendations based on the results (policy recommendations is necessary only in applied research and, if necessary, recommendations for future research accordant with the research limitations or how development of current research;
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Editor's Note

I am pleased to announce that the Ferdowsi University of Mashhad is publishing Iranian Journal of Accounting, Auditing & Finance (IJAAF). On behalf of the board of the IJAAF and my co-editors, I am glad to present the Volume 1, Issue 1 of the journal in December 2017; the journal will publish four issues in a year. The board includes experts in the fields of accounting, finance and auditing, all of whom have proven track records of achievement in their respective disciplines. Covering various fields of accounting, *IJAAF* publishes research papers, review papers and practitioner oriented articles that address significant issues as well as those that focus on Asia in particular. Coverage includes but is not limited to:

- Financial accounting
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Perspectives or viewpoints arising from regional, national or international focus, a private or public sector information need, or a market-perspective are greatly welcomed. Manuscripts that present viewpoints should address issues of wide interest among accounting scholars internationally and those in Asia in particular.

Yours faithfully,
Mahdi Moradi
Editor in Chief

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Quarterly

RESEARCH ARTICLE

Audit Committee Characteristics and Sustainable Growth Among Selected Listed Non-Financial Firms in Nigeria

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Abstract

Sustainable growth involves a situation where growth is witnessed with no increase in assets, equity issuance and liabilities. An effective corporate governance mechanism, especially the audit committee, is needed to achieve an optimum sustainable growth rate. The influence of audit committee characteristics on the manufacturing firms' sustainable growth during the financial crisis cannot be overemphasized. Hence, this study was carried out to investigate the influence of audit committee characteristics on the sustainable growth rate of non-financial firms in Nigeria. The study population was listed as manufacturing companies on the Nigerian Stock Exchange (NSE). A sample size of 60 manufacturing firms was selected using a purposive sampling technique and content analysis, covering ten financial years (2011 to 2020). The results showed that audit committee size, audit committee independence and audit committee financial expertise were positively and significantly associated with sustainable growth rate. The study was anchored on agency theory because it showed that effective audit committee characteristics greatly contributed to the overall companies' goal congruence. From the foregoing, the study recommended that an audit committee should be large, with a great sense of independence and professionalism to make non-financial companies attain sustainable growth.

Keywords:
Audit Committee, Audit Committee Meeting, Audit Committee Size, Sustainable Growth

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1. Introduction

The business environment all over the world is fragile and prone to uncertainties. These uncertainties are caused by the happenings like the global economic meltdown of 2008, the Covid-19 pandemic of 2019, the climate change, and the present tussle between Russia and Ukraine. During these periods of uncertainties, businesses find it difficult to get more patronage, sales expansion and access to external sources of finance. Why? Whenever there is uncertainty, investors' confidence is washed away; people purchasing power is affected negatively. Despite all these odds, companies must strive for survival because they are expected to operate perpetually. Sustainable growth is required to bail firms out of these problems. Corporate sustainable growth is the paramount stage at which a company can boost its revenue without degradation its financial ability (Nor et al., 2020; Adebayo et al., 2021). Companies are faced with serious problems like difficulty in raising additional funds through the issuance of shares and low accessibility to debts during periods of uncertainty. Sustainable growth aids the companies to be able to managing their internal resources to run their operational affairs smoothly.

Adebayo et al. (2021) posited that good corporate governance is responsible for making a sound policy relating to a business's long-term growth. This implies that sustainable growth cannot be achieved without the intervention of corporate governance mechanisms, especially audit committee effectiveness. Audit committee features are regarded as the most important corporate governance characteristics (ElHawary, 2021) simply because of their roles after the demise of Enron, Worldcom, Tyco, and Toshiba. It is widely believed that the firms' sudden death resulted from the audit committee's ineffectiveness (Bajra and Cadez, 2018). The shattered/shredded confidence of the investors can be restored and protected by the effectiveness of audit committee qualities. In restoring and protecting the confidentiality of the investors, companies will be able to expand in their sustainable performance, in the sense that if it is not possible to gain more investors during the hard times, they will be able to retain the old ones. Like Badawy (2020), a study has established that effective audit committee qualities promote firms' sustainability growth.

Studies have been carried out linking corporate governance with corporate sustainability growth. Badawy (2020) investigated the link between audit committee effectiveness and corporate sustainable growth; Adebayo et al. (2021) assessed the link between board characteristics, ownership concentration and corporate sustainability growth. The previous findings on corporate governance and sustainable growth are scanty, and it shows an absence of findings in this area. Hence, the objective of this study is to investigate whether audit committee characteristics exert any influence on the sustainable growth of listed non-financial firms in Nigeria. The justification for this study is that non-financial firms' contribution to the economic growth of Nigeria is enormous. In terms of employment opportunities, corporate social responsibility and revenue generation for the government, they are always in front. These firms must not go into liquidation. They have to be enlightened on how to use their internal sources of funds to shoulder their operational activities whenever there is a problem accessing the external sources of funds.

2. Literature Review

2.1. Concept of Sustainable Growth

Corporate sustainable growth is a concept coined to explain the optimal growth of quoted firms. A company's growth has to be moderate; it must not be too enormous and at the same time, it must not be deficient. The sustainable growth rate is the term used to measure the sustainable growth of firms. According to Higgins (1977), Mukherjee and Sen (2019), and Adebayo et al. (2021), a sustainable growth rate is a long-run growth attained by a company by using its internal sources of finance in the period when there is a scarcity of external sources of finance. Higgins's (1977) model

is adopted in this study to calculate the sustainable growth rate of sampled non-financial firms because it incorporates return on equity and retention ratio into the formula of its model. These two elements – return on equity and retained earnings – basically deal with the internal source of finance. The importance of a sustainable growth rate is tremendous and gaining more popularity because it combines firms' operating and financial aspects. This fact has made it a reliable financial performance measurement tool (Rahim, 2017).

There are four (4) determinants of sustainable growth rate: the margin of profit, the turnover of net assets, the policy relating to finance, and the dividend decision (Amouzesh, Moenifar and Mousavi, 2011). Enhancing these four (4) factors improves the sustainable growth rate by accumulating internal sources of finance accrued to a firm.

2.2. Audit Committee Characteristics

The audit committee is a subcommittee of the board of directors, runs by a certain number of people elected by the board of directors. This committee plays a critical role in putting the company's performance in good shape via its monitoring function. The audit committee (AC) is a set of people required to be organized by amended provision S359 of the Company and Allied Matter Acts (CAMA, 2020). In addition to the act, the Nigerian Corporate Governance Code (2018) also made it mandatory for firms to have an audit committee. The committee is referred to a set of people in an organization selected to discharge an oversight function on the company's accounting and internal control processes. Its establishment aims to help the Board of Directors and the company owners discharge their responsibilities for oversight of the internal control system, risk management, statutory audit function and financial reporting (Krishnan, 2005). The act stipulates that the composition of AC should be of an equal number of directors and representatives of the company's shareholders. The external auditors must report to them, and the committee is responsible for reviewing the submitted reports and making any necessary recommendations to the stakeholders at the Annual General Meeting (AGM).

AC characteristics include AC size, independence, diversity, experience, meeting, and AC meeting (Alqatamin, 2018; Badawy, 2020). Also, according to Mohiuddin and Karbhari (2010), for AC to positively influence a company's financial statements and simultaneously execute its duty of agency, it must portray some traits: independence, experience relating to finance, membership diversity, size and meeting frequency. The effectiveness of AC, proxied by its characteristics, will, without any doubt, have a positive effect on the company's sustainable growth by elevating the level of the firm's responsibility to its host environment and improvement on the extent of transparency as an outcome of the soundness in the internal control together with the internal audit.

2.2.1. Audit committee size

The AC size in Nigeria is specified to be five (5) members (CAMA, 2020). The Act does not state the committee members' minimum size. Nevertheless, previous studies hammered on a minimum of three (3) members (Al-Sa'eed and Al-Mahamid, 2011; Badawy, 2020). Some reasons are attached to advocating for a larger committee size, as posited by previous studies like Bedard, Chtourou and Courteau (2004) and Karamanou and Vafeas (2005). One, a large AC can perform an effective oversight function. Two, when the AC size is large, management will not be able to override it. In the Nigerian context, the committee members should represent the management and owners equally. However, the larger size of the AC is prone to communication setbacks, which can let it to lose its focus and consequently reduce its quality (Alqatamin, 2018; Tai, Lai and Yang, 2018).

Despite this defect, which the larger size AC suffers from, it is preferable to the smaller size

because the latter is confronted with the problem of non-availability of expertise, which will disturb it from discharging its duty with the utmost good faith (Ayemere and Elijah, 2015; Alqatamin, 2018). Meanwhile, the size of AC is expected to positively influence long-term growth due to its ability to deliver on the oversight functions at its disposal in both internal control and internal audit. This is supported by the resource dependency theory, which states that a larger AC improves the audit committee's effectiveness due to the abundance of expertise in the committee.

2.2.2. Audit committee independence

AC independence is a concept used to explain a condition whereby any member of AC is not found performing the duty of executive director. AC independence is the non-existence of any association with an organization that may tamper with the pursuit of their freedom from both the management and the company (Blue Ribbon Committee, 1999). To carry out its role effectively, the independence of AC members is mandatory. This will allow the committee to be unbiased in paying attention to the financial reporting process. AC objectivity will drastically minimize the agency face-off between the shareholders and the executives (Alqatamin, 2018; Badawy, 2020). In addition, being independent will help the AC committee to alleviate the extent of abnormal accruals, which will prevent manipulation and errors of management (Klein, 2002); enhance internal control and internal audit quality (Krishnan, 2005; Zaman and Saren, 2013), and the disclosure of corporate social responsibility, which will aid a company to maintain its sustainable growth through gaining a good reputation (Appuhami and Tashakor, 2017).

Moreover, AC's independence gives more power to audit committee formation, which will aid it in addressing the problem of the agency and the possibility of an insider's expropriation (Yeh, Chung and Lie, 2011; Hamid, Othaman and Rahim, 2015). The audit committee's ability to address the agency's problem and insiders' expropriation is due to its independence, which prevents the committee from exerting any influence over management. In that regard, the positive influence of AC on firm performance is expected because independence is the bedrock of AC effectiveness (Kallamu and Saat, 2015).

2.2.3. Audit committee financial expertise

AC members must have experience and expertise in accounting and auditing problems. This will help members become more familiar with financial and operating reports and efficiently carry out their oversight duties (Ayemere and Elijah, 2015). It is generally welcome and very obvious that the outstanding role of AC is to review financial records to enhance their quality. It is necessary, from this perspective, for some of the AC members, if possible, to have accounting and auditing-related skills to boost their performance. Statutorily, at least one member of the AC must be a financial guru (NSE Code, 2011). According to Hamid and Aziz (2012) and Ojeka, Iyoha and Obigbemi (2014), having members that have accounting and financial experience in AC will positively influence financial performance. Previous studies have established that the professionalism of AC members is a determining factor in its effectiveness (Abernathy et al., 2015; Badolato, Donelson and Ege, 2014; Albring, Robinson and Robinson, 2014). The professionalism of AC members gives them the ability to resolve the controversy between the management and the statutory auditor due to their familiarity with the audit process. It also professionalizes them and responds promptly to company changes and innovation (Badolato, Donelson and Ege 2014).

2.2.4. Frequency of audit committee meetings

Among the most critical features of corporate governance implementation is an oversight. In most cases, according to the agency theory, agents are restrained from being involved in

opportunistic behaviour due to adequate monitoring. The oversight function of AC can only be achieved through frequent meetings of the AC. In the countries that have adopted the Anglo-Saxon system of corporate governance, Great Britain and the United States, in particular, the number of meetings is about four (4) to six (6) times per year (Chariri and Januarati, 2017). Furthermore, in Nigeria, AC meetings are scheduled to be held three (3) times a year, as required by the business code of governance. Regular meetings of AC allow it to oversee the control system and the reporting process. This is by the works of Karamanou and Vafeas (2005), Hoque, Rabiul-Islam and Azam (2013). Proper monitoring is accomplished through regular AC meetings, which prevent managers from engaging in opportunistic actions, institute a sound control system, and assists a company in achieving sustainable growth.

2.2.5. Theoretical framework

Agency theory is an outstanding bedrock foundation of corporate governance (Badawy, 2020). Agency rivalry arises in a corporate setting when hired managers neglect the principals' interest in making a corporate decision. The solution to this problem rests with strengthening the monitoring duty of the Audit Committee and the ownership structure (Fama and Jensen, 1983; Badawy, 2020). From this point of view, this study was anchored on agency theory. According to this theory, the Audit Committee, being an essential component of corporate governance, is a strong monitoring mechanism that bridges various actors involved in the financial reporting system. The stakeholders expect that the monitoring and oversight functions of the Audit Committee will provide strong protection to the interests of the various stakeholders.

2.3. Empirical review

In 2020, Badawy found a link between audit committee features and the sustainable growth rate of non-financial companies quoted in Egypt between 2015 and 2019. The data was analysed using a multiple regression approach. The findings revealed a negative association between audit committee size and sustainable growth. The findings also demonstrated a non-negativity significant association between audit committee meetings, independence, and sustainable growth rate. Furthermore, Adegboye et al. (2020) studied the effect of audit committee features on the sustainability of 10 Nigerian quoted banks. The regression method was applied to analyse the data over the sampled period of 2014 to 2016. The results showed that AC's independence and gender diversity had a significant non-negativity influence on the sustainability of the banks. Elhawary (2021) examined the influence of audit committee qualities on firms' performance in Egypt from 2016 to 2018. A multiple regression model was adopted to analyse the data, and the study's outcome was that audit committee size and financial skill were positively and significantly associated with firm performance.

3. Research Methodology

This study covered non-financial quoted companies in Nigeria and cut across eight (8) sectors, namely consumer goods, industrial goods, healthcare, agriculture, oil and gas, conglomerate, service, and natural resources. The total number of non-financial listed companies was one hundred and sixteen as of 2019. The sample size of 65 non-financial quoted companies that covered the eight (8) sectors was purposively selected. The purposive sampling technique was employed to pick

companies listed as of 2011 and was still in existence as of December 2020 based on the availability of published financial data.

Table 1. The Summary of Literature Review

S/N	Author and Year	Country of Study	Purpose of Study	Methodology	Findings
1	Li, Liu and Ren (2015)	China	Investigated the interrelationship between board features and sustainable growth	Multiple regression	The study documented that all the board characteristics except board size were positively and significantly associated with sustainable growth.
2	Mukherjee and Sen (2019)	India	Influence of corporate governance on sustainable growth	Multiple regression	It was documented that board size and board independence positively influenced sustainable growth.
3	Zare, Moeinadin and Heyrani (2014)	Iran	Association between board characteristics and sustainable development	Multiple regression	No association between board features and sustainable growth
4	Sulaiman, Suleiman and Mijinyawa (2017)	Nigeria	Examined the relationship between board characteristics and firm performance	Multiple regression	Board independence and board gender diversity were positively correlated with firm performance, while the size was inversely correlated with firm performance.
5	Ain et al. (2021)	China	Assessment of the influence of the board gender diversity on sustainable growth.	Multiple regression	The female directorship had a positive influence on sustainable growth.
6	Badawy (2020)	Egypt	Investigation of association between audit committee features and sustainable growth rate	Multiple regression	It was recorded that audit committee features except size were positively correlated with sustainable growth rate.
7	Adegboye et al (2020)	Nigeria	Assessment of the influence of audit features on business sustainability disclosure	Regression analysis	Audit committee independence and gender diversity positively and significantly influenced business sustainability, while audit committee magnitude did not.
8	Rahim (2017)	Malaysia	Determination of the association between sustainable growth and firm performance.	Descriptive statistics and multiple regression	It was established that there was a positive relationship between sustainable growth and firm performance.
9	Vasiu and Ilie (2018)	Romania	Determinants of sustainable growth of firms	Descriptive statistics and ratio analysis	It was revealed that the retention ratio greatly impacted sustainable growth.
10	Mukherjee and Sen (2019)	India	Examination of the association between liquidity, profitability, leverage and sustainable growth	Pooled OLS regression analysis	There was a significant positive relationship among the variables.
11	Alhassan and Mamuda (2020)	Nigeria	Ascertainment of a link between ownership concentration and firm financial performance	Multiple regression	There was a positive and significant relationship between ownership concentration and financial performance.

12	Elhawary (2021)	Egypt	Investigation of audit committee qualities on firm performance	Regression analysis	Audit committee size and expertise are positively and significantly associated with firm performance. While other audit committee qualities like independence, the diversity of gender and meeting were impactless on firm performance.

Source: Authors' Compilation (2022)

The outcomes of prior empirical studies such as Amouzesh, Moenifar and Mousavi (2011), Fonseka, Ramos and Tian (2012), Li, Liu and Ren (2015), Mukherjee and Sen (2019) and Nastiti *et al*. (2019) were used to inform the selection of variables. The Board of the Securities and Exchange Commission and the Corporate Affairs Commission advocated a number of corporate governance measures in their 2003 code of best practices, including board composition, the board size, board gender diversity, and ownership concentration (Adebayo et al., 2021). The aforementioned corporate governance procedures were the proxies for measuring corporate governance as the major independent variable.

Table 2. The Measurement of Variables

Dependent Variables	Measurement	Expected Sign
Corporate Sustainable Growth (CSG)	ROE x b/ 1 - (ROE x b) Where, ROE (Return on Equity) = Net Profit/ Total Equity b (Retention Ratio) = PAT - Current Year Dividend/PAT	+
Independent Variables		
AC Expertise	Percentage of audit committee members with finance or accounting qualification	+
AC Meeting	Total number of AC meetings held in a year	+
AC Size	Total number of AC member	+
AC Independence	Number of non-executive directors on the AC	+

Source: Authors' Computation (2022)

3.1. Model specification

Influence of AC attributes on the attainment of sustainable growth

Panel data methodology was used to examine the influence of AC attributes on the attainment of sustainable growth. The model of this objective was adapted from Badawy's (2020) study. The model of the objective is thus:

$SG = \beta 0 + \beta 1ACMEETINGit + \beta 2ACSIZEit + \beta 3ACIit + \beta 4ACFEit + \beta 5LEVRit \beta 6FSIZEit+Uit$……3.3

A priori expectation = $\beta 1, \beta 2, \beta 3, \beta 4, \beta 5 > 0$

4. Result and Discussion of Findings

4.1. Influence of audit committee attributes on the attainment of sustainable growth

Table 3 let us know that the AC meeting (ACMT) and the size of AC (ACSIZE) had a positive relationship with the other independent variables (audit committee financial expertise, audit committee independence, leverage and firm size). Audit committee financial expertise, audit

committee independence and firm size were negatively correlated with leverage. The variables did not violate the multicollinearity rule because none of the correlation coefficients was above the 0.8 benchmarks (Rahim, 2017).

Table 3. The Pairwise Correlation Analysis of the variables

Covariance Analysis: Ordinary							
Correlation							
Probability	**CSG**	**ACMT**	**ACSIZE**	**ACFE**	**ACI**	**LEVR**	**FSIZE**
CSG	1.000						

ACMT	-0.013	1.000					
	0.768	-----					
ACSIZE	-0.011	0.535	1.000				
	0.795	0.000	-----				
ACFE	-0.018	0.391	0.382	1.000			
	0.676	0.000	0.000	-----			
ACI	-0.012	0.437	0.507	0.562	1.000		
	0.766	0.000	0.000	0.000	-----		
LEVR	-0.005	0.087	0.0715	-0.246	-0.262	1.000	
	0.897	0.041	0.096	0.000	0.000	-----	
FSIZE	0.051	0.161	0.336	0.179	0.089	-0.166	1.000
	0.234	0.000	0.000	0.000	0.037	0.000	-----

Source: Authors' Computation (2022).

4.2. Regression estimate of influence of audit committee attributes on sustainable growth

Based on the results of the diagnostics test of the Hausman Test and Breusch-Pagan Lagrange multiplier test, it was discovered that the best fit model was the random effect model, as presented in Table 4 because their probability values were greater than 0.05 and less than 0.05 respectively (p-value = 0.997 and 0.009 respectively). Meanwhile, the null hypothesis was accepted, while the alternative hypothesis was rejected at a 5% significance level. The overall model was free from violating the rules of heteroskedasticity and serial correlation because the results of the Heteroskedasticity LR test and Arellano-Bond Serial Correlation test presented p-values that were greater than 0.05. Furthermore, the Table showed the F-stat value of 39.352 with a p-value of 0.05. This result implied that stimulus variables jointly and significantly explained variations in sustainable growth. The Table further showed the R-square value as 0.654 and adjusted R-square of 0.597, indicating that the independent variables jointly accounted for about 59.7 percent variation in sustainable growth.

Moreover, Table 4 showed that the audit committee's size, independence, financial professionalism and leverage did not only show a positive relationship with sustainable growth but were also significant. Audit committee meetings and firm size exhibited a positive but insignificant relationship with sustainable growth. There was a positive significant relationship between audit committee size and sustainable growth rate ($\beta = 0.046$; t-value = 2.464; p-value < 0.05). The coefficient value indicated that a unit increase in audit committee size would lead to a 5% increase in sustainable growth. This buttress the assumption of resource dependency theory that a larger size of the audit committee will create a chance for a different calibre of people with different backgrounds to be included in the committee formation. The larger the audit committee size, the better the company performance proxied by sustainable growth (Rezaei and Abbasi, 2015; Kallamu and Saat, 2016; Alqatamin, 2018; Orjinta and Evelyn, 2018; Zraiq and Fadzil, 2018; Elhawary, 2021). The result also supported Badawy's (2020) study, but the positive relationship between audit committee size and sustainable growth rate was not significant.

Table 4 also showed that there was a significant positive relationship between audit committee

independence (ACI) and sustainable growth rate (β = 0.0775; p-value < 0.05). The implication is that a 1% increase in audit committee independence will lead to about an 8% increase in the sustainable growth of non-financial firms in Nigeria (Kallamu and Saat, 2016; Orjinta and Evelyn, 2018; Badawy, 2020). Regarding the association between audit committee meetings (ACMT) and sustainable growth rate, the former had a positive but insignificant influence on the latter (β = 0.008; p-value > 0.05). The number of meetings the sampled non-financial firms held varied; some companies' audit committees held their meetings three times in a financial year, some held four, and some held six. The insignificant positive relationship between audit committee meetings and sustainable growth showed that the number of meetings held did not matter. What matters most is the committee's ability to make good decisions during a few meetings. In Nigeria, some happenings disturbed the frequent holding of the audit committee and other meetings. For instance, the petroleum products' subsidy removal crisis of 2011, the EndSars protest of 2021 and the Covid-19 safety precaution protocols affected the frequent meetings.

Moreover, audit committee financial expertise (ACFE) positively associated with sustainable growth rate in a significant way (β = 0.141; p-value < 0.05). A financial expert on a board of audit committees aids financial decisions and deters the management from making a decision that will impair the performance of their firms. Regarding the control variables – leverage and firm size, the former association with sustainable growth was positive and significant (β = 0.007; p-value < 0.05) while the latter relationship with sustainable growth was positive but insignificant (β = 0.119; p-value > 0.05). The effectiveness of the audit committee qualities employed in this study was able to help the sampled non-financial firms use their debts judiciously to sustain their growth. This outcome supported the findings of Elhawary (2021) but was inconsistent with the findings of Alqatamin (2018).

Table 4. The Random Effect Regression Result

Variables	Random Effect Model	
	Coefficient (β)	t-value
ACMT	0.008	1.089
ACSIZE	0.046	2.464*
ACI	0.078	2.191*
ACFE	0.141	2.399*
LEVR	0.007	2.107*
FSIZE	0.119	1.332
C	-0.542	-0.843
Hausman Test (p-value)	0.997	
Breusch-Pagan LM Test (p-value)	0.009	
Heteroskedasticity LR Test (p-value)	0.984	
Arellano-Bond Serial Correlation Test (p-value)	0.377	
R-squared	0.654	
Adj. R-Squared	0.597	
f-value	39.352	
P(f-value)	0.000	

Note: * significant at 5% level of significance Source: Authors' Computation (2022)

5. Conclusion

This research was carried out to investigate the influence of audit committee characteristics (meeting, size, independence and financial expertise) on the sustainable growth of listed firms that are not financial in Nigeria. The study showed that all the proxies of audit committee characteristics – meeting, independence, size and professionalism – were crucial and germane to the long-term viability of non-financial companies in Nigeria. They were all positively associated with the

sustainable growth of the sampled firms. Their association with the growth were also almost significant. The result confirmed the *a priori* expectation of a positive association between the AC and sustainable growth. The study's outcome indicated that audit committee characteristics had a positive and significant relationship with Nigeria's sustainable growth of the selected listed non-financial firms. The results of the finding imply that whenever a company is confronted with hardship conditions caused by the global financial crisis of 2008, covid-19 pandemic and climate change problem, effective audit committee characteristics are the major elements that can help the company attain long-term sustainable advancement. When the audit committee is of sound quality, it will be able to challenge the board of management to act in the firm's best interest. In addition, the size of the audit committee helps firms sustain their optimum growth because it allows people of diverse backgrounds and intellectual resources to be included on the board. AC independence is also a key to achieving an optimal growth level. If AC is independent, they will not be subjected to management encroachment in their decision-making. At least a member of AC has to be a financial expert because the financial statement is a medium of reporting the company's activities to the public. The financial statement is also an instrument of decision-making.

There was also a positive but insignificant association between the size of the sampled firms and their sustainable growth. The implication of this is that bigness or smallness of a company cannot alone determine a company's long-term growth without the aid of good audit committee characteristics.

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RESEARCH ARTICLE

Identifying and Ranking Factors Affecting Earnings Response Coefficient

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Abstract

One of the most critical questions after financial statements is why market responses differ from companies with almost similar statements. This research aims to answer this question by identifying factors affecting the earnings response coefficient. In this research, all of these factors were identified, classified, and ranked for the first time in Iran. The researchers carried out the research using Fuzzy Delphi in two phases, and Shannon's Entropy was done. The cross-sectional method was used, and the data were collected over several weeks. The statistical population included 40 experts who have been active in the Iranian capital market for many years. The results revealed that 46 factors directly influence the earnings response coefficient in Iran. Finally, these factors were classified into five categories: the company's financial features and financial reporting, the company's market share, auditing quality, corporate governance, and environmental factors, then ranked with the aid of Shannon's Entropy.

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1. Introduction

Issuing any events containing company information, such as earnings announcements, affects stock prices and trading volume in the financial market. One of the indicators used to assess the importance of accounting information is the reaction of investors towards it when it is announced. The volatility of stock prices also increases during the release of the financial statements compared to previous periods. This reflects the market's response to stock prices to understand the Earning Response Coefficient (ERC) concept. The ERC reflects the market response to the company's published earnings information (Al-awawdeh, al-Sakini and Nour, 2020).

Since the first research published regarding the earnings response coefficient, one of the most critical issues was identifying factors affecting the earnings response coefficient in different companies. Research shows that we see different responses in the stock market for a unit of change in earnings or unexpected earnings. These studies cannot explain the behavioral abnormalities of shareholders in the capital market. In some cases, it is seen that companies with weaker financial reports and lower stock dividends yield much higher than companies with higher dividends. The question in this regard is why the market responds to the good and bad news of some companies more or less than other companies, and what factors cause the effect of profit valuation to be different between similar companies from the perspective of shareholders .The present study seeks to find the cause of this anomaly by identifying other stimuli affecting shareholders' responses in Tehran Stock Exchange.

In this study, first, all the factors affecting the earnings response coefficient were extracted by using library methods and studying the research background, then by performing two rounds of Fuzzy Delphi, and with the expert's opinions, these factors were validated and classified. Then the rank of each index was determined by using Shannon's Entropy.

Policymakers have turned direct liquidity to the capital market into a macroeconomic policy with liquidity growth. If investors fail in this market, they will lose trust in the capital market and prefer not to invest in the stock market. Consequently, one of the factors that can lead to distrust in investment is the lack of awareness of the parameters affecting the capital market. Therefore, it is necessary to identify all factors affecting the capital market.

The innovation aspect of research is as follows: the studies conducted so far have examined only specific factors affecting the earnings response coefficient; therefore, many effective variables were understudied, and the perspectives presented were partial and not comprehensive. However, this research tried to identify, extract, classify, and rank all effective factors on the Iranian stock market for the first time. The researchers studied the issue from different dimensions and considered all determinants and their effect on stock market reaction.

The results of the research can be helpful to for Tehran Securities and Exchange Organization, stockbrokers, investment funds, the Ministry of Economic Affairs and Finance, analyzers and activists of the capital market, investment managers, postgraduate students of accounting, financial management, financial engineering, behavioral economy researchers, and other activists of the capital market.

2. Theoretical foundation

One of the essential experimental studies related to financial accounting after financial reporting is determining a criterion to examine different responses to earnings. This is called the earnings response coefficient. There is no agreed-upon definition for this expression, and different definitions are provided. The simple definition is that ERC is the coefficient of variable profit in the regression of returns and profits (Penman, 1992). However, the most common definitions are ERC,

a variable of unexpected profit in the regression of abnormal returns and unexpected profit (Collins and Kotari, 1989). ERC measures the abnormal return in response to unexpected earnings of a securities issuer (Scott, 2006). ERC is the unexpected earnings variable in abnormal returns and unexpected earnings (Ariff, Fah and Ni, 2013). ERC is an assessment of investors that starts around the date of the company's earnings announcement, where investors give different responses to reported earnings (Danier Paramita et al., 2020). The common aspect of all definitions and studies related to ERC is measuring investors' responses (Behbahaninia and Mashayekhi, 2016). It is worth mentioning that the previous studies focused only on the declared earnings without considering other factors and parameters affecting investors' responses. However, as researchers started to examine more deeply, other parameters involved in investors' behaviour after the earnings announcement were also addressed.

The efficient-market hypothesis confirms the existence of ERC. This theory states that issuing company financial information immediately affects prices and causes prices to adjust. In other words, share prices reflect all information in an efficient market. As a result, we see significant changes in stock prices and trading volumes when publishing earnings announcements, but a few days after the announcement, no effect can be seen even though the news still exists.

Signaling theory is a relevant theory to ERC. This theory states that financial reports contain information about the company's future, signal to external parties, and are very effective investor decisions. For this reason, information asymmetry causes different investor behaviors around the issuing of financial reports. This confirms the existence of ERC.

In 1968, Ball and Brown studied a sample of 261 New York stock companies over nine years, from 1957 to 1965. Their goal was to explore the relationship between companies' stock price (returns) and accounting earnings. They only considered the net profit and ignored other factors. Ball and Brown's first step was to examine the content of earnings information as to whether the reported earnings exceeded expectations. This requires a criterion to measure market expectations. The criterion used in the Ball and Brown (1968) studies is the difference between this year's earnings and the previous year's earnings. A company that makes more profit than the previous year is considered good news, and a company that makes less profit than the previous year is considered bad news. They classified all the companies with good news announcements in one group. The average unusual return in this group was significantly positive during the issuance of financial statements. Conversely, companies with bad news announcements had an unusually negative average return. This research provides plausible evidence that the market responds to good and bad profit news (Scott, 2006). The next logical step is to ask how the unexpected profit's magnitude relates to the stock market response. The most important result of their research is the earnings response coefficient. Since that time, most financial accounting research in the capital market has been to discover and explain the different responses of the market to new information.

2.1. Research background

Forouzandeh, Izadinia and Karimzadeh (2020) showed a significant relationship between abnormal stock return acquisition and unexpected earnings and the pre-opinion paragraphs. However, audit report type does not affect the quality of financial statements and abnormal stock returns.

Takamatsu and Lopez (2019) revealed that the ability of earnings to change the stock price for the unspecified environment of accounting decreases. They showed that accepting international financial standards can increase accounting quality and bring about a positive response from the market toward the issue of financial information. They found that small firms with lesser prices will

respond more toward financial information than large firms with higher prices.

Wijaya et al. (2020) studied the effect of social responsibility disclosure, profitability, and sales growth on the earnings response coefficient in the Indonesia Stock Exchange from 2015 to 2017. The sample included 52 manufacturing companies. Through examining audited financial statements, they found that the effect of social responsibility on ERC is much higher than other factors.

Ebrahimi Sarvolia et al. (2017) studied the effect of domestic factors, including factors related to the stock exchange and company, and external factors, including economic, psychological, and political. They concluded that external factors (economic, psychological and political) strongly influence the response of stakeholders, and their influence was much more than internal factors. Also, among external factors, the political factor has explained the external dimension. This means that the comments and statements of political officials will change the course of transactions and create a wave more than economic factors.

Hakimipour (2017), inspired by Collins and Kothari's (1989) model, studied risk-free interest rates, systematic risk, growth opportunities, and financial leverage in the Iranian stock market. The results revealed that the prescriptive interest rate in Iran does not significantly influence the earnings response coefficient. As Collins and Kothari(1989) stated, systematic risk has a negative effect on the earnings response coefficient. In addition, growth opportunities and financial leverage have positive and negative effects on the earnings response coefficient.

Vakilifard, Saeedi and Eftekhari (2013) concluded a significant relationship between the earnings response coefficient and the level of stock returns. They found that high-return companies' returns are more than expected compared to low-return companies regarding good news. Also, low-return companies' response coefficient is more than expected compared to high-return companies regarding bad news.

Findings by Gajewski and Bertrand (2013) illustrated that the proposed price limit of the stock exchange is broader at the time of interim earnings announcement compared to the annual earnings announcement, and non-disclosure does not help reduce information symmetry. Moreover, the fault level of net profit and its constructs is most probably related to the major role of institutional shareholders in the companies.

Yahyazadehfar, Zali and Shababi (2009) found that the effect of political, psychological and economic factors is 62%, 53%, and 47%, respectively. They are the most important determinants of shareholders' behavior. They also found that political and psychological factors indirectly influence the behavior of shareholders by determining the interest rate.

Tehrani and Khoshnoud (2005) studied the significance of fiscal and non-fiscal information and found that non-fiscal information like management method, political issues, domestic and international economy, sales volume, and industry type are more effective on shareholders' behavior.

Collins and Kothari (1989) tested the influence of cross-sectional elements on the earnings response coefficient. They found that temporal variation (the difference in earnings response coefficient as time passes) directly relates to the interest rate. They also illustrated that cross-sectional variation (the difference in earnings response coefficient in companies) has a positive relationship with earning continuity and a negative relationship with systematic risk. Nevertheless, they proposed the assumption that growth opportunities, which are not completely reflected in earning continuity, have a positive relationship with the earnings response coefficient. Finally, they showed that if the firm size differs from the accounting environment, firm size will affect the relationship between earnings and efficiency.

2.2. Research questions

The main research questions are as follows:

- What factors affect the earnings response coefficient in Iran?
- What is the weight of each indicator affecting the earnings response coefficient?

3. Research methodology

First, with documentary and library research methods, previous literature and articles were studied to achieve the research objectives, and 70 factors influencing the earnings response coefficient were extracted (Table 3). Next, according to the experts, the fuzzy Delphi method was utilized to screen and identify ultimate indices. Hence, a questionnaire and interview were prepared to validate and approve the subject under investigation in Iran's capital market. Then there were made available for the expert panel of the capital market. After conducting the specialized interview and collecting the experts' answers, another questionnaire was prepared according to the extracted information to achieve an agreement within the expert panel and execute other phases of the fuzzy Delphi method (Table 4). After completing the remaining phases of the fuzzy Delphi method, factors capable of influencing the earnings response coefficient in Iran were identified. These factors were then categorized into 5 groups considering the experts' opinions, and Shannon's Entropy was utilized to determine a weight for the parameters in each category (Table 5).

The research population consists of 40 experts working directly in the fields under investigation and fields associated with Iran's capital market and experts with related proficiency, experience, and occupation. This population includes reputable senior and middle managers, analyzers in investment companies, CEOs of Portfolio management Companies, academics, and senior experts in the capital market. After creating the research population, the variables were extracted and identified.

Table 1. Descriptive characteristics of the expert panel

Row	Education			Field of Study			Experience (year)		
	Description	Fi	%	Description	Fi	%	Description	Fi	%
1	Bachelor	13	32.5	Accounting and Finance	22	55	Between 5 and 10	5	12.5
2	M.A	20	50	Management and Economics	15	37.5	Between 10 and 15	24	60
3	P.H. D	7	17.5	Other	3	7.5	More than 15	11	27.5
Sum	-	40	100	-	40	100	-	40	100

Although experts use their competencies and mental skills to conduct the comparisons, the traditional process of quantifying people's views is not completely capable of reflecting human belief. It will be complicated if the valuation is not based on mathematical language and formulas. Fuzzy logic is a process that replaces ways that require mathematical processes with the opinion of an expert.

In other words, fuzzy sets are highly consistent with verbal explanations and sometimes imprecise humans, and therefore, it is better to use fuzzy sets for making long-term predictions and decisions in the real world (Kahraman, 2008). In this study, experts' opinion was fuzzified by triangular fuzzy numbers. The experts' opinion was gathered considering the significance of each index and with the aid of a fuzzy spectrum with a 9-point scale.

Table 2. Fuzzy spectrum with 9- point scale for the valuation of indices

Linguistic variable	Fuzzy amount	triangular fuzzy equivalent
Too insignificant	$\tilde{1}$	(1،1،1)
Too insignificant to insignificant	$\tilde{2}$	(1،2،3)
insignificant	$\tilde{3}$	(2،3،4)
Insignificant to average significant	$\tilde{4}$	(3،4،5)
Average	$\tilde{5}$	(4،5،6)
Average to significant	$\tilde{6}$	(5،6،7)
Significant	$\tilde{7}$	(6،7،8)
Significant to too significant	$\tilde{8}$	(7،8،9)
too significant	$\tilde{9}$	(9،9،9)

In the next step, the average fuzzy aggregate will be calculated; each triangular fuzzy number, as a result of experts' opinion aggregation, can be calculated as follows for index j:

$$\iota_j = \left(L_j \,.\, M_j \,.\, U_j\right) \qquad \text{Formula 1}$$

$$L_j = \min\left(X_{ij}\right)$$

$$M_j = \sqrt[n]{\prod\nolimits_{i=1}^{n} X_{ij}}$$

$$U_j = \max\left(X_{ij}\right)$$

Index i denotes the experts. In other words:

- X_{ij}: Assessment value by expert i from index j
- L_j: The minimum assessment value for index j
- M_j: Geometric mean of assessment value by experts from the performance of index j
- U_j: Maximum value of assessments for index j (Cheng, Lee and Tang 2009)

There are numerous methods introduced to aggregate the opinion of respondents. These are experimental methods that numerous researchers propose. According to one of the traditional methods Wu and Fang (2011) proposed, a set of triangular fuzzy numbers is f to fuzzified by considering the minimum value l, geometric mean m, and maximum value u. Fuzzy c-means (Formula 4) have been utilized in this study.

$$F_{AGR} = (\min\{\mathrm{I}\}.\prod\{m\}.\max\{u\}) \qquad \text{Formula 2}$$

$$F_{AGR} = \left(\min\{\mathrm{I}\}.\left\{\frac{\sum m}{n}\right\}.\max\{u\}\right) \qquad \text{Formula 3}$$

$$F_{AVE} = \left(\left\{\frac{\sum l}{n}\right\}.\left\{\frac{\sum m}{n}\right\}.\left\{\frac{\sum u}{n}\right\}\right) \qquad \text{Formula 4}$$

Defuzzification

Usually, the aggregation of average triangular fuzzy numbers can be abstracted by a definite value that is the best related mean value. These processes are called defuzzification. There are numerous methods for defuzzification. In most cases, the following simple method is utilized for defuzzification:

$$F_{ave} = (L.M.U)$$

$$x_m^1 = \frac{L+M+U}{3}.x_m^2 = \frac{L+2M+U}{4}.x_m^3 = \frac{L+4M+U}{6} \qquad \text{Formula 5}$$

$$\text{Crisp number} = \max(x_{max}^1.x_{max}^2.x_{max}^3)$$

The values of x_{max}^i are not differing significantly, and the values are always close to M. M is the average aggregation of possible values of m from triangular fuzzy numbers. Nevertheless, the

largest certain value x_{max}^{i} is considered (Bojadziev and Bojadziev, 2007). The defuzzified values (Crisp number) larger than 7 are accepted, but any index with a value smaller than 7 is rejected (Wu and Fang, 2011).

Shannon's Entropy

In the next step, the weight of each index in each category is determined with the aid of Shannon's entropy. Shannon's entropy can strongly process the data associated with content analysis. There are numerous approaches to determining the weight of indices, one of which is Shannon's entropy (Azar, 2001). According to this approach, the number of each index is counted according to the subject and commensurate with each response. Next, the significance of each index is calculated by using the information content of each subject. In this research, Shannon's entropy is used to determine each index's weight considering its simplicity and strength due to various indices and uncertain conditions. Firstly, a decision matrix is formed to use Shannon's entropy in the decision matrix; columns are the criteria, and rows present options. For example, the X12 is the score of the first option compared to the second criterion.

$$X_{ij} = \begin{bmatrix} x_{11} & x_{12} & \dots & x_{1n} \\ x_{21} & x_{22} & \dots & x_{2n} \\ \dots & \dots & \dots & \dots \\ x_{m1} & x_{m2} & \dots & x_{mn} \end{bmatrix} \qquad \text{Formula 6}$$

Then, the above matrix is normalized. During the normalization process, the component of each column is divided by the total value of each column. Each normalized component is depicted by pij. After normalization, each index's entropy (EJ) is calculated using the following formula. K is a constant value, and entropy is kept between 0 and 1.

$$E_j = -\mathrm{K}\sum_{i=1}^{m} P_{ij} \times Ln\, P_{ij} \quad i = 1.2. \dots . m \qquad \text{Formula 7}$$

Afterwards, the deviation ratio (dj) is calculated as follows: dj=1-Ej (Formula 8), and this shows how much useful information related index (dj) is given to the decision-maker for decision-making. If the measured values of indices are close to each other, they show that rival alternatives are not significantly different in terms of the index. In the last step, the weight of each index (Wj) is determined by dividing the weight of each index (dj) by the total (∑dj) values (Azar, 2001).

$$W_j = d_j / \sum d_j \qquad \text{Formula 8}$$

4. Research results and findings

The findings of each stage of the research are summarized as follows:

4.1. library study

As fully described in the research method, 70 indicators affecting the ERC were extracted and presented to the panel of experts to run the fuzzy Delphi method by studying articles, dissertations, and research and scientific data (Table 3).

4.2. The first phase of fuzzy Delphi

The fuzzy Delphi approach was used to ask the expert panel's opinion. As fully described in the research method, the de-fuzzy value (Crisp number) greater than 7 is accepted, and an index with a score less than 7 is rejected (Wu and Fang, 2011). The results of the first round of fuzzy Delphi are described in the table below:

Table 3. Fuzzy c-means and fuzzy screening methods are used in the first phase for investigating the indices and to achieve an agreement among experts

Row - indices	Min	Geometric mean	Max	Fuzzy mean	Crisp	Result
1- Cash adequacy ratio	6	8.20	9	(6, 8.2, 9)	7.97	Accepted
2- Leverage ratios	6	7.86	9	(6, 7.86, 9)	7.74	Accepted
3- Development projects	6	7.98	9	(6, 7.98, 9)	7.82	Accepted
4- Unsystematic risk	4	7.73	9	(4, 7.73, 9)	7.32	Accepted
5- The sales growth rate	6	7.65	9	(6, 7.65, 9)	7.60	Accepted
6- Liquidity ratios (current ratio, quick ratio)	2	7.79	9	(2, 7.79, 9)	7.03	Accepted
7- Profitability ratios	6	7.78	9	(6, 7.78, 9)	7.69	Accepted
8- Dividends per share (DPS)	6	7.75	9	(6, 7.75, 9)	7.67	Accepted
9- Net profit	2	7.77	9	(2, 7.77, 9)	7.02	Accepted
10- Profit quality (operating and non-operational)	2	8.23	9	(2, 8.23, 9)	7.32	Accepted
11- Earning management	6	8.01	9	(6, 8.01, 9)	7.84	Accepted
12- Earnings persistence	6	7.78	9	(6, 7.78, 9)	7.69	Accepted
13- Dividend payout schedule	6	7.95	9	(6, 7.95, 9)	7.80	Accepted
14- Growth expectation	5	7.45	9	(5, 7.45, 9)	7.30	Accepted
15- Accrual items	2	7.86	9	(2, 7.86, 9)	7.08	Accepted
16- Information risk	6	8.13	9	(6, 8.13, 9)	7.92	Accepted
17- Financial information transparency	6	8.09	9	(6, 8.09, 9)	7.90	Accepted
18- Financial statement comparability	4	8.06	9	(4, 8.06, 9)	7.54	Accepted
19- Related Party Transactions	3	7.28	9	(3, 7.28, 9)	6.86	Rejected
20- Board of directors' compensation	4	7.19	9	(4, 7.19, 9)	6.96	Rejected
21- Tax evasion	3	7.00	9	(3, 7, 9)	6.66	Rejected
22- Timely financial statements	2	6.61	9	(2, 6.61, 9)	6.24	Rejected
23- Prolonged operating cycle	3	7.14	9	(3, 7.14, 9)	6.76	Rejected
24- International accounting standards	3	7.43	9	(3, 7.43, 9)	6.95	Rejected
25- Capital intensity ratio	6	8.07	9	(6, 8.07, 9)	7.88	Accepted
26- Company lifetime	6	7.55	9	(6, 7.55, 9)	7.53	Accepted
27- Financial system complexity	6	7.65	9	(6, 7.65, 9)	7.60	Accepted
28- Accounting conservatism	2	7.19	9	(2, 7.19, 9)	6.62	Rejected
29- Number of Shares	6	7.65	9	(6, 7.65, 9)	7.60	Accepted
30- Floating Stock	6	7.56	9	(6, 7.56, 9)	7.54	Accepted
31- Market maker	6	7.43	9	(6, 7.43, 9)	7.48	Accepted
32- The weight of the company in the stock exchange index (influential and non-influential companies)	5	7.63	9	(5, 7.63, 9)	7.42	Accepted
33- Daily price fluctuation limit of the company (5%, 3%, 1%)	2	7.78	9	(2, 7.78, 9)	7.02	Accepted
34- Listed in Stock Exchange or Over-the-counter (OTC) Stocks	2	7.61	9	(2, 7.61, 9)	6.90	Rejected
35- Explanatory paragraph of auditor's report	4	7.42	9	(4, 7.42, 9)	7.11	Accepted
36- Type of auditor's report (unqualified, modified, adverse, etc.)	6	7.78	9	(6, 7.78, 9)	7.69	Accepted
37- Auditor's reputation	4	7.31	9	(6, 7.31, 9)	7.04	Accepted
38- Auditor's fee	3	7.26	9	(3, 7.26, 9)	6.84	Rejected
39- Auditor size	1	6.83	9	(1, 6.83, 9)	6.22	Rejected
40- Auditor's expertise related to the industry	2	7.46	9	(2, 7.46, 9)	6.81	Rejected
41- Auditor tenure	3	7.01	9	(3, 7.01, 9)	6.67	Rejected
42- Auditor switching	2	7.71	9	(2, 7.71, 9)	6.97	Rejected
43- Audit effort (Auditor's labor hour)	2	6.93	9	(2, 6.93, 9)	6.46	Rejected
44- Board of Directors' independence	6	7.62	9	(6, 7.62, 9)	7.58	Accepted
45- Managerial ownership	6	7.62	9	(6, 7.62, 9)	7.58	Accepted
46- The number of board members	2	7.55	9	(2, 7.55, 9)	6.87	Rejected

47- The percentage of board non-executive members	2	7.53	9	(2, 7.53, 9)	6.85	Rejected
48- Existence of a risk committee in the company	6	7.65	9	(6, 7.65, 9)	7.60	Accepted
49- State ownership	6	8.51	9	(6, 8.51, 9)	8.17	Accepted
50- Institutional shareholders	2	7.79	9	(2, 7.79, 9)	7.03	Accepted
51- Existence of an audit committee in the company	6	8.05	9	(6, 8.05, 9)	7.87	Accepted
52- Financial expertise of auditing committee members	2	7.59	9	(2, 7.59, 9)	6.89	Rejected
53- Number of auditing committee members	2	7.19	9	(2, 7.19, 9)	6.62	Rejected
54- Competition of capital markets (automobile, real state, gold, currency, etc.)	6	7.75	9	(6, 7.75, 9)	7.67	Accepted
55- Political conditions (domestic and global)	6	7.62	9	(6, 7.62, 9)	7.58	Accepted
56- Social responsibility	2	7.72	9	(2, 7.72, 9)	6.98	Rejected
57- Financial crisis	5	8.40	9	(5, 8.4, 9)	7.93	Accepted
58- Economic conditions (macro-economic factors)	6	7.92	9	(6, 7.92, 9)	7.78	Accepted
59- Capital market regulations	6	8.33	9	(6, 8.33, 9)	8.06	Accepted
60- Direct taxation act	5	7.72	9	(5, 7.72, 9)	7.48	Accepted
61- Monopoly industry	6	7.98	9	(6, 7.98, 9)	7.82	Accepted
62- Technological changes	6	8.27	9	(6, 8.27, 9)	8.01	Accepted
63- Government annual budget	2	7.82	9	(2, 7.82, 9)	7.05	Accepted
64- Inflation rate	6	7.78	9	(6, 7.78, 9)	7.69	Accepted
65- Exchange rate volatility	6	7.72	9	(6, 7.72, 9)	7.65	Accepted
66- Risk-free interest rate	6	7.95	9	(6, 7.95, 9)	7.80	Accepted
67- Systematic risk (Beta)	2	8.00	9	(2, 8, 9)	7.17	Accepted
68- Information asymmetry	6	7.99	9	(6, 7.99, 9)	7.83	Accepted
69- complexity of the production process	6	8.24	9	(6, 8.24, 9)	7.99	Accepted
70- Inflationary expectations	6	8.10	9	(6, 8.1, 9)	7.90	Accepted

It was observed that 19 indices achieved an average value of less than 7, which should be eliminated. The row of these indices is: 19-20-21-22-23-24-28-34-38-39-40-41-42-43-46-47-52-53-56. Hence, 51 indices were accepted in the first phase.

Moreover, 5 new indices capable of influencing the earnings response coefficient were added with the suggestion of the expert panel. These indices include daily trading volume, industry returns, the expertise of boards of directors, duality of the board's activities, and political cycles (elections). A questionnaire consisting of 56 questions was provided and then used for the next phase of fuzzy Delphi.

4.3. Second phase of fuzzy Delphi

Like the first phase, the fuzzy Delphi approach with a 9-point scale is utilized to screen indices and identify ultimate indices (Table 4). Each index with less than 7 should be eliminated.

Table 4. Fuzzy c-means and fuzzy screening methods are used in the second phase

Row - indices	Min	Geometric mean	Max	Fuzzy mean	Crisp	Result
1- Cash adequacy ratio	6	8.13	9	(6, 8.13, 9)	7.92	Accepted
2- Leverage ratios	6	8.16	9	(6, 8.16, 9)	7.94	Accepted
3- Development projects	6	7.99	9	(6, 7.99, 9)	7.83	Accepted
4- Unsystematic risk	6	8.49	9	(6, 8.49, 9)	8.16	Accepted
5- The sales growth rate	6	8.06	9	(6, 8.06, 9)	7.87	Accepted
6- Liquidity ratios (current ratio, quick ratio)	2	7.86	9	(2, 7.86, 9)	7.08	Accepted
7- Profitability ratio	4	7.87	9	(4, 7.87, 9)	7.41	Accepted
8- Dividends per share (DPS)	2	8.00	9	(2, 8, 9)	7.16	Accepted
9- Net profit	4	8.03	9	(4, 8.03, 9)	7.52	Accepted
10-Profit quality (operating and non-operational)	5	7.81	9	(5, 7.81, 9)	7.54	Accepted
11- Earning management	3	6.54	9	(3, 6.54, 9)	6.36	Rejected
12- Dividend payout schedule	2	7.82	9	(2, 7.82, 9)	7.05	Accepted
13- Growth expectation	2	7.92	9	(2, 7.92, 9)	7.12	Accepted
14- Accrual items	4	8.06	9	(4, 8.06, 9)	7.54	Accepted
15- Information risk	2	7.75	9	(2, 7.75, 9)	7.00	Accepted
16- Financial statement comparability	5	7.77	9	(5, 7.77, 9)	7.52	Accepted
17- Earnings persistence	3	7.31	9	(3, 7.31, 9)	6.87	Rejected
18- Capital intensity ratio	5	8.01	9	(5, 8.01, 9)	7.68	Accepted
19- Financial information transparency	2	7.35	9	(2, 7.35, 9)	6.73	Rejected
20- Company lifetime	2	7.39	9	(2, 7.39, 9)	6.76	Rejected
21- Financial system complexity	3	7.31	9	(3, 7.31, 9)	6.88	Rejected
22- Daily trading volume	2	7.78	9	(2, 7.78, 9)	7.02	Accepted
23- The weight of the company in the stock exchange index (influential and non-influential companies)	4	7.96	9	(4, 7.96, 9)	7.47	Accepted
24- Daily price fluctuation limit of the company (5%, 3%, 1%)	2	7.90	9	(2, 7.9, 9)	7.10	Accepted
25- Floating Stock	6	8.13	9	(6, 8.13, 9)	7.92	Accepted
26- Number of Shares	6	8.14	9	(6, 8.14, 9)	7.93	Accepted
27- Industry returns	6	7.93	9	(6, 7.93, 9)	7.79	Accepted
28- Market maker	2	7.57	9	(2, 7.57, 9)	6.88	Rejected
29- Explanatory paragraph of auditor's report	5	8.17	9	(5, 8.17, 9)	7.78	Accepted
30- Type of auditor's report (unqualified, modified, adverse, etc.)	6	7.99	9	(6, 7.99, 9)	7.83	Accepted
31- Auditor's reputation	5	7.79	9	(5, 7.79, 9)	7.53	Accepted
32- Board of directors' independence	6	7.91	9	(6, 7.91, 9)	7.77	Accepted
33- Managerial ownership	5	8.33	9	(5, 8.33, 9)	7.89	Accepted
34- State ownership	2	7.89	9	(2, 7.89, 9)	7.10	Accepted
35- Institutional shareholders	4	7.79	9	(4, 7.79, 9)	7.36	Accepted
36- Existence of an auditing committee in the company	2	7.88	9	(2, 7.88, 9)	7.09	Accepted
37- Existence of a risk committee in the company	3	7.20	9	(3, 7.2, 9)	6.80	Rejected
38- Expertise in boards of directors	6	7.98	9	(6, 7.98, 9)	7.82	Accepted
39- Duality of board's activities	6	7.45	9	(6, 7.45, 9)	7.48	Accepted
40- Competition of capital markets (automobile, real state, gold, currency, etc.)	6	7.55	9	(6, 7.55, 9)	7.53	Accepted
41- Political conditions (domestic and global)	6	7.95	9	(6, 7.95, 9)	7.80	Accepted
42- Financial crisis	2	7.79	9	(2, 7.79, 9)	7.02	Accepted
43- Economic conditions (macro-economic factors)	6	7.95	9	(6, 7.95, 9)	7.80	Accepted
44- Capital market regulations	6	7.88	9	(6, 7.88, 9)	7.76	Accepted
45- Complexity of the production process	3	7.01	9	(3, 7.01, 9)	6.67	Rejected
46- Monopoly industry	6	7.84	9	(6, 7.84, 9)	7.73	Accepted
47- Technological changes	2	7.73	9	(2, 7.73, 9)	6.98	Rejected

48- Government annual budget	6	8.09	9	(6, 8.09, 9)	7.90	Accepted
49- Inflation rate	6	7.85	9	(6, 7.85, 9)	7.73	Accepted
50- Exchange rate volatility	5	7.74	9	(5, 7.74, 9)	7.50	Accepted
51- Risk-free interest rate	5	7.95	9	(5, 7.95, 9)	7.63	Accepted
52- Systematic risk (Beta)	5	8.51	9	(5, 8.51, 9)	8.01	Accepted
53- Information asymmetry	6	8.01	9	(6, 8.01, 9)	7.84	Accepted
54- Direct taxation act	2	7.52	9	(2, 7.52, 9)	6.85	Rejected
55- Political cycles (elections)	5	7.96	9	(5, 7.96, 9)	7.64	Accepted
56- Inflationary expectations	6	8.12	9	(6, 8.12, 9)	7.92	Accepted

It was observed that 10 indices have an average value of less than 7, which should be eliminated. The row of these indices is 11-17-19-20-21-28-37-45-47-54; hence, 46 indices were accepted in the second phase.

Rahmani et al. (2020), in their research concerning "methodological principles and applications of the Delphi method", stated that the Delphi method should be iterated for more than 1 phase (round) and when the expert panel achieves an agreement during two consecutive rounds, the Delphi technique can be stopped. They claimed that there are no suitable criteria to show consensus and convergence. The intending criteria are that 90% of respondents agree that this event will occur with a probability of 90% to 95%. Another criterion that helps achieve consensus and finish the Delphi study is that responses should be constant, and stability should be achieved in the opinions. In this research, the factors mentioned above were observed in the second phase, showing the acceptance and conclusion of the Delphi method in the second phase. If the Delphi method is iterated for more than 2 phases, it can cause exhaustion, and no new and useful result can be achieved.

4.4. Categorization and ranking of ultimate factors capable of influencing the earnings response coefficient in Iran with the aid of Shannon's Entropy

After identifying factors capable of influencing the earnings response coefficient, the mentioned factors are categorized into five applicable groups considering the opinion of the expert panel in the capital market: financial features of the firm and company's financial reporting, company share market, audit quality, corporate governance, and environmental elements. These categories can be used in Iran's capital market, and there is no gap or overlapping associated with the nature of other categories.

The indices were ranked using the Shannon entropy method in the final step. As fully described in the research method, first, the decision matrix is made (Formula 6); after normalizing each index (by dividing the component of each column by the total value of each column), the entropy of each index (Ej) is calculated by Formula 7. Then the degree of deviation of each index (dj) is calculated according to Formula 8; finally, the weight of each index (Wj) is calculated using Formula 9.

The final research Table is achieved after categorizing and calculating the weight of each index. With the aid of each index in each category, the impact of each index on the earnings response coefficient is determined, and the indices are ranked (Table 5).

Table 5. Categorization of factors capable of influencing earnings response coefficient in Iran according to expert panel and ranking of these indices with the aid of Shannon's entropy

Dimensions	Variables	Ej	dj	Wj	Rank
Financial features of the company and financial reporting	Growth expectation	.86700	.13300	.06896	1
	Dividends per share (DPS)	.86801	.13199	.06844	2
	The sales growth rate	.87150	.12850	.06662	3
	Development projects	.87350	.12650	.06559	4
	Profitability ratios	.87595	.12405	.06432	5
	Net profit	.87929	.12071	.06259	6
	Liquidity ratios (current ratio, quick ratio)	.87998	.12002	.06223	7
	Profit quality (operating and non-operational)	.88013	.11987	.06215	8
	Cash adequacy ratio	.88132	.11868	.06153	9
	Leverage ratios	.88138	.11862	.06150	10
	Dividend payout schedule	.88238	.11762	.06099	11
	Financial statement comparability	.88329	.11671	.06051	12
	Unsystematic risk	.88374	.11626	.06028	13
	Information risk	.88384	.11616	.06023	14
	Accrual items	.88460	.11540	.05983	15
	Capital intensity ratio	.89541	.10459	.05423	16
	sum	-	1.92870	1	-
Company's market share	Floating Stock	.87131	.12869	.18131	1
	The weight of the company in the stock exchange index (influential and non-influential companies)	.87401	.12599	.17752	2
	Number of Shares	.87933	.12067	.17001	3
	Daily price fluctuation limit of the company (5%, 3%, 1%)	.87998	.12002	.16911	4
	Industry returns	.89094	.10906	.15367	5
	Daily trading volume	.89468	.10532	.14839	6
	sum	-	.70975	1	-
Audit quality	Explanatory paragraph of auditor's report	.87843	.12157	.35057	1
	Type of auditor's report (unqualified, modified, adverse, etc.)	.88258	.11742	.33861	2
	Auditor's reputation	.89222	.10778	.31082	3
	sum	-	.34676	1	-
Corporate governance	State ownership	.87963	.12037	.15139	1
	Institutional shareholders	.87964	.12036	.15137	2
	Managerial ownership	.87998	.12002	.15095	3
	Existence of an audit committee in the company	.88460	.11540	.14513	4
	Board of directors' independence	.89094	.10906	.13717	5
	Expertise of board members	.89468	.10532	.13245	6
	Duality of board's activities	.89541	.10459	.13155	7
	sum	-	.79512	1	-
Environmental factors	Exchange rate volatility	.87086	.12914	.07851	1
	Political conditions (domestic and global)	.87131	.12869	.07823	2
	Inflation rate	.87386	.12614	.07668	3
	Competition of capital markets (automobile, real state, gold, currency, etc.)	.87397	.12603	.07662	4
	Inflationary expectations	.87417	.12583	.07650	5
	Risk-free interest rate	.87963	.12037	.07318	6
	Systematic risk (Beta)	.87964	.12036	.07317	7
	Financial crisis	.87998	.12002	.07297	8
	Economic conditions (macro-economic factors)	.88460	.11540	.07015	9
	Capital market regulations	.89094	.10906	.06631	10
	Government annual budget	.89292	.10708	.06510	11
	Information asymmetry	.89315	.10685	.06496	12
	Political cycles (elections)	.89468	.10532	.06403	13
	Monopoly industry	.89541	.10459	.06359	14
	sum	-	1.64487	1	-

5. Discussion and Conclusion

This research aimed to identify factors influencing Iran's earnings response coefficient. Ultimately, 46 state-of-art and applicable factors influencing the earnings response coefficient in Iran were extracted with round 2 of the fuzzy Delphi method (Table 3 and Table 4). Next, they were categorized into 5 categories and ranked with the aid of Shannon's Entropy (Table 5).

In response to the following question, "why do some companies with similar earnings or unexpected earnings have higher returns?" studies conducted on the capital market show that not only do prices in the security market respond to accounting information but also, regardless of content and weight of accounting information, there are numerous factors that are causing a change in the investors' investment.

The results of previous studies on the capital market indicate that environmental and surrounding factors, which influence the capital market, have a significant impact on capital market behavior and earnings and/or unexpected earnings are not the only factors capable of influencing investors' behavior. The ranking of factors capable of influencing the earnings response coefficient in this research depicts that the weight of non-financial factors influencing shareholders' response is higher than financial factors (Table 5).

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RESEARCH ARTICLE

The Convergence of the Expectations between Auditors and the Users of Financial Statements: A Multidimensional Grounded Theory and Structural Equation Modeling

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Abstract

This study aims to explain the convergence model between the expectations of auditors and users of financial statements with the multidimensional grounded theory and structural equation modeling. The study's statistical population consisted of university faculties, auditing firm partners, tax auditors, official justice experts, financial analysts, senior creditors, and social security insurance auditors. The sampling method of the present study is a mixed purposive approach, which led to 42 in-depth and semi-structured interviews to achieve theoretical saturation. The extant study was implemented in 2020 and 2021. The grounded factors for the expectation convergence provide Provision of a cultural and educational context; Reforming, unity of procedure between upstream laws and regulations; Enhancing audit performance and effectiveness; Continuous monitoring of professional organizations and regulatory bodies on the performance of auditors; Strengthening the computer auditing infrastructure and paying attention to social responsibility and Requiring auditors to be accountable. Furthermore, the convergence between the expectations of auditors and users of financial statements has consequences providing an optimal allocation of resources, data transparency, and crime reduction, Improving the quality of information and financial reporting features, efficient standards following environmental conditions, and ultimately, dynamism and increase of trust and growth and effectiveness of the audit profession.

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1. Introduction

Auditing is one of the substantial factors for financial stability, trust and confidence in financial markets. In this case, the independent and professional comments on financial information fairness lead to progress in capital markets and a reduction in agency costs (Souza et al., 2020). Auditors are responsible for detecting distortions, including errors or frauds, so detecting such distortions and distinctions cause many consequences for the auditing profession. However, there is a conflict between the users of financial statements and auditors' actual roles and liabilities. These conflicts are rooted in the diverse informational utilities regarding users and the adverse performance of auditors (PCAOB, 2002; Hamilton & Smith, 2021). Expectation gaps occur when users do not have a common perception of auditors' responsibilities and their actual performance following standards. Lack of common perception causes inefficient investments, non-optimal allocation of resources, and lower trust in the performance of the auditing profession. The wider the gap, the lower the reputation and quality of the audit profession (Humphrey, 1997; Hassas Yeganeh & Mansouri, 2016). Hence, the gap between the expectations of auditors and financial statements' users serves as a classic agency cost that makes stakeholders lag behind the management in keeping and expanding their values and implementing strategies due to low-quality audits (Estedimod et al., 2020; Brazel, 2018, Litjens et al., 2015). In addition to financial losses caused by fraud or error, fraudulent reporting and misinformation ruin society's confidence in the audit profession. On the other hand, the inattention of auditors to managers' motives for fraud deepens the expectation gap between users and auditors (Goddard & Martin, 2020; Rahmani et al., 2018). Financial reports' users cannot use financial reports in practice due to management misbehaviors, misleading information, lack of surveillance over financial reporting, and inability to detect and prevent misconduct. Thus, users of financial statements just pay attention to the comment paragraph. Accordingly, these users consider communication through reports more valuable than making rational trust in reports' content (Koram & Mock, 2011). Although auditors create value-added for financial statements, they cannot meet the needs of a wide range of users as required (Smith, 2021; Best et al., 2001). In this case, two theories have been designed for auditors' responses to the drawbacks and shortcomings mentioned above. The first theory points to a completely defensive approach, i.e., auditors remain conservative against such shortcomings and their social-inclusive responsibilities. Therefore, auditors choose isolation and negligence due to inefficient standards. Under such circumstances, auditors' responsibility scopes will not be effective enough. The second approach includes high-quality auditing by considering all substantial aspects of economic implications and other social responsibilities to alleviate the risk of litigation against auditors. The second viewpoint comprises three types of risks affecting auditors' motivations for a high-quality audit: 1) legal claims risk, 2) reputation risk and 3) regulations risk. It is predicted that auditors take different strategies to minimize litigation risk by increasing audit quality to deal with such claims (Simunic, 1980). Cranenberger and Lax (2019) believe that auditors' inattention to corporations' economic facts and conservative reports reduces litigation risk and filing a lawsuit against them, which widens the expectation gap. On the other hand, auditors state it is impossible to meet all beneficiary groups' expectations because their expectations are irrational. In other words, there is a difference between beneficiaries' expectations about the auditors' tasks, roles, and responsibilities and what can be achieved from standards. Moreover, the concepts and examples expressed in financial reports are understandable, and any possible problem arises from the educational quality and degree of information receivers (Hooton & Jub, 2020; Olagunju and Leyira, 2012).

Humphrey (1997) explains that the expectation gap mainly occurs due to audit concepts' subjective nature, such as fair comment, reasonable confidence, importance, adequacy, and creditability that have not been clearly explained in accounting and audit standards but have

remained for judging auditors. In Sika et al. (2003) opinion, the nature of the expectation gap's components prevents the removal of this gap. Various theories about the expectation gap have made it a universal and inevitable phenomenon that is not easily understandable (Leo, 2018; Denis, 2010). However, the expectation gap can be narrowed only by decreasing its destructive effects due to the nature of its components (Sika et al., 1992; Oju, 2006). In 2016, the International Organization of Supreme Audit Institutions (INTOSAI) and the International Federation of Accountants (IFAC) made auditors responsible for disclosing economic consequences, social liabilities, and stability of firms by designing the slogan of effectiveness instead of reassurance. Professional associations have concluded that there will be less demand for audits if they cannot build a bridge from the present to the future (American Institute of Certified Public Accountants (AICPA), 2020).

According to the points mentioned above, the expectation gap is a relative concept whose theoretical incoherence is rooted in hidden inner layers of individuals and their undefined expectations. Regulatory strategies and acts will be designed to narrow the expectation gap if we can reach a common perception based on the theoretical views. Although the causal factors of the expectation gap have been explored over the recent three decades, there are few in-depth studies on integrated solutions for reducing the expectation gap. Nevertheless, continuous research is needed to develop and improve audit quality. For this purpose, we tend to find a suitable model to create convergence and consistency between auditors and users and know to what extent the factors of emerging models can narrow the expectation gap between auditors and financial reports' users? Regarding this and the rest of the study, research questions, theoretical and experimental background, methodology, qualitative findings, results of the structural equation method (SEM), adaptation and validation of the research model with the existing literature, and discussion and conclusion are about to be presented.

2. Literature review

The term expectation distance was first coined by Liggio (1973). He defined the gap between expectations as the gap between the level of performance expected from the perspective of independent accountants and users of financial statements; This means that when auditors and society have various beliefs about audit duties and responsibilities and the messages conveyed in the reports, a gap in expectations is created (Boyle & Cunning 2005; Ariff & Rosmaini(2005); Dixon et al.,(2006). After Liggio, Cohen, N. F.(1978), commissioned by the American Society of Certified Public Accountants to examine the expectation gap, redefined it: “The gap in expectations describes the distance between the information requirements of the community and what auditors can and must do logically.”

Unreasonable expectations, inefficient standards, low-quality audits, managerial, political, and economic factors, and low quality of financial reporting have been the main causes of the expectation gap. In addition to unreasonable expectations, the adverse performance of auditors has been introduced as the most critical factor creating a gap between the expectations of auditors and financial reports' users. Auditors' performance has been weakened due to the ineffectiveness of audit procedures in restricting fraud commitment and removal of drawbacks in internal surveillance systems by internal auditors, failure to comply with the code of professional conduct by auditors, lack of technical knowledge and jurisdiction over IT, lack of skill in risk-based audit, and long-delayed audit reports. Goddard & Schmidt 2020 and Eylul Wesklana, 2020; believe that political governance over the audit profession and the influence of large stakeholders on decisions have made society pessimistic about the audit profession; thus, auditors' independence has been a vague case. Furthermore, some inherent restrictions in the audit may create an expectation gap. For

example, it is impossible to explain important forecast items in financial statements based on auditors' judgmental explanations. The audit profession aims to explain the case, not prevent it, because the audit procedure is done at the end of the fiscal year; hence, the evidence has a persuasive, not definite nature. However, stakeholders need information based on the cash flows and future events. Moreover, managers do not ask for a high-quality audit because they need it to hide their responsibilities and legal requirements. Low audit fees and unfair distribution are other issues that auditors face when providing professional services (Hanifa & Hidayab, 2007; Ahmadzadeh et al., 2013; Runk and Schmidt, 2014).

Inefficient standards also widen the expectation gap and do not meet users' reasonable expectations. The complexity of standards and inability of auditors to apply these standards, non-compliance of standards with environmental conditions, business restrictions, and insufficient attention to users' needs have led to low quality of financial reporting and mistrust and loss of financial reports' users (Nikbakht et al., 2012; Tomeh & Yahiya, 2018; Li et al., 2007). All expectation gap causes are interconnected so that any rise or decline in one factor occurs in another component to converge expectations. For instance, attention to users' needs in standards reduces users' unreasonable expectations due to providing fair information. The audit expectation gap has a long and prominent history, with literature examining this challenge since almost 1969 (Ademey et al., 2011). The study outcomes in recent decades show the presence and continuation of this gap in many places globally. Table 1 shows the studies carried out from 1990 to 2021.

Table1. The summary of the studies on the expectation gap

Writers	Year	Country	Subject	Key results
Hamilton & Smith	2021	US	Mistake or fraud: The effect of financial misconduct on management fraud strategies and auditors' evaluation of the misconduct associated	1)The managers want to remove some key transactions in the financial statements to record a transaction incorrectly by fraud. In other words, instead of providing misleading information, they remove the key information. 2)The auditors have found recorded transactions incorrectly yet are less suspicious of the deleted transactions unless documents are available for deleted transactions or registered transactions related to deleted transactions.
Kahzadei taneh	2021	Iran	Audit Significance Level: The gap in expectations between auditors and users	1) To reduce the gap in expectations, auditors emphasize the need to revise audit guidelines. 2) There is a gap between auditors and users regarding revenue and liability criteria.
Goddard & Schmidt	2020	US	The features effective in the selection of auditors: The expectation gap between the board and the independent auditors	1) Lower audit costs and having a good relationship with the partners of auditing firms are the criteria for evaluating the selection of independent auditors by board members. 2) Having mental independence, professional skepticism, expertise in the industry, and technical competence are the criteria for evaluating auditors accepting audit work.
Fozeh *et al*	2020	Cameron	An experimental study of the factors affecting the expectation gap	The auditors' experience has no impact on the expectation gap. Instead, the expectation gap is somewhat reduced as auditors' legal responsibilities and revised standards increase.

Coram & Wang	2020	Australia	The impact of disclosing key audit topics and the accuracy of standards on the expectation gap	1) Reporting key elements of companies' performance and economic status does not affect the perception gap of users. 2) Focus on expectations of financial reports in the standards does not reduce the gap in expectations.
Houghton & Jubb	2020	Australia	Disclosure of the level of significance and the real gap in the audit expectations	The auditors assume that the meanings conveyed by the reports are well understood, and even if there is a problem, it is related to the quality of the training of the recipients, especially micro-investors.
Valian et al	2019	Iran	Investigating the gap between audit expectations based on human resource strategies based on the rough and grey theory	1)Stakeholder perception, auditors' performance, legal and organizational gap, and individual and knowledge are the factors that create the expectation gap. 2) Ruff's analysis showed that conflict of interest is the most important factor gap and can be reduced.
Rosario & Thomas	2019	US	Reengineering with blockchain and smart contracts	1) Integrating blockchain and smart contracts lead auditing to automate business processes. 2) Independent audit blockchain can improve audit quality and reduce the gap in expectations between auditors and users of financial statements and regulatory bodies.
Behzadin and Izadi Nia	2018	Iran	The gap between the expectations of independent auditors and the users of audit services regarding the quality of audit services	1) Contrary to popular belief, the individual abilities of auditors do not increase the quality of the audit and reduce the gap between expectations. 2) Auditing firms' size and quality rating effectively reduce the gap between individuals' expectations in auditing regulations.
Hasas yeghaneh and mansouri	2017	Iran	Assess the expectation gap between auditors and users regarding the implications conveyed by the audit report	1) There is a gap in expectations between auditors and user groups at the micro-level. 2) The expectation gap is reduced through user education, and there is no need to change standards.
Salehi	2016	Iran	Exploring a new approach to narrowing the expectation gap	Many users do not fully understand the nature of the certification performance of fraud detection, and this creates a gap between the expectations of users and independent auditors.
NikoMaram et al	2014	Iran	Evaluate the application of the requirements of Standard 700 in reducing the gap between expectations	1) There is a sharp expectation gap between auditors and users in Iran. 2) The requirements of auditing standard 700 have little effect on reducing this gap.
Olagunju and Leyira	2012	Nigeria	Expectation gap: The perspective of auditors and users of financial statements	The expectations of auditors' duties, roles, and responsibilities are too high and far from achievable. Therefore, symposia should be created to educate users on audit reports.
Gould & Granold	2012	Holland	Examining the significance of the revised 700 standards in reducing the expectation gap	1) Auditors and users of financial statements come to a reasonable consensus on the responsibilities of managing and the reliability of financial statements. 2) The revised audit report 700 does not reduce the expectation gap.

Aghaei et al	2011	Iran	The role of training in reducing the expectation gap between auditors and users	Educating users of financial statements about the role and responsibilities of auditors reduces the gap between expectations.
Coram & Mock	2011	Australia	Examining the communication values of auditors' reports for users	Financial analysts do not use the new audit report. This shows that the value of communication through reports is prior to achieving reasonable assurance of the content of the reports.
Orienters et al	2011	US	Comparing the level of perception of users of information	1) Some users read part of the auditor's report and do not read the entire audit report. 2) Shareholders demand auditors disclose investment risk in their reports, whereas auditors argue that this will increase audit costs.
Haidarpour et al	2010	Iran	Assessing the efficiency of tax audit in reducing the gap between expectations	Tax audits speed up tax collection, reduce tax arrears, and increase the quality of financial statements.
Haniffa & Hudaid	2007	Saudi Arabia	A case study of the cultural gap in expectations	1) The performance gap is because of four environmental factors: licensing policy, recruitment process, political and legal structure, and social values and beliefs 2) Institutional and cultural regulations affect the gap between audit expectations. 3) Including basic principles and ethics in auditing standards has helped reduce the expectation gap in Saudi Arabia.
McEnroe & *Martens*	2001	US	Various views of auditors and investors on the expectation gap	Divergence of expectations between auditors and users is because of auditors' responsibility and unreasonable expectations of users.
Pierce & Kilcommnis	2000	China	Expectation gap and the role of education in reducing it	Training might have a limited effect on expectations, but it is not sufficient.
Bozorg asl	2000	Iran	Auditors 'and Users' Perceptions of the Content of Messages Sent by Audit Reports	In many cases, there is a significant difference between the auditors' perceptions and those of users, indicating a failure in the reporting process.
Nikkhah azad and Mojtahedzadeh	1999	Iran	Investigating the Responsibility of Independent Auditors from the Perspective of Auditing Services Users and Independent Auditors	The areas of responsibility of auditors (auditing services) are not as effective as they should be.
Chang	1995	Australia	Auditors' confidence and expectations from the audit	The more confident the auditors are, the greater the expectation gap between them and users. High self-confidence in auditing can be dangerous and can lead to inefficient auditing.
Porter	1993	Australia	Completing the introduction of the audit expectations gap	Out of the total expectation gap, 16% is because of poor performance of auditors, 50% poor professional standards, and 34% unreasonable expectations of society from auditors.

Source: Research library studies

Table 2. The elements affecting the expectations gap

Expert, researcher	Reference components in the existing literature
Saladriguez (2014); Ruhnke **&** Schmidt (2014); Okafor **&** Otalor (2013); Asar & Wright (2012); Pourheidari & Abu Seedy (2011); Gray et al. (2011); Hassing et al. (2009)	Managerial and political factors (Political cooperation in the profession, gap in capitalism, lack of inflation accounting, lack of a platform for fair valuation, the formality of some audits due to political influence, and the key effect of major shareholders in decisions)
Hamilton & Smith (2021); Eylul (2020); Olohideh et al (2020); Houghton & Jubb (2020); Tomeh (2018); Najib (2017); Salehi (2016); Di Bia (2015), Saladriguez (2014); Raunk & Schmidt (2014), Okafor & Otalor (2013); Asar & Wright (2012); Pourheidari and Abu Seedy (2011); Gray et al (2011); Hassing et al (2009); Salehi and Azari (2008); Haniffa & Hudaid (2007); McEnroe and Martinez (2001).	Individual, perceptual and cognitive gap (Expectation of fraud detection, insufficient user education, perceptual bias, cognitive conflict over credential role, wide range of users, and cognitive conflict)
Goddard & Schmidt (2020); Eylul (2020), ACCA (2020), Olohideh et al (2020); Tomeh (2018); Najib (2017); Mohammad Al-Bakhsh (2016); Di Bia (2015); Saladriguez (2014); Raunk & Schmidt (2014); Aghi et al (2013); Olagunju and Leyira (2012); Salehi & Azari (2008), Hanifa & Hidayeb (2007); Lee et al(2007); Chador & Innce (2003); Porter (1993); Albas (1999).	Unfavorable performance of auditors (The inefficiency of processes, insufficient independence, non-observance of professional conduct, non-competence and technical knowledge in the field of information technology, insufficient knowledge of standard skills, insufficient knowledge of auditing on risk and performance, untimely reports, technology growth Information and digital transformation, disregard for corporate social responsibility and sustainability reporting)
Gray et al. (2011), ACCA (2020)	Divergence in the interpretation of laws and defects in-laws and regulations
Tomeh (2018); Lee et al. (2007); Porter (1993), ACCA (2020)	Inefficient standards (Complexity of standards, non-compliance with environmental conditions, inability to implement in the current business environment, insufficient attention to user needs)
Toumeh (2018); De Bia (2015); Raunk & Schmidt (2014), ACCA (2020)	Inefficiency in the supervision of professional associations and supervisory bodies (Auditors' lack of accountability, lack of technical quality monitoring of audits)
Aghi et al. (2013)	Financial reporting quality (Lack of software platform for measuring and monitoring the quality of financial reporting and paying more attention to the general aspect of financial reporting, which reduces its predictability)
Saladriguez(2014); Hanifa & Hidayeb(2007); Ahmadzadeh et al. (2013); Najib (2017); Raunk Schmidt (2014).	Intrinsic limitations and nature of the auditing profession (Lack of liability insurance coverage, intangible and non-disciplinary nature of auditing, nature of post-event investigation, auditing on a mandatory basis rather than necessity, low fees compared to other professional services, the complexity of the business environment and company activities)
McEnroe & Martinez (2001), Chang (1995)	Conservatism of auditors

Source: Research findings

By examining the empirical background of the study, one can conclude that various internal and external researches have focused on the expectation gap; but a comprehensive and strategic model for reducing the expectation gap between auditors and reporting users has not been provided. Hence, the present study has several aspects of innovation. First, it seeks to provide a comprehensive model for reducing the expectation to fill the existing research gap using the

underlying multidimensional method. Second, to quantify the impact of each convergence factor of expectations between auditors and financial reporting *users.* Moreover,167 foreign papers were examined from 1987 to 2021 in reputable scientific databases (Science Direct, Springer, Emerald, Elsevier, Google Scholar, ProQuest), and the expectation factors of the table below were extracted from them to reach effective elements for creating a gap.

3. Research Methodology

In terms of results, the study is part of exploratory research. Regarding purpose, it is part of applied study, and in terms of implementation, it is of library and field type. Moreover, based on the multidimensional contextual approach, data collection logic is deductive induction. This is because concepts constitute the building blocks of theories and are abstracted and developed based on empirical data (Glaser, 1992; Strauss & Glaser, 1967; Strauss, 1987; Goldkuel, 2004). Conceptualization is the main process of any science development, and data and concepts dialectically produce propositions that allow using a theoretical framework prior to experience (Morse et al., 2009). The study of unknown contexts and contexts needing a new perspective on the phenomenon examined (convergence of expectations) is the reason for using contextual theorizing in this study.

Table 3. Methodology

research method	Approach	Analysis tools	Sample	Execution description
Qualitative	Multifaceted foundation context	interview questionnaire	Forty-four females and 124 males; There were 17 members of the interviewed panel,43 auditors, 36 financial managers,15 accountants, 25 financial analysts, 8 asset employees, 4 bank credit employees and 10 others, of which 78 had a doctorate, 52 doctoral students, 32 masters and 6 bachelors.	In implementing the second phase of the research, to determine the effect of each factor causing the convergence of expectations between auditors and users of financial reports, 249 questionnaires were distributed among interviewees, faculty members and PhD students in accounting. One hundred eighty usable items were evaluated. Then, data were analyzed using a structural equation modeling approach and PLS software.
Quantitative	Structural equation	questionnaire	Fourteen professors and associate professors in the field of accounting and financial management, 3 members of the Supreme Council of the Society of Certified Public Accountants, 5members of the audit organization, 6 partners of audit institutions, 6 financial analysts, 3 formal experts,3 tax auditors,2 insurance auditors.	Upon conducting the interview and reaching saturation in recognizing the concepts, the coding was done and the concepts were categorized and arranged based on the common aspects. After refining the concepts, pattern coding was performed and the operation conditions, work, results, and consequences were determined. In the next step, the theoretical enrichment and validation process of the data were discussed and the emerging components were adapted to the existing theories. In the final step, a comprehensive pattern of convergence between the expectations of auditors and users of financial statements was explained.

A systematic review of information interactions between auditors and users and clarification of latent processes and expectations of users of financial reports to reduce the expectation gap are other reasons for using this method in the present study. The multi-grounded theory goes beyond

mere analogy and adds theoretical grounding to experimental grounding (Lind &Goldkuel, 2007; Jones & Alonye, 2011; *Mansour & Skinner*, 2008; Brayant, 2002). The population was the expert professors in auditing with the academic rank of minimum assistant professor, partners of auditing firms, senior managers of the auditing organization, tax auditors, analysts and senior managers of creditors, and auditors of social security insurance. Furthermore, purposeful combined sampling or conscious selection of specific participants has been used because of the study's exploratory nature (Toddle & Yu, 2007; Patton, 2002).In this approach, a combination of two methods of theoretical sampling and chain reference or snowball was used. This method uses expert samples in various groups for theoretical saturation in presenting a conceptual model (Toddle et al.,2007). Table 3 shows the methodology.

Table 4. Inductive coding of the concepts

Expectation convergence strategies	
Provision of a cultural and educational context	Promotional training to further enlighten the users on the role and responsibilities of auditors Changing the national attitude and views toward the audit profession as a helpful social mechanism and creating a suitable platform for audit maturity Encouragement and strengthening the demand for high-quality auditing through tax incentives. Strengthening insurers' knowledge of risk auditors' liability insurance.
Provision of the economic bases and prohibiting political governance (creating a competitive environment and real privatization)	Liberalizing the state economy (real privatization), making industries competitive, and attracting foreign investment Increasing the efficiency of financial markets, observing conflicts of interest, and reducing information asymmetry Provision of a free reference for public reporting and creating coercion in case of auditor negligence Control of the power of some political governments in the development of standards, laws, and regulations Obligation to report on sustainable development and granting privileges to voluntary disclosures such as tax incentives. Removing the audit monopoly of national and mother industries by the auditing organization and Mofid Rahbar Institute Revision of the statute of the auditing organization regarding the separation of supervisory and executive duties in the auditing organization
Reforming and unity of procedure between upstream laws and regulations	Rapid revision of the Commercial Code consistent with the changes in the business environment (for example, separation of dual duties of the statutory auditor and auditor and reports submitted) More coherence and clarity of laws and regulations and determination in their implementation to prevent different interpretability and bias in judgments Theoretical consensus on upstream laws by the Ministry of Economy and Finance in the presence of representatives of the Organization of Economic Affairs and Finance and professional auditing bodies and monitoring of resolutions and interactions
Coherence and joint efforts in legislation and development of standards	Standards must be developed according to environmental conditions and need assessment of user expectations. Compilation of inflation accounting as a complete set to provide a more relevant report More attention to the misuse of assets in the context of accounting standards Changing the tone of auditing standards to increase social utility, such as assisting with decision making and providing information for predicting future events
Enhancing audit performance and effectiveness	Strengthening audit firms in terms of tools and experienced human force. Full adherence to the code of professional conduct regarding referral to audit work, esoteric independence, and professional competence Equipping the auditors with professional ethics and equipping auditors with more investment in education.

	Avoiding outsourcing auditors to accounting firms
	Eliminating monopolies and making the auditing market more competitive regarding the quality of work.
	Mastery of standard skills through complete mastery of accounting and auditing standards.
	The composition of auditing partners should not be limited to accountants and auditors; for example, men and lawyers, and so on should be present in the composition of partners too.
	Internal auditors' practical and intellectual growth and maturity by ongoing training and systematization of internal audit processes.
	Investment deviations, threats, or pervasive ambiguities about corporate activities should be investigated and disclosed in reports.
	Integration of auditing firms, forming larger firms, and quality monitoring of performance.
	Launching a letter of employment before accepting the audit work (letter of responsibilities, how to handle, and auditors' understanding of referring work to employers).
	Establishing independent and effective audit committees in a realistic and not formalistic way and holding regular meetings of the audit committee with the presence of independent and internal auditors in order to further coordinate.
	Establishing quality monitoring systems of audit firms by a comprehensive software platform to evaluate peers through audit quality indicators
	More supervision over auditor’s referral to and the creation of specific norms for auditing fees and the prevention of fee-breaking
Continuous monitoring of professional organizations and regulatory bodies on the performance of auditors	Developing requirements to provide a sufficiently courteous reason (rather than a clause) for employers to change auditors and oversee the tenure of less independent auditors in the early years.
	A structured review of auditing fees and payment of part of the cost of quality reporting by stakeholders
	Changing the style of education and creating a new attitude in accounting and auditing in universities, training centers, professional associations, and market watchers.
	The formal announcement of auditors' fees
	Adequate supervision and establishment of the necessary mechanism to submit timely audit reports
	Establishing a committee consisting of tax auditors, insurance auditors, the Society of Certified Public Accountants, and capital market watchdogs to identify the main causes of the dispersal of expectations and disruption in the industry (both in terms of standards and rules in terms of auditors' performance). Presenting this contradiction and agreeing on the alignment of laws and regulatory mechanisms.
	Information needs evaluation for forecasting future events from venture capital firms such as investment firms, real stockholders' associations, investment consulting firms, credit rating firms as well as financing companies
Strengthening the computer auditing infrastructure and paying attention to social responsibility	Strengthening and revising all standards regarding the use of information technology
	Continuous training of auditors in IT application skills for sampling and other IT-based handling methods and understanding of the complexity of companies' activities in different industries
	Creating the necessary structures to use new technologies such as big data, cloud computing, blockchain, Clara, and so on increases speed and accuracy and provides high reliability in auditing.
Requiring auditors to be accountable and creating coercive forces	Accountability of auditors for their duties and responsibilities and imposing penalties for auditors' negligence
	Establishing coercion to hold auditors accountable to users in the event of default
	Creating coercion to move in the direction of corporate social goals and creating a system of direct accountability of the shareholder (auditor) to the manager (shareholders)

Source: Research Findings

Table 5. The conceptual refinement of the main categories of the study

Main category	What	Where	When	Why	How	Consequence
Provision of cultural and educational context	How do you evaluate the provision of educational and cultural contexts for training users and auditors in reducing the expectation gap?	Iran	Any time	informing and reduce cognitive conflict	Professional organizations	Proper knowledge of auditors' responsibilities and building social trust
Provision of a free competitive economy and prevent political rule	How do you evaluate the liberalization of the state economy, the competitiveness of the market, and the prohibition of political interference in legislation?	Iran	Any time	Competitive economy	National determination for reform	Liberalizing the economy and attracting foreign investment
Reforming and unification of procedures between standards and rules Coherence and joint efforts in legislation and development of standards	How do you evaluate the revision, unity of procedure, coherence, and joint efforts in legislation and standards development?	Iran	Any time	Convergence of rules	Collaboration	Uniform interpretation of rules and regulations; Efficient standards and the environmental conditions of the country
Improving audit performance and effectiveness	How do you evaluate the auditors' refinement of ethics and professional conduct and equip them with new information technology tools?	Iran	While providing the service	Promoting professional growth	Observing the ritual of behavior	Increasing credibility and reducing social pressure
Continuous monitoring of professional organizations and regulatory bodies on the performance of auditors	How do you evaluate peer review, the interaction of oversight bodies with professional bodies in monitoring the performance of auditors, as well as the integration of small audit firms for the fair distribution of remuneration?	Iran	While providing the service	Improving audit quality	Professional communities	Optimal allocation of resources and increase of capital market efficiency
Strengthening the computer auditing infrastructure and paying attention to social responsibility	How do you evaluate the strengthening and general review of standards regarding the use of information technology and the continuous training of auditors in using information technology to reduce the expectation gap?	Iran	Before providing services	Computer audit and use of information technology	Strengthen infrastructure	Audit effectiveness, error reduction, timely reporting
Requiring auditors to be accountable and creating coercive forces	How do you evaluate the accountability of auditors for their duties and responsibilities and the creation of coercion in case of auditors' negligence?	Iran	After providing the service	Focus on the needs of stakeholders	Professional communities	Contributing to information transparency and reducing economic costs

Source: Research findings

In order to achieve theoretical saturation, a total of 42 semi-structured interviews were conducted with an average weight of 31 minutes. The text of all 42 interviews was entered into MAXQDA software to classify and sort the codes. Then 176 concepts were extracted for waiting distance reduction strategies. In Table 4, the inductive coding of concepts has been fully explained.

In the next step, to organize the codes, integration, and initial groupings of the interview, the concepts were modified through the conditional communication guide table of Scott and Howell (2008). The results of which are presented in Table 5.

Here, each of the extracted factors from the existing literature and experts' opinions is expressed after integration and grouping in the context of contextual conditions, convergence strategies, and convergence consequences between the expectations of auditors and users of financial statements. Table 6 is the pattern coding of concepts.

Table 6. Pattern coding - equivalent to axial coding

Type	Sub-categories
Underlying contextual conditions	Attracting foreign investment and increasing the efficiency of the capital market – liberalization of the state economy and making industries competitive - accountability and coercion - reforming the supervisory and executive duties of the audit organization - prohibition of political governance in auditing - full observance of professional conduct - auditor social responsibility and attention to the sustainability of companies
Convergence strategies	Training managers and users about raising awareness of the role and responsibilities of auditors, forming large audit firms (integration) and fair distribution of remuneration, the formal announcement of remuneration, continuous and continuous evaluation of peers, efforts to submit timely audit reports, review and coherence of basic rules, revision of standards according to changes in technology, environmental conditions, and needs of users, cooperation in legislation, mastery of standard skills through the training of auditors, change in the composition of auditing partners including lawyers and me and prevention of outsourcing to accounting firms
Consequences of convergence	Dynamics and increasing trust in the auditing social profession, optimal resource allocation, transparency of information and reduction of crimes, the proper decision of investors, improving the quality of information and financial reporting, effectiveness and growth of the auditing profession, and efficient standards and Compliant with environmental conditions

Source: Research findings

3.1. Summary and theoretical development

The final stage of the theoretical array is the conceptual model of convergence between the expectations of auditors and users of financial statements, as shown in Figure 1.

After theoretical summarization, the compliance and clarification with the existing theoretical foundations are done in the multifaceted contextual approach. This part is the most significant distinguishing feature of the conventional and multifaceted context and includes adapting the existing literature on expectations gap reduction strategies to emerging categories. Table 7 displays which components are consistent with the existing literature and discovered by the present study.

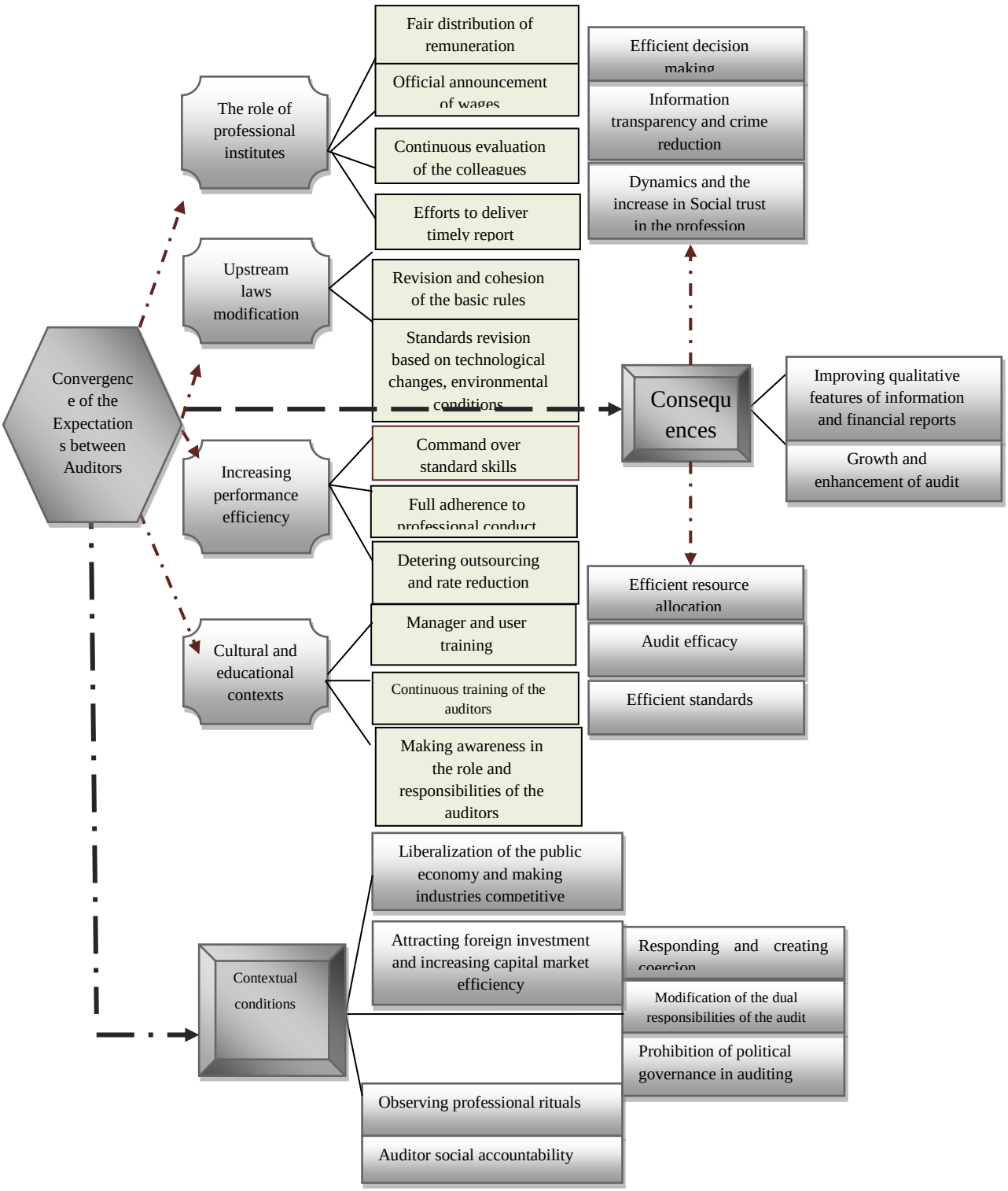

Figure 1. Convergence pattern between auditors' expectations and users of financial statements

Table 7. Enrichment - data validation

Adaptation of existing theories to the findings (validation)	Expert, researcher	The main components
New component	-	Provision of the economic bases and prohibiting political governance Examples: (Provision of a free reference for public reports on auditor negligence, controlling the effect of political governments in setting standards, removing the monopoly of auditing national and parent industries by the auditing organization and Mofid Rahbar Institute, reviewing the auditing organization's statutes regarding the separation of supervisory duties and implementation, liberalization of the state economy (real privatization),
New component	-	Continuous monitoring of professional organizations and regulatory bodies on the performance of auditors Examples: (Development of experienced manpower, quality monitoring of auditors' performance, structured review of audit fees, and so on)
New component	-	Reforming and unity of procedure between upstream laws and regulations Examples: (Revision of laws, more coherence, and clarity of laws and regulations and determination in their implementation, joint efforts and theoretical consensus on upstream laws and monitoring of resolutions and interactions between them)
New component	-	Requiring auditors to be accountable and creating coercive forces Examples: (Auditors 'accountability for their duties and responsibilities and imposing penalties for auditors' negligence, creating coercion to assess negligence, moving in the direction of corporate social goals and establishing a social accountability system)
Conforms	Sika et al. (1992); McDonald Committee (1988); *Hatherly* et al. (1991); Kuh & Wu (1998); *Innes* et al. (1997); Humphrey et al. (1992); Limped et al. (2019); quick (2020); *Fozeh* et al. (2020), Nordin (1991), Okafor and Autotal (2013).	Coherence and joint efforts in legislation and development of standards Examples: (Expanding the role and responsibilities of auditors, adapting standards to environmental conditions, requiring extensive reporting, changing the tone of auditing standards to increase social utility)

Complies (except for examples of insurers knowing how auditors are insured)	Olagunju and Leyira (2012), Pierce & *Kilcommnis* (2000), ACCA (2020), Medink (1986); Muir (1989); Mohammad and Al-Bakhsh (2016), Okafor & Autotal (2013); *Hatherly* et al. (1991); Kuh & Wu (1998); *Innes* et al. (1997); Humphrey et al. (1992); Limped et al. (2019); Souza et al. (2020).	Strengthening the computer auditing infrastructure and paying attention to social responsibility Examples: (Use of blockchain and smart contracts, strengthening and general review of standards on the use of information technology, continuous training of auditors in the skills of using information technology for sampling and other methods of handling, the use of new technologies)
Compatible (except for anthropological examples in the composition of audit partners and the growth of audit intellectual and practical maturity)	Goddard & Schmidt (2020); Haniffa & *Hudaid* (2007); ACCA (2020); Muhammad and Al-Bakhsh (2016); Raunk & Washmit (2014); Chador & *Innes* (2003); Moyser (1991); Sika et al. (1992).	Enhancing audit performance and effectiveness Examples: (Technical competence, maintaining independence, full observance of professional conduct, development of experienced manpower, prevention of outsourcing of audit work, mastery of standard skills through continuing education, attention to ethnicity,
Conforms	Rosario & Thomas (2019); ACCA (2020); Liu et al. (2019).	providing Provision of a cultural and educational context Examples: Extension training for more user awareness of the role of auditor responsibilities - creating a cultural context for changing national attitudes and views towards the auditing profession as a helpful social mechanism - Incentives to demand high-quality auditing (such as tax and insurance incentives, and so on) to be considered - Insurers 'knowledge of auditors' liability insurance should be strengthened through implicit training.
Does not match (In the present study, strategies were not explained)	Joint Statement of Four Large Auditing Institutions: PWC, Deloitte, KPMG, Ernest & Young (2015); Nordin (1999); Chador and *Innes* (2003); United States Chamber of Commerce (2006)	Assimilation of standards

Source: Research findings

3.2. Structural equations

The second phase of the study was carried out with a questionnaire, for which purpose 249 questionnaires were sent, and out of 194 collected items, 180 were evaluated as usable. The questionnaire had two parts: general and specialized questions. The general question included gender, professional occupation, work experience, and education to analyze the results. Moreover, the sample comprised university professors, auditors working in auditing firms, financial managers, thermal analysis, Department of Finance and Social Security, and banks, of whom 27% were women and 73% were men. Additionally, in this section, 47% of the respondents had a doctoral degree, 31% were doctoral students, 19% had a master's degree, and 3% had a bachelor's degree.

Three reliability, convergent validity, and divergent validity fit the final model. As Table 8 shows, the values of the factor loadings of the measurements of the model components are more than 0.4, which is statistically significant. Furthermore, the average variance extracted (AVE) of each component is more than 0.4 showing that the fitted model has good convergent validity and confirms the confirmatory factor analysis.

Table 8. The results of factor analysis of the questionnaire questions

Components	Item	Factor loadings	SD	AVE
providing	Promotional training			
Provision of a cultural and educational context	Changing national attitudes and insights into auditing Encouraging demand for high-quality auditing Training of insurers on auditors' civil liability insurance Creating coercion for auditors' negligence	0.618	0.072	0.501
Managerial and political reforms	Prohibition of political governance in the development of standards and laws Requiring and encouraging sustainable development reporting Lifting the monopoly of national and mother industry auditing Amending the organization's articles of association and separating its executive and supervisory duties	0.526	0.072	0.606
Necessary economic contexts	Liberalization of the state economy Increase capital market efficiency and reduce conflict of interest	0.666	0.071	0.468
Reforming and unity of procedure between upstream laws and regulations	Reviewing rules and coherence of basic rules Explicating in the text the rules and firmness in implementation to reduce interpretability Joint legislative efforts between professional bodies and legislative bodies	0.756	0.07	0.668
Coherence and joint efforts in legislation and development of standards	Focus on the text of the standards to help decide and predict future events Focus on the misuse of property in the text of the standards Compliance of standards with environmental conditions and information needs assessment Developing inflation accounting in the current situation	0.514	0.072	0.534
Enhancing audit performance and effectiveness	Clean up auditors with professional ethics and equip them with continuous training Maintaining independence and competence, and professional knowledge Strengthening experienced workforce Reducing outsourcing of most of the proceedings to non-professional experts (accounting firms) Competitive auditing market in terms of quality of work Mastery of standard skills and information technology Diversity in the composition of auditing partners, both lawyers and IT specialists The intellectual and practical growth and maturity of auditors with systematic training	0.464	0.074	0.552
Continuous monitoring of professional organizations	Disclosure of facility consumption diversion and resource consumption diversion by managers Continuous quality monitoring of auditors' performance Agreement and description of responsibilities and duties of the parties between the client and the auditors before accepting the job	0.488	0.072	0.447

and regulatory bodies on the performance of auditors	Effective audit committee in a realistic way and not decorative Merger small enterprises and form larger ones and better-quality control Establishment of quality monitoring and evaluation systems of its predecessors through a comprehensive software platform Prevention of rate violations and the official announcement of auditing fees Obligation to provide a court-friendly reason by the owners to change the auditor Changes in the teaching style of accounting and auditing in universities and professional authorities Solve the problem of untimely audit reports			
Strengthening the computer auditing infrastructure and paying attention to social responsibility	Continuous training of human resources in the skills of applying information technology in complex environments Structural reform and providing an effective audit mechanism for computer auditing using digital technologies	0.651	0.071	0.494

Source: Research findings

4. Research Findings

The reliability of the model, Cronbach's alpha, and composite reliability were 0.714 and 0.800, respectively, indicating that the fitted model has good reliability. After analyzing the structural model's fit, the study's conceptual model is given in Figure 2.

ccording to the Fornell & Larcker method (1981), the divergent validity results are in Table 9. The relationship of each component with its reagents and other components in this test is examined, and the correlation coefficient values between the components and the mean values of variance extracted for each component are given. As is seen, model components interact more with their indicators than other components that confirm the divergence of the model.

Structural model examinations

The path coefficients between the latent components are shown in Table 10. The results show that the provision of cultural and educational context with a coefficient of 0.453 and managerial and political reforms with a coefficient of 0.445 affect the convergence between the expectations of auditors and users of financial reports. Also, providing a suitable economic context with a coefficient of 0.540 and amending the basic laws by 0.597 converges expectations. Improving the quality of auditing services, professional organizations and regulatory bodies, and IT governance in auditing processes with coefficients of 0.538, 0.546, and 514, respectively, effectively converges expectations between auditors and users of financial reports.

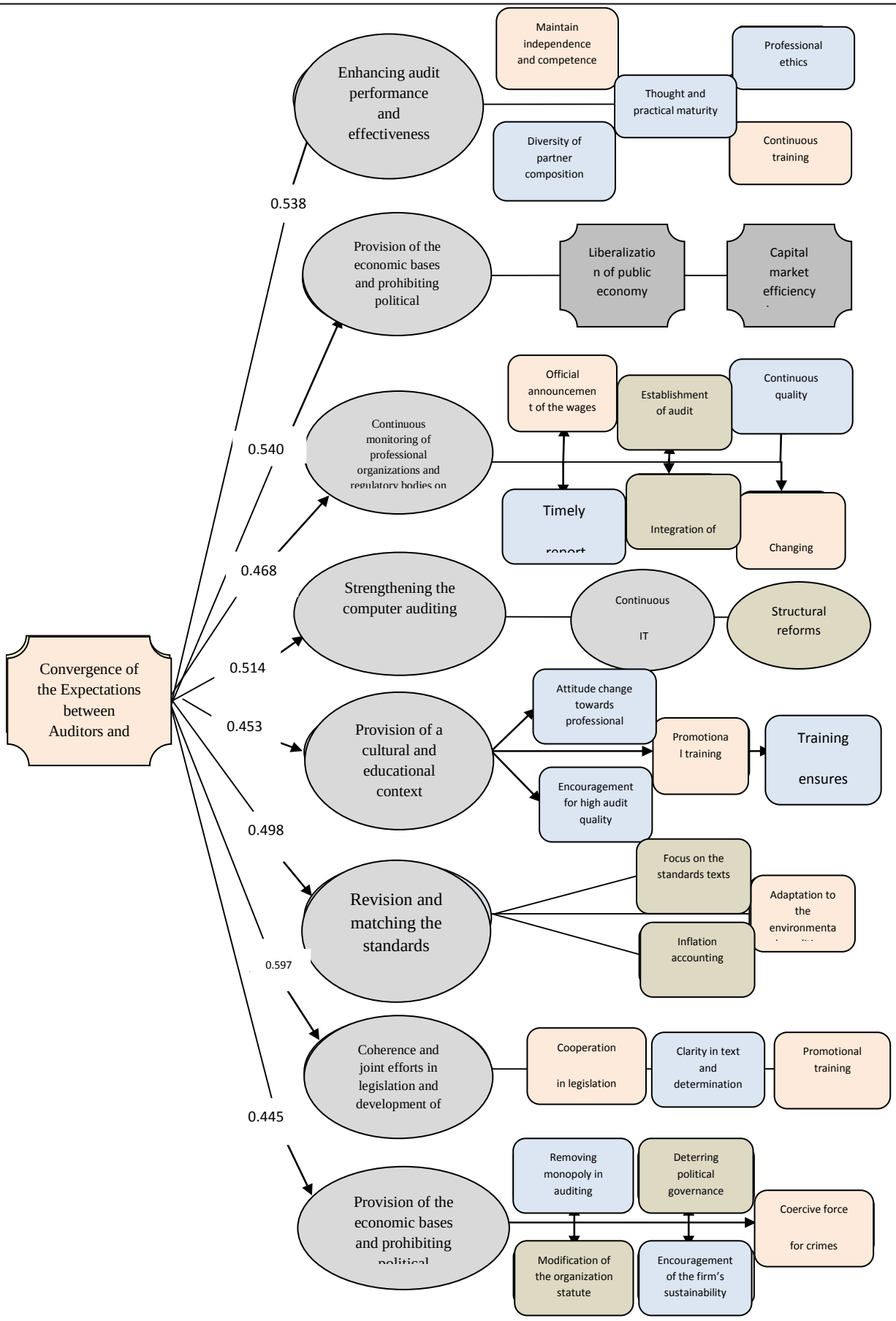

Figure 2. Structural model of convergence of expectations between auditors and users of financial statements

Table 9. Fornell & Larcker matrix results

Components	providing Provision of a cultural and educational context	Managerial and political reforms	Necessary economic contexts	Reforming and unity of procedure between upstream laws and regulations	Coherence and joint efforts in legislation	Enhancing audit performance and effectiveness	Continuous monitoring of professional organizations	Strengthening the computer auditing infrastructure
providing Provision of a cultural and educational context	0.707							
Managerial and political reforms	0.190	0.778						
Necessary economic contexts	0.314	0.445	0.687					
Reforming and unity of procedure between upstream laws and regulations	0.352	0.278	0.506	0.817				
Coherence and joint efforts in legislation and development of standards	0.015	0.374	0.279	0.308	0.723			
Enhancing audit performance	0.104	-0.141	-0.066	0.269	0.259	0.742		
Continuous monitoring of professional organizations	0.731	0.170	0.254	0.421	0.215	0.245	0.668	
Strengthening the computer auditing infrastructure	0.425	0.075	0.121	0.165	0.065	0.384	0.251	0.702

Source: Research findings

Table 10. The results of the path coefficient test

Path	**Path coefficients**	**P- values**
Provide a cultural and educational context ⟶ convergence of expectations	0.453	0.018
Managerial and political reforms ⟶ convergence of expectations	0.445	0.024
Provide a favorable economic environment ⟶ convergence of expectations	0.540	0.001
Modify the upstream rules ⟶ convergence of expectations	0.597	0.001
Reviewing and Implementing Standards ⟶ convergence of expectations	0.498	0.003
improving the quality of auditor performance ⟶ convergence of expectations	0.538	0.011
The role of professional organizations ⟶ convergence of expectations	0.468	0.010
The r*uling of IT in auditing* ⟶ convergence of expectations	0.514	0.002

Source: Research findings

5. Discussion and conclusion

The audit is the knowledge of skepticism, the pursuit, and evidence collection, and its handling is based on historical facts. The financial statements mainly reflect the financial implications of past events and do not include non-financial performance metrics or future visions and plans. Depending on the environmental conditions of the countries, various factors are influential in creating a gap in expectations between auditors and users of financial statements. First, the factors affecting the expectation gap were extracted from the available literature to conduct the present research. After adapting to the emerging theories in this research, the factors and strategies to reduce the gap

between expectations were tested. Providing a cultural and educational platform to inform users about auditors' roles and professional responsibilities is one of the factors that resulted in a convergence of 0.453 with the convergence between the expectations of auditors and users of financial reports. Users 'expectations regarding auditors' detection of fraud and distortion are unreasonable, and for this reason, it is necessary to create a training platform to identify the beneficiaries of financial reports regarding the responsibilities of auditors. In addition to users, Training managers by upgrading specialized knowledge and changing the way of thinking to conduct audits and training auditors in using new tools in complex IT environments and full adherence to professional etiquette will converge expectations. These results are consistent with the research of Olagunju and Leyira (2012), Peirce and Vkilcomins (2000), Medink (1986); Muir (1989); Mohammad and Al-Bakhsh (2016), Okafor and Ototalur (2013); Hutrley et al. (1991); Kuh and Wu (1998); Ins et al. (1997); Humphrey et al. (1992), Limped et al. (2019); Souza et al. (2020).

The results also showed that managerial and political reforms effectively reduced the expectation gap by 0.445. This component, which is not mentioned in the existing literature, includes control of political governance in the profession, unity of procedure to remove obstacles to the implementation of IFRS, and revision of the statute of the auditing organization concerning the separation of supervisory and executive responsibilities. Providing a suitable economic context was also one of the factors that had the greatest impact on the convergence of expectations with a coefficient of 0.540, along with the amendment of the basic rules. Due to its emergence, this component does not correspond to any previous research results. Liberalizing the state economy and increasing the efficiency of the capital market, making industries competitive (such as the carpet and dairy industry), and attracting foreign investment are examples of this emerging component. Review of basic laws, more coherence and explicitness in-laws and regulations and determination in their implementation, joint efforts and theoretical consensus on upstream laws and monitoring of resolutions and interactions between them are examples of the component of reform and coherence of basic laws that with a coefficient of 0.597 had the greatest impact on the convergence between the expectations of auditors and users of financial statements. This result is inconsistent with previous research because it is new. This research showed that auditing standards need to be changed to increase confidence in the auditing profession to enhance social benefits, aid decision-making, provide information for predicting future events, and adapt to environmental, economic, and user expectations. This component is also effective in converging expectations with a coefficient of 0.498. This result is consistent with the research of Sika et al. (1992); McDonald Committee (1988); Huterley et al. (1991); Kuh and Wu (1998); Ins et al. (1997); Humphrey et al. (1992); Limped et al. (2019); Quick (2020); Fozeh et al. (2020), Okafor and Ototalor (2013) and is not consistent with the researches of Nordin (1999); Chadori & Ins (2003).

The low quality of audit services has long been effective in creating a gap between expectations. Lack of technical competence, violation of independence, non-observance of professional behavior, amateur manpower, outsourcing of the main processes of proceedings, lack of sufficient mastery of standards, disregard for specialization in information technology, and social responsibilities have paved the way for the creation of expectations. The present study results showed that with a coefficient of 0.538, the convergence of expectations between auditors and users of financial statements could be achieved by strengthening and improving each indicator. This result is to the research of Godard and Schmit (2020), Hanifa and Hidaib (2007), Muhammad and Al-Baksh (2016), Rank and Washmit (2014), Chadori and Ins (2003), Moyser (1991) and Sika et al. (1992). The results also showed a significant and effective role in achieving convergence of expectations between auditors and users of financial reports, professional associations, and regulatory bodies. Professional assemblies and supervisory bodies with continuous monitoring of

auditors' performance, requirements for an effective audit committee in the composition of the board, the merger of small institutions and formation of larger audit firms, peer review, the formal announcement of audit fees, and the need for auditors to comply with social responsibilities are all influential in the convergence of expectations. Because this component has also been introduced as a factor influencing the convergence of expectations, it is not consistent with previous research. Finally, IT governance is effective in auditing processes, including providing the necessary structures to use blockchain and smart contracts, strengthening and reviewing the overall standards for IT application with a coefficient of 0.514, and the convergence of expectations between auditors and users of financial statements. In general, it can be concluded that the audit should be fast, agile, and adaptable (dynamic) concerning the environment in order to maintain and enhance its credibility and intellectual and practical growth and maturity.

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RESEARCH ARTICLE

The Effect of CEOs' Financial Knowledge on Unsystematic Risk, Considering the Moderating Effect of Managerial Ability

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Abstract

With the emergence of economic globalization, expansion of business activities and more complex financial, administrative and operational structures, the need for firms to have CEOs with capable financial and managerial knowledge has multiplied more than in the past. Leading companies will require specialized human capital such as knowledge-based CEOs to bring maximum productivity, efficiency, and value creation to stakeholders through effective corporate governance, risk management, optimal organizational resources, and increased profitability. This study investigates the effect of CEO knowledge and management ability on non-systematic risk and the effect of management ability on the relationship between the CEO's financial knowledge and unsystematic risk. The statistical population of this study is the companies listed on the Tehran Stock Exchange and the statistical sample size includes 147 companies for the years 2011 to 2020, which have been selected by the systematic elimination method. Combined data and multivariate regression using the generalized least squares method have been used to test the research hypotheses. The results show that the financial knowledge of CEOs has a negative and significant effect on non-systematic risk. The effect of management ability on non-systematic risk is also negative and significant. Another result of the study indicates that management's ability as a moderating variable does not have a positive and significant effect on the relationship between the financial knowledge of CEOs and non-systematic risk.

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1. Introduction

The CEO's financial knowledge improves the relationship between the management and the CFO departments; the CEOs can thus get involved in policy-making and management accurately and effectively. They emphasise risk management and more conservative approaches in financial reporting to identify unrealistic and misleading financial reports that will adversely affect their reputation (Gounopoulos and Pham, 2018). Managerial ability improves disclosure, the quality of financial reporting, and the information environment and reduces information risk and asymmetry. Information risk negatively affects accurate stock pricing in the capital market (Francis, Nanda and Olsson, 2008). Companies with CEOs possessing financial knowledge save financial resources, reduce firm risk and create value for the business. Such managers also potentially increase the reliability of financial reporting (Kalelkar and Khan, 2016). The concept of risk plays a key role in the capital market, so it needs to be recognized and measured. According to Damodaran (2000), risk has two signs: the first one means danger and the second one means opportunity; along with recognizing the threats, the opportunities gained should also be used. Therefore, two perspectives could be presented to define risk: the first includes any possible fluctuations in economic return, and the second includes any negative fluctuations in economic returns (Raei and Saeedi, 2017). According to classical financial theory, there is a positive relationship between risk and the expected return. Investigating the volatility of securities risk-return has always been considered by managers' that is, it is not possible to pay attention to one without considering the other. Risk consists of two main components: systematic and unsystematic risks. Unsystematic risk refers to fluctuations that are not explained by total market risk. In terms of theoretical concepts, this risk is equal to the standard deviation of the amount of additional returns expected by shareholders in a certain period; and there is an inverse relationship between the unsystematic risk and the return (Gholipour Khanegah et al., 2017).

The CEOs' financial expertise may cause to reduce the risk of the company's poor performance, improve the quality of financial reporting, and reduce the company's unsystematic risk. There is also a negative and significant relationship between the CEOs' knowledge and the weakness in internal controls (Oradi, Asiaei and Rezaee 2020). CEOs with financial experience and knowledge have better efficiency than other managers; they reduce the risk of system errors, have more accuracy and less errors in forecasts, and ultimately promote the transparency and quality of the company's financial reporting (Matsunaga, Wang and Yeung, 2014). CEOs' high ability effectively reduces their risk-taking behavior and risk avoidance. They play an important role in preventing and reducing risk in the company. By reducing the risk, the company is expected to achieve maximum returns as well as shareholders' maximum confidence. This study empirically proves that CEO's ability has a negative and significant effect on the company's risk-taking behavior and unsystematic risk (Wati, Tjaraka and Sudaryati, 2020). Managers with higher ability adopt risky behavior in their strategies and positively impact the company's performance. They benefit from more knowledge, skills and information and, through risky behaviors, reduce the costs and improve the company's performance (Simamora, 2021). CEOs play an important role in making important decisions in the business. Financial managers with a good deal of expertise are expected to positively and significantly impact the financial management of the companies' portfolios. They can reduce the unsystematic risk of the portfolio and increase the return rate (Chen et al., 2020). Managers with financial knowledge are well aware that to reduce the unsystematic risk, they need to create operational diversity for the company. This is the main reason for the acquisition and merger of companies in Western countries.

Ambiguity about the effect of managerial factors such as financial knowledge on other accounting and auditing variables has led some researchers such as Gounopoulos, Loukopoulos and

Loukopoulos (2021), Wati, Tjaraka and Sudaryati (2020), Custódio and Metzger (2014), Matsunaga, Wang and Yeung (2014) and Taheri Abed, Alinezhad Sarokolaei and Faghani Makerani (2018) to study the influence of managerial factors including financial knowledge. Regarding the above research, whether the CEOs' financial knowledge and managerial ability have a negative and significant effect on the unsystematic risk of companies listed on the Tehran Stock Exchange or not? Therefore, there is a need to investigate the impact of the above variables on each other in the economic environment of Iran. The results of this study are expected to help the shareholders choose the optimal investment and reduce their unsystematic risk. This research also promotes the accounting literature on the impact of managerial factors and introduces a new dimension to future research. The following is a review of the literature and research background. Then the hypotheses, research method, findings, discussion and conclusion are stated.

2. Literature Review

Upper echelons theory in management reveals that the CEOs' personality traits such as work experience, age, social and economic characteristics, university education, and past performance can partly affect the interpreting, decision-making, and solving of organizational problems (Hambrick and Mason, 1984). According to stakeholders theory, CEOs play an important role in balancing stakeholders' profits in the business. The reason for the emergence of the stakeholders' theory has been to help solve complex business challenges in businesses. According to this theory, the managers' role in the company is to help solve the challenges of companies in the fields of business, ethics, and capitalism and increase the value of the enterprise (Parmar et al., 2010). The human capital theory also revealed that the managers' knowledge and abilities could be a key factor in improving organizational performance. Organizational results may reflect the CEOs' values and abilities (Amit and Shomaker, 1993). Companies must take risks if they are to survive and prosper. The risk management function's primary responsibility is to understand the portfolio of risks the company is currently taking and the risks it plans to take in the future. It must decide whether the risks are acceptable and what action should be taken if they are not acceptable (Hull, 2015).

Investment refers to the delay in consuming current resources to obtain a return rate that will be received in the future. Paramitasari (2014) maintains that investment is individuals' management of capital applied to assets expected to bring about results in the future. Once an investment is made, investors expect a return from their invested capital, commonly referred to as the expected return (Misfiyati, 2018). Investment decisions resulting from management policies in using existing funds are in assets expected to bring future benefits to the company (Novianggie and Asandimitra, 2019). When making investment decisions, investors need to behave rationally. An investor's behavior is usually considered rational when he can use various information available on the capital market to allocate his funds optimally to investment (Pramuki, Subroto and Subekti, 2016). Investors can diversify their investments by investing in several stocks that form an investment portfolio. Investors should notice that unsystematic risks can be eliminated by diversifying their portfolios. (Sukrianingrum et al., 2020).Managers' financial decisions play an important and decisive role in the firm success (Singh and Luthra, 2013). Among these decisions, those about capital expenditures and investments can be considered the foremost (Durnev, Morck and Yeung 2005), focusing on identifying projects to maximize shareholder value (Elgebeily, Guerm and Vendrame, 2021).

Managers holding a university degree in accounting, auditing, management, and economics can analyze financial information and are more familiar with accounting standards and policies. In financial reporting, they mostly follow the premise of caution, but in adopting working capital policies, they often follow a bold strategy. During difficult economic conditions, they can increase

external financing, are more accountable when distributing profits to shareholders, and, with their financial knowledge, are capable of seeking tax avoidance. They may affect financial information. Moreover, they pay more attention to accounting and internal auditing areas. They are more likely to realize the disclosure and reduction of information asymmetry (Matsunaga, Wang and Yeung, 2014).

The CEO's knowledge is positively related to the company's financial, investment, and profit-sharing policies and negatively related to cash holdings. They have a better understanding of the financial and capital markets and, in case of limited financial resources, can more quickly address the company's shortcomings in these markets. Besides, since they are more familiar with accounting theories and concepts, they improve the financial performance of mature firms (Custódio and Metzger, 2014). While making investment decisions, managers with financial knowledge are sensitive to political interferences. Such managers in private-sector companies spend more on research and development than their counterparts in state-owned companies. There is also a high correlation between expert financial executives and investing expenditures (Anderson, Liao and Yue, 2022). By implementing their favorable or unfavorable policies based on their skills or experience, managers specialising in finance can increase or decrease the value of a company in the capital market. In conditions of uncertainty, they reduce the company's information asymmetry and help improve the information content of financial reports in times of financial decision-making and investment (Gounopoulos, Loukopoulos and Loukopoulos, 2021). Holding companies run by managers with general skills face a higher risk of bankruptcy. During the initial public offering, employing CEOs with knowledge and experience in finance can be very valuable for the company. Their financial experience and knowledge may reduce both the risk of information asymmetry in initial public offerings and over-investment (Gounopoulos and Pham, 2018).

According to Kalelkar and Khan (2016), CEOs specialising in financial affairs reduce the company's risk by improving accounting policy, better disclosure, and increasing the quality of financial reporting. They help increase the reliability of financial reporting, reduce audit fees, save financial resources, and create value for the firm. Kim, Kim and Mattila (2016) also state that recognizing systematic and unsystematic risks has become very important for economic enterprises for such risks influence values, strategies and the shareholders' rights. It is important to pay attention to risk and return simultaneously, and, as stock returns are considered, the company's risks should also be carefully identified.

The goal of businesses is to maximize profits and control risks simultaneously. An important part of an organization's strategy emphasizes risk management. Among the stakeholders, ordinary shareholders are more at risk, and risk management benefits this group. By reducing the adverse effects of risk, risk management will benefit all stakeholders and create a suitable and safe environment for decision-making; it may also reduce probable losses of investment activities (Raei and Saedi, 2017). One of the major benefits of organizational risk management is diversifying the investment portfolio, reducing the detrimental effects of unsystematic risk, and managing a set of risks to protect all corporate resources (Gordon, Loeb and Tseng, 2009). Citing Deng et al. (2014), Masry and El Menshawy (2018) discuss the impact of unsystematic risks on investment decisions. They discovered that organizations prefer to turn to portfolio diversification projects to reduce investment risk. But in case of a significant reduction in managerial ownership, the relationship between unsystematic risks and portfolio diversification becomes positive.

Unlike return, the risk is a subjective and non-quantitative concept. Many economic and financial experts have focused on recognizing and measuring risk. According to the new portfolio theory, the risk is divided into systematic and unsystematic. Systematic risk is a deviation in the expected returns related to factors outside the company; it is not under the control of the company's

management, including inflation, prosperity, exchange and interest rates, political and other factors beyond the control of business executives measured by beta coefficient. Unsystematic risk, also known as company-specific risk, is a deviation in the expected return on financial assets related to factors under management control. In addition to the common factors in the whole economic system, the company's specific factors affect only the return of the same company. They include factors such as the strength and style of the company management, organizational structure, product type and price, and so on. Therefore, investors can reduce their portfolio by diversifying it (Soleimany Amiri and Gerveie., 2017).

In the accounting literature, Markowitz (1952) was the first person to quantify risk for which he introduced a mathematical model. After him, Sharp (1960) developed the Markowitz model and introduced the capital asset pricing model (Fallah pour, 2014). To a large extent, this model has a large economic basis and shows how assets, according to their risk, are priced (Zariffard and Ghaemi, 2001). From the perspective of Masry and El Menshawy (2018) about unsystematic risk fluctuations and expected stock returns, the results of the studies could be classified into three different scenarios. Scenario 1: Researchers such as Ang et al. (2006) found a negative relationship between unsystematic risk and stock returns, revealing that the remaining standard deviation of models such as the Fama and French three-factor models had been used to measure the estimation of unsystematic risk fluctuations. Scenario 2: studies by some researchers, such as Goyal and Santa Clara (2003), reveal a positive relationship between unsystematic risk and stock returns. In the third scenario, certain researchers, such as Bali and Cachici (2008), demonstrated no statistically significant relationship between unsystematic risk and stock returns. Yung and Chen (2018) have also commented on managers' impact on the firm's risk and profitability: There is evidence revealing that managers believe that risky behavior is a manager's requirement. Managers' willingness to take risks indicates the existence of profitable opportunities in the market and is a fundamental force and stimulus for the growth and performance of the firm. Risk management and firm profitability also have a positive and meaningful relationship.

In a competitive world, managers have very serious responsibilities in managing economic units and their success. Therefore, the role of a manager in managing economic activities is undeniable. As the shareholders' representative and agent, the manager are responsible for promoting economic enterprises' productivity and profitability and tasks such as overcoming economic crises. In this regard, the CEOs' personal characteristics, including financial knowledge and ability, can overshadow their organisation's behavior and type of decisions and, consequently, affect financial-reporting transparency (Taheri Abed, Alinezhad Sarokolaei and Faghani Makerani, 2018). Harrison et al. (2020) also concluded that, in fact, financial-economic theories generally consider the relationship between risk and return to be positive. The results showed that this relationship might be positive for one company and negative for another. CEOs' special personality traits may also change the relationship between stock risk and return. CEOs' personality traits affect their perception of the market; these traits also influence the way the CEOs turn this perception into value-creating for the company. CEOs are the most important actors within a firm for their ability in the company and the capital market can have positive or negative effects on investment risk or value creation for the business. Diversifying the stock portfolio can reduce the detrimental effects of unsystematic risk on the company (Lee, Hu and Foley, 2020). CEOs always intend to take measures to bring the company's risk in securities to an acceptable level. According to portfolio management theory, unsystematic risk can be minimized by selecting the appropriate set of investments in securities at a given rate of return. The higher the securities get, the less the systematic risk will become, and the closer the portfolio risk to systematic risk (Rahnamay Roodposhti and Salehi, 2011).

Demerjian et al. (2013) have described the ability to manage as follows: It is expected that managers with higher ability than others create a higher level of revenue and return for the company through higher productivity and minimal resources. Managerial abilities and talents can improve performance, operations, corporate governance, productivity rate, and investment decisions, bringing about important economic consequences for the company. Capable managers are expected to be more informed about current technology and company policy than others; they are also more able to anticipate product demand and invest in worthwhile projects. Baik et al. (2011) state that: Compared to companies with lower managerial ability, companies with high managerial ability have the advantage of accuracy in providing information, improving forecasting in profit management and increasing the level of information disclosure in financial reporting to make decisions. Managerial ability plays an important role in promoting the value of the firm. Managers with high ability or those with low ability have opposite effects on the company's strategies and value. Managers with high ability are usually more risk-taking, while managers with low ability are more risk-averse. Highly capable managers reduce capital costs, increase the company's market value, and spend more on research and development projects. In contrast, less capable managers reduce capital costs, company market value, and R&D costs. The managerial ability negatively correlates with the company's financial leverage (Yung and Chen, 2018). During the financial crisis period, companies with better managerial ability, through increasing investment, create more profitability for the enterprise. Managerial ability negatively correlates with information asymmetry, increasing firm performance, reducing over-investment, and improving corporate borrowing capacity (Andreou, Ehrlich and Louca, 2013).

The quality of financial reporting can influence information and unsystematic risks and capital costs; therefore, having or not having information affects the company's risk. Companies with lower information quality have a higher unsystematic risk, and this negative relationship is always stable (Zalaghi, Bayat and Daneshasgari, 2014). It is expected that the greater the managerial ability, the more accurate their future risk forecast and return on investment plans are. The CEO's ability can affect the efficiency of investment, current profit and forecast of future profits, as well as the company's cost and risk management. As the managers' ability increases, the reliability and credibility of financial reporting systems will increase the company's value and risk control, while its capital cost will decrease. As the quality of information increases, investors' expectations of risk and return are adjusted; in other words, the quality of information leads to a reduction in the investors' risk of incorrect selection, and consequently, the expected return is also adjusted (Rashidi, 2020).

2.1. The development of hypotheses

Gounopoulos, Loukopoulos and Loukopoulos (2021) showed the negative and significant relationship between CEOs' experience and knowledge with bankruptcy risk and financial fluctuations resulting from stock returns. They reduce the risk of both information asymmetry and information uncertainty at an initial public offering and, by reducing accruals, improve the profit quality.

Ashafoke, Dabor & Ilaboya (2021) concluded a negative and significant relationship between the CEO's financial knowledge and the quality of financial reporting. Also, the CEO's tenure shows a positive and significant relationship with quality, reporting and finance, and the relationship between the company's profitability and quality-financial reporting has been positive but not significant.

Ying and He (2020) showed that CEOs with a finance degree could play a professional role in decision-making and improving the financial sector's performance. The impact of the CEOs'

experiences and academic training in finance on the performance of large non-governmental corporations has been positive and meaningful.

Zarei et al. (2018) showed an inverse relationship between the CEO's decision-making power and the risk of falling stock prices. These findings emphasize that improving the CEO's decision-making power reduces the risk of falling stock prices in a developing country like Iran.

Yung and Chen (2018) concluded that managers with high ability reduce capital expenditures but tend more significantly to spend money on R&D projects. In contrast, managers with a low ability to reduce capital expenditures and R&D costs are negatively related to the company's leverage. As the managerial ability increases or decreases, the company's value increases or decreases.

Behmanesh et al. (2020) a negative and meaningful relationship between the CEOs' financial knowledge and profit payment policy. There is also a positive and meaningful relationship between the CEOs' knowledge and cash retention. Other research findings indicate a negative relationship between the CEO's financial knowledge and leverage, but this relationship is not meaningful. This result shows that the leverage in companies with financially expert CEOs is not significantly different from that of other companies.

Saedi and Rezaeian (2019) showed that the more the CEOs' knowledge and skills in their area of expertise, the more their confidence in their knowledge would get. Some economists' analyses are much more accurate than some ordinary people's. Rational managers try to get the maximum return by accepting the minimum risk.

Recent studies have focused on CEOs' financial knowledge of earnings management, transparency of financial reporting, and restatement of financial statements. No research has investigated the effect of a CEO's financial knowledge and managerial ability on unsystematic risk; this is considered one of the innovative aspects of this research.

2.2. Research hypotheses:

According to the materials presented in the introduction, theoretical framework and literature review, it is inferred that the CEOs' financial knowledge and managerial ability reduce unsystematic risk. Accordingly, the following three hypotheses have been proposed and tested:

Hypothesis 1: CEOs' financial knowledge has a meaningful and negative effect on unsystematic risk.

Hypothesis 2: CEOs' ability significantly negatively affects non-systematic risk.

Hypothesis 3: Managerial ability strengthens the negative relationship between the CEOs' financial knowledge and unsystematic risk.

3. Research Methodology

This research is descriptive-correlational in terms of applied purpose and data analysis method. The information required for the theoretical framework and literature review has been prepared through the library research method. The research data, including searching the financial information of listed companies, have been collected through document mining. This information has been collected from the board of directors' financial statements and activity reports and provided through the codal[1] system and Rahavard Novin 3 software. Research patterns have been estimated by using GAMS, Eviews and STATA software. The statistical population consists of companies listed on the Tehran Stock Exchange from 2011 to 2019, and the statistical sample

[1] www.codal.ir

includes 1323 year companies selected through systematic elimination. The companies having the following conditions were included in the research sample: their fiscal year should be the end of each *Esfand* [1] ; they should not have changed their fiscal year during the research period, and not unlisted on the Tehran Stock Exchange; they should not be among the investment, financial intermediaries, banks and insurance companies; and their information needed for this research should be available. Based on the sampling conditions, 147 companies have been selected as samples.

The required information about the financial knowledge of the CEOs has been obtained through the Codal website, annual general meeting, and report of the board of directors to the annual general meeting, company website, internet search and contact of the CEO's office. Information on other research variables such as financial statements, board of directors activity reports, auditor reports, and attached financial statement notes have been prepared on Tehran Stock Exchange and Rahavard Novin software.

The study's first hypothesis examines the CEOs' financial knowledge of unsystematic risk. To test this hypothesis, Equation (1), to measure the CEOs' financial knowledge, Gounopoulos and Pham model (2018), and to calculate unsystematic risk, the empirical capital asset pricing model (CAPM) has been employed:

$$\text{Unsystematic Risk}_{i,t} = \beta_{\circ} + \beta_1 \text{Financial exp CEO}_{i,t} + \beta_2 \text{Log(age)}_{i,t} + \beta_3 \text{Log(assets)}_{i,t} + \beta_4 \text{Audit Size}_{i,t} + \beta_5 \text{Leverage}_{i,t} + \beta_6 \text{ROA}_{i,t} + \varepsilon_{i,t}$$

Equation (1)

Unsystematic Risk: Unsystematic risk is a research-dependent variable calculated based on the Sharp empirical capital asset pricing model (1960) and Equation (2).

Financial exp CEO: It is a virtual variable that will be 1 if the CEO's degree is in accounting, auditing, finance, management or economics; otherwise, it will be zero. **Log (age):** The logarithm of the company's age since its inception. **Log (assets):** It is the logarithm of the book value of all company's assets. **Audit Size:** If the company has used the services of the auditing organization, 1, otherwise 0 zero has been assigned to it. **Leverage** is obtained by dividing the company's total debt by its total assets. **ROA:** This ratio is obtained by dividing the net profit by the total assets. To calculate the unsystematic risk, model (2) has been employed using the daily return information of each year of sample companies and the daily return of the stock exchange index. The remaining standard deviation of the model is considered an unsystematic risk.

$$R_{jt} = \propto + \beta_{jt} R_{mt} + \varepsilon_t$$

Equation (2)

R_j represents each company's daily return; R_{mt} indicates daily market return; Model error indicates unsystematic risk. Steps for calculating non-systematic risk using the CAPM experimental model. First, select the sample size of listed companies. Second, extracting the daily return (r) of each company. Third, calculate the daily changes in the company's stock returns. Fourth extraction of daily returns of Tehran Stock Exchange. Fifth calculation of daily changes in stock exchange returns. Sixth, Calculate the Slope function for line slope or beta coefficient. Seventh, calculate the Intercept function to calculate the alpha. Eighth, calculate the model error using the equation (3):

[1] The twelfth and final month of the Solar Hijri calendar, beginning in February and ending in March of the Gregorian calendar

$$error = ri - [intercept + (slope * rm)]$$

Equation (3)

Ninth Calculation of standard deviation of errors obtained from the above equation for each day by years of research. Tenth, calculate the number of days the company's stock is traded on the stock exchange. Now the non-systematic risk of each company each year is calculated by the equation (4):

$$\text{the standard deviation of errors} * \sqrt{\text{Total number of trading days}}$$

Equation (4)

The second research hypothesis investigates the effect of managerial ability on unsystematic risk. To test this hypothesis, Equation (4), to measure the CEOs' financial knowledge, Gounopoulos and Pham model (2018), and for the managerial ability, Demerjian et al. model (2013) was used in the following way:

$$\text{Unsystematic Risk}_{i,t} = \alpha_{\circ} + \beta_1 \text{Managerial Ability}_i + +\beta_2 \text{Log(age)}_i + \beta_3 \text{Log(assets)}_i + \beta_4 \text{Auditor}_i + \beta_5 \text{Leverage}_{i+} + \beta_6 \text{ROA}_i + \varepsilon_i$$

Equation (6)

Managerial Ability: It has been calculated using the Demerjian et al. model (2013). The firm's performance has been measured to calculate the managerial ability, based on data envelopment analysis, and according to Equation (5). Then, according to the remaining fit of Equation (6), the company's effectiveness and managerial ability were calculated. Equation (5) was measured by GAMS software to calculate the company's performance. Data Envelopment Analysis (DEA) is a mathematical programming method for evaluating decision units, in which each decision unit or firm generates **s** output using **m** input. Every year the company needs to have at least one positive input and output.

$$\text{MAX } \theta = \frac{\text{Sales}}{v1_{COGS} + v2_{SG\&A} + v3_{PPE} + v4_{INTAN} + v5_{GOODWILL}}$$

Equation (7)

MAX θ: Indicates the measure of the company's productivity of organizational resources. Sales: Represents the company's total income as a variable or measure of output. COGS**:** Indicates the cost of goods sold. SG&A**:** Indicates general, administrative and sales costs. PPE**:** Expresses net tangible fixed assets. INTAN: Indicates net intangible fixed assets. GOODWILL**:** Represents the goodwill contained in the financial statements.

The company's output is the sale of goods and services, and its input includes the production factors, including the cost of goods sold, general, office and sales expenses, net tangible and intangible fixed assets, and goodwill. The above variables play a decisive role in generating revenue for the company. Managers have an important role in optimal organizational resources and productivity. The company's productivity is a number between 0 and 1. The closer the number is to one, the better the company's efficiency and effectiveness in using organizational resources. How to calculate a company's productivity using data envelopment analysis, known as the MAX θ variable, has been shown in Equation (5). As a company performance variable, the number obtained in Equation (6) has the role of a dependent variable to distinguish, by calculating the model error, the company's capabilities from the manager's innate and acquired ones.

The calculation of managerial ability has been done by Equation (6), the error of which will indicate the managerial ability. In order to control the company's intrinsic particular effect in the model, the company's performance has been divided into two separate parts, namely performance based on the company's intrinsic characteristics and managerial ability. This is done by controlling the company's inherent characteristics (such as the company's size, market share, free cash flow, age of firm, foreign sales or exports). Each of the following five variables, as an inherent feature, can help management make better decisions or act in the opposite direction and limit the manager's abilities. For this reason, this feature is controlled in the following model.

$$\text{Firm Efficiency}_i = \alpha + \beta_1 \text{Ln(Total Assets)}_i + \beta_2 \text{Market Share}_i + \beta_3 \text{FCF Indicator}_i + \beta_4 \text{Ln(Age)}_i + +\beta_6 \text{Foreign Indicator}_i + \varepsilon_i$$

Equation (8)

Firm Efficiency**:** Indicates the company's efficiency. Ln (Total Assets): It is equal to the natural logarithm of the company's total assets. Market Share**:** The company's market share in the industry it operates. FCF Indicator**:** Indicates the free cash flow index calculated by Equation (7). Ln (Age): It is The natural logarithm of corporate life. Foreign Indicator: Indicates the company's foreign sales. $\boldsymbol{\varepsilon}$: Model error indicates the extent of managerial ability.

Calculating Free Cash Flow:

$$FCF_{i,t} = \frac{\left(OEBDA_{i,t} - Tax\ Payable_{i,t} - Intrest\ Expensive\ Payable_{i,t} - Dividen\ Profit\ Payable_{i,t}\right)}{Total\ Assets_{i,t}}$$

Equation (9)

FCF: Indicates the flow of free cash. **OEBDA:** Is the operating profit before subtracting depreciation. **Tax Payable:** Is the payable tax. **Intrest Expensive Payable:** Interest and dividends paid. **Dividend Profit Payable:** Is the divisible profit. **Total Assets:** Includes the sum of total assets.

The third hypothesis examines the effect of managerial ability on the relationship between CEOs' financial knowledge and unsystematic risk. To test this hypothesis, Equation (8) has been used as follows:

$$\text{Unsystematic Risk}_{i,t} = \alpha_\circ + \beta_1 \text{Financial exp CEO}_{i,t} + \beta_2 \text{Managerial Ability}_{i,t} + \beta_3 \left(\text{Financial exp CEO}_{i,t} * \text{Managerial Ability}_{i,t}\right)_{i,t} + \beta_4 \text{Log(age)}_{i,t} + \beta_5 \text{Log(assets)}_{i,t} + \beta_6 \text{Audit Size}_{i,t} + \beta_7 \text{Leverage}_{i+} + \beta_8 \text{ROA}_i + \varepsilon_{i,t}$$

Equation (10)

The above variables have been explained when describing Equation (1).

4. Research Findings

The results of descriptive statistics of research variables, including minimum, maximum, average, standard deviation, kurtosis and skewness, are presented in Table 1.

Table 1. The Results of descriptive statistics of research variables

variables	symbol	minimum	maximum	average	standard deviation	skewness	kurtosis
Unsystematic risk	Unsystematic Risk	0.006	33.502	2.956	4.185	2.329	8.450
CEOs' Financial knowledge	Financial exp CEO	0.000	1.000	0.514	0.500	-0.055	1.003
Managerial ability	Managerial Ability	-0.755	0.517	-1.130	-0.270	0.187	3.317
Logarithm of age	Log(age)	0.602	1.839	1.569	0.169	-0.995	4.513
Asset logarithm	Log(assets)	4.415	8.766	6.192	0.644	0.831	4.367
Auditor size	Audit Size	0.000	1.000	0.017	0.128	7.560	58.153
Financial Leverage	Leverage	0.037	2.077	0.570	0.219	0.477	5.755
Return on assets	ROA	-0.404	0.631	0.122	0.142	0.482	4.316

Table 1 shows that the minimum, maximum, average and standard deviation of non-systematic risk were 0.006, 33.502, 2.956 and 4.816, respectively. Compared to other variables, the main reason for the increase in standard deviation was the increase in stock and market returns during 2019, which was, in turn, due to the increase in the overall stock index. The minimum, maximum, average and standard deviation of managers' financial knowledge variables were 0, 1, 0.514 and 0.5, respectively, and, on average, 51.4% of companies used CEOs with financial knowledge. Also, the managerial ability variable's minimum, maximum, average and standard deviation were -0.755, 0.517, -1.130 and -0.270, respectively. Although skewness and kurtosis indicate that the distribution of observations is not normal, they do not distort the research results due to editing outliers by Eviews or Winsorizing software and using a large volume of observations.

Before presenting the results related to the research model fit, and to ensure the regression assumptions, the Likelihood Ratio (LR) test to check the variance heterogeneity, the Variance Inflation Factor (VIF) test to check the alignment, and the Durbin-Watson test to ensure the lack of autocorrelation, were carried out. The results of the variance inflation test showed that there was no alignment between the research variables. Since the findings of the LR test showed a variance heterogeneity error, the research regression patterns were estimated using the Generalized Least Squares method to correct this error. Also, the correlation between research variables and F-Limer and Hausman test results for research hypotheses are shown in Tables 2 and 3, respectively.

Table 2. The correlation of research variables

correlation	Unsystematic risk	CEOs' Financial knowledge	Managerial ability	Logarithm of age	Asset logarithm	Auditor size	Financial Leverage	Return on assets
Unsystematic risk	1.000							
CEOs' Financial knowledge	0.030	1.000						

Managerial ability	0.029	-0.027	1.000					
Logarithm of age	-0.060	0.127	0.001	1.000				
Asset logarithm	-0.058	0.007	0.001	0.047	1.000			
Auditor size	0.072	0.020	-0.055	0.041	0.142	1.000		
Financial Leverage	0.057	-0.022	0.053	-0.055	0.046	-0.031	1.000	
Return on assets	-0.035	-0.015	0.101	0.023	0.180	0.068	-0.592	1.000

Table 3. The F-Limer and Hausman test for research hypotheses

Results	Significance level	Statistic	Test	Hypothesis
Unbound effects - Panel data	0.000	1.809	F-Limer	Hypothesis 1
Fixed effects	0.000	37.870	Hausman	Hypothesis 1
Unbound effects - Panel data	0.000	2.367	F-Limer	Hypothesis 2
Fixed effects	0.000	216.145	Hausman	Hypothesis 2
Unbound effects - Panel data	0.000	3.112	F-Limer	Hypothesis 3
Fixed effects	0.000	217.835	Hausman	Hypothesis 3

Hypothesis 1: CEOs' Financial knowledge has a negative and significant effect on unsystematic risk. In order to test the first research hypothesis, model (1) is fitted and its results are shown in Table 4.

Table 4. The Test results of the first hypothesis

$$\text{Unsystematic Risk}_{i,t} = \beta_{\circ} + \beta_1 \text{Financial exp CEO}_{i,t} + \beta_2 \text{Log(age)}_{i,t} + \beta_3 \text{Log(assets)}_{i,t} + \beta_4 \text{Audit Size}_{i,t} + \beta_5 \text{Leverage}_{i,t} + \beta_6 \text{ROA}_{i,t} + \varepsilon_{i,t}$$

variables	Symbol	Coefficients	t-statistic	probability	vif
CEOs' Financial knowledge	Financial exp CE(	-0.527	-2.729	0.006	1.018
Company's logarithm of age	Log(age)	-4.358	-4.469	0.000	1.022
Asset logarithm	Log(assets)	-1.700	-4.515	0.000	1.042
Auditor size	Audit Size	3.718	-4.627	0.000	1.556
Financial Leverage	Leverage	2.957	5.850	0.000	1.601
Return on assets	ROA	3.427	2.314	0.021	1.018
Intercept	C	17.840	-2.729	0.000	N/A
Adjusted R-2	0.216	Durbin-Watson	1.394		
F-statistic	2.117	probability of F-statistic	0.000		

According to the Table, the probability of the F-statistic was 0.000. The adjusted coefficient of determination was 0.216, indicating that explanatory variables explained 21.6% of the changes in the dependent variable. The coefficient of the independent variable of the CEOs' financial knowledge in the final estimate was negative and equal to -0.527, its probability was equal to 0.006, and the t-statistic of the mentioned variable was -2.729. This means that unsystematic risk decreases by increasing the CEOs' financial knowledge. As a result, the CEOs' financial knowledge negatively affects unsystematic risk by the theoretical framework, so the first research hypothesis is confirmed. Test results show CEOs' knowledge's a negative and significant effect on unsystematic risk.

Hypothesis 2: The managerial ability negatively and significantly affects unsystematic risk. To test the second research hypothesis, model (4) is fitted with the results shown in Table 5.

According to the Table, the probability of the F statistic was 0.000. The adjusted coefficient of determination was 0.243, indicating that explanatory variables explained 24.3% of the changes in the dependent variable.

Table 5. The Test results of the second hypothesis

$$\text{Unsystematic Risk}_{i,t} = \alpha_{\circ} + \beta_1 \text{Managerial Ability}_i + +\beta_2 \text{Log(age)}_i + \beta_3 \text{Log(assets)}_i + \beta_4 \text{Auditor}_i + \beta_5 \text{Leverage}_{i+} + \beta_6 \text{ROA}_i + \varepsilon_i$$

variables	Symbol	Coefficients	t-statistic	probability	vif
managerial ability	$Managerial\ Abil$	-30.708	-5.526	0.000	1.036
Company's logarithm of age	$Log(age)$	-38.193	-7.437	0.000	1.007
Asset logarithm	$Log(assets)$	-3.440	-3.943	0.000	1.060
Auditor size	$Audit\ Size$	5.275	-5.093	0.000	1.021
Financial Leverage	$Leverage$	1.710	1.531	0.126	1.588
Return on assets	ROA	5.077	3.228	0.001	1.649
Intercept	C	82.486	13.428	0.000	-
The adjusted coefficient of determination	0.243	Durbin-Watson	1.682		
F-statistic	2.475	probability of F-statistic	0.000		

The coefficient of the managerial ability variable in the final estimate is negative and equal to -3.708; its probability is 0.000 and the t-statistic of the mentioned variable is -5.526. This means a negative and significant correlation between the independent and dependent variables; that is, as the managerial ability increases, the company's unsystematic risk decreases. As a result, the second hypothesis of the research concerning the negative and significant effect of managerial ability on unsystematic risk is accepted. Hypothesis 3: Managerial ability strengthens the negative relationship between the CEO's knowledge and unsystematic risk. To test the third research hypothesis, model (5) is fitted with the results shown in Table 6.

Table 6. The Test results of the third hypothesis

$$\text{Unsystematic Risk}_{i,t} = \beta_{\circ} + \beta_1 \text{Financial exp CEO}_{i,t} + \beta_2 \text{Managerial Ability}_{i,t} + \beta_3 \left(\text{Financial exp CEO}_{i,t} * \text{Managerial Ability}\right)_{i,t} + \beta_4 \text{Log(age)}_{i,t} + \beta_5 \text{Log(assets)}_{i,t} + \beta_6 \text{Audit Size}_{i,t} + \beta_7 \text{Leverage}_{i+} + \beta_8 \text{ROA}_i + \varepsilon_{i,t}$$

variables	Symbol	Coefficients	t-statistic	probability	vif
CEOs' Financial knowledge	Financial exp CEO	0.272	1.431	0.153	1.019
managerial ability	Managerial Ability	-3.6993	-2.263	0.024	2.063
Company's logarithm of age	$Log(age)$	-36.717	-2.904	0.004	1.023
Asset logarithm	Log(assets)	-1.758	-0.961	0.336	1.061
Auditor size	Audit Size	5.071	4.811	0.000	1.028
Financial Leverage	Leverage	1.307	3.151	0.001	1.589
Return on assets	ROA	3.187	1.827	0.068	1.651
Intercept	C	70.078	2.294	0.022	-
The adjusted coefficient of determination	0.230	Durbin-Watson	1.586		
F-statistic	3.566	probability of F-statistic	0.000		

According to the Table, the probability of the F statistic was 0.000. The adjusted coefficient of determination was 0.230, indicating that explanatory variables have explained 23% of the changes in the dependent variable. The coefficient of the interactive variable of the CEOs' financial knowledge and managerial ability in the final estimate was positive and equal to 0.797; its

significance level was 0.018, and the t-statistic of the mentioned variable was 2.236. The results indicate that the model's moderating variable of managerial ability strengthens the negative relationship between CEOs' financial knowledge and unsystematic risk management, which is not in the theoretical framework and results of the first and second hypotheses. Therefore, the third hypothesis is rejected.

5. Conclusion

Enterprises face new and complex environmental, social and governance risks in the third millennium. Despite various risks, including the unsystematic risk, the increasing presence of enterprises in global markets indicates opportunities for growth and profitability in these competitive and unstable markets. Therefore, leading companies in unstable environments and uncertain conditions requires knowledge-based managers to direct, plan, and manage risk. Among the important characteristics of knowledge-based managers, one can mention CEOs with financial expertise and knowledge and the company managers' ability. This feature is expected to manage organizational risk, reduce unsystematic risk, optimize the use of organizational resources, increase productivity, manage costs, increase returns, and, ultimately, create value for business stakeholders.

The tests and statistical analysis results in the first hypothesis revealed a negative and significant relationship between the CEOs' knowledge and unsystematic risk and reduced that risk. The results concerning that CEOs reduced company risk were by the theoretical framework and studies of Oradi, Asiaei and Rezaee (2020), Kalelkar (2018), Francis, Nanda and Olsson (2008), Matsunaga, Wang and Yeung (2014) and Custódio and Metzger (2014). This process reflects the impact of financial knowledge and, ultimately, the reduction in unsystematic risk in companies listed on the Tehran Stock Exchange. Therefore, the first hypothesis was confirmed. In the second hypothesis, the results showed a negative and meaningful relationship between management ability and unsystematic risk-reducing unsystematic risk. The results obtained in this part were consistent with the theoretical framework and research of Gounopoulos, Loukopoulos and Loukopoulos (2021), Wati, Tjaraka and Sudaryati (2020), Gounopoulos and Pham (2018), Harrison et al. (2018), Rashidi (2020) and Zalaghi, Bayat and Daneshasgari (2014). Therefore, the second hypothesis was confirmed. In the third hypothesis, the managerial ability entered the model as a moderating variable to determine whether it strengthened the negative relationship between CEOs' financial knowledge and unsystematic risk. The results indicate that the relationship between CEOs' financial knowledge and unsystematic risk has been significant and positive. It also reveals that managerial ability does not strengthen the relationship between CEOs' financial knowledge and unsystematic risk. The simultaneous interference of CEOs with financial knowledge and managers' other ability probably can not increase the quality of financial reporting, reduce information risk and, ultimately, reduce unsystematic risk in the company. As a result, the third hypothesis was not confirmed. According to the obtained results, it is suggested that investors at the Tehran Stock Exchange companies, while choosing the optimal portfolio and reducing investment risk, buy the stocks of companies with CEOs with financial knowledge and experience and with higher managerial ability. Researchers interested in testing the impact of management factors on other accounting and auditing variables in the future are also advised to assess the impact of CEOs' financial knowledge by considering their gender in organizational risk management (environmental, social and governance risks) and with their risk-taking or risk-aversion.

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RESEARCH ARTICLE

Developing A Model To Improve The Quality of Tax Audits

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Abstract

This study aimed to design a model for improving the quality of tax auditing. To this end, this study used a fundamental research perspective and a qualitative methodology. The study was conducted using an analytical approach and the data-theoretic research method (Strauss and Corbin, 2006). Data were collected through a peer-reviewed interview, and 23 interviews were conducted. The participants were selected using theoretical sampling. Data analysis was performed in three phases: open coding, axial coding, and selective coding using MAXQDA software. The results of this study led to the recognition of 20 main categories and 123 subcategories. They were in the form of the permanent model, including content, organization and model processing as core categories and causal conditions (professional actions, structural actions, professional environment, audit procedures), underlying factors (auditor requirements, process platform, institutional context and auditor capabilities), interventional conditions (human, structural, managerial and regulatory factors), strategies (development actions and support measures), consequences of the process, and the effects of structure process.

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1. Introduction

One of the methods to understand the role of audits and achieve its benefits is to move towards an SEO view, on which the role of auditing is based. This study argues that the auditing profession provides various facilities with different aspects to respond to the distance from its expectations. However, suppose the auditors do not fully understand their role in society. In that case, they cannot fulfil their vital duties in fulfilling society's expectations and, based on economic logic, they cannot survive as a beneficial economic process in the long run. Since tax collection is an inevitable issue for governments, it can be argued that governments, at any time, resort to tax collection in different ways to meet the needs of society and finance the costs. Thus, the determination and collection of taxes have become more important than before for the authorities. Correct compliance with the tax system is possible when the enforcement of fiscal and tax policies has been implemented by taxation within the framework of the tax system (Dehghani Doyle, 2019).

The Tax Audit Process is a program that confirms whether companies have complied with their policies, operations, and executive objectives in realizing tax justice and compliance. A tax audit evaluates the alignment of the received data, information, and documents related to the company's financial activities with tax laws and assesses compliance with other systems. These documents can be examined as part of various tax audits or considered part of the accounting planning process. The auditors try to identify and collect taxes by obtaining tangible evidence from the existing system, reviewing the documents, and performing audits of offices, tax returns, and financial statements. In this case, a step toward tax justice is taken. Improving the quality of tax audits will make auditors more successful in recording taxes and identifying taxpayer tax rates.

2. Theoretical Framework of the Research

Because in most countries, tax is the greatest source of income for the state treasury, the income from tax returns has a major role in the stability of the state and its economy. On the other hand, the lack of tax and its non-payment creates major issues for the progress and development of countries,e.g., lack of economic, social, and infrastructure (Rahmayanti et al., 2020). Due to the increase in tax violations, government revenues have decreased and the tax gap has deepened (Kulwell and Ovaladi, 2021). The tax gap is defined as the difference between the tax received and the tax taken according to the law. Thus, tax breaks include the mistakes of the taxpayers in the financial comment, tax evasion, deferred taxes, the mistakes of the taxpayer in diagnosis and receiving, paying taxes and various factors that may lead to tax compliance (Goddrati, 2018: 2). The tax gap and tax payments decrease are influenced by strict compliance with tax laws by taxpayers and tax agents. In general, non-compliance with tax laws by believers and tax agents is one of the basic problems of emerging and developing economies (Kulavel and Ovaladi, 2021). Although various ways have been done to reduce tax avoidance and prevent tax evasion, this goal appears to have not been realized. As such, a significant issue is how to increase the effectiveness and efficiency of the tax organization. The inefficiency of laws, lack of coordination in different sectors and inability to accurately identify tax-subject earnings are among the factors that have reduced government tax revenues. Tax Auditing (Ulai and Akundaio, 2019) is one way to achieve the required compliance (Aia et al., 2016). The fight against tax evasion is one of the goals of all global tax systems, for which there are two basic strategies. One is the creation and development of faithful self-assessment systems and the second is the application of risk-based tax audits (Dehghani Doyle, 2019).

A Tax Audit is an activity or group of activities that try to determine the extent of the commitment of the believers through the assessment of their compliance with applicable tax laws and the accuracy and integrity of the provided tax returns (Mansour and Kalib, 2019). Tax audits are audits to ensure

the perfect taxpayer compliance with tax laws. Tax audits have increased awareness among tax beneficiaries and caused a considerable increase in tax revenues. Tax audits aim to improve tax compliance status and reduce tax evasion problems and threats (Okonkwo, 2014: 8). Tax evasion of taxpayers is one of the effective barriers to tax collection. Tax audits are among the most important factors in ensuring tax compliance review. Tax audits are considered a tool for enforcing the governmental laws and are mainly understood by implementing a variety of audits solely within the framework of legal transparency, type of processing, duration of the processing, and other procedures of processing in compliance with applicable laws (Rahmayanti et al., 2020). One of the most important supervisory tasks in reducing information complexity is monitoring the financial reporting process and presenting desirable reports. In this regard, auditing is one of the tools expected to play a significant role in protecting different users' interests, especially effective tax rates. One of these policies and methods is using the modern tax audits approach. This approach is an essential element for effective monitoring of tax compliance.

Tax avoidance makes paying attention to tax accountability and quality even more complex. Among the most important issues considered in most studies are tax avoidance or tax evasion, the factors that affect it, and its results (Dehghan, 2016). Chalu and Mzee (2018), using the representation theory, argued that relations between the state and the auditor are similar to the relationship between the director and the deputies. Chalu and Mzee (2018) interpreted the government as a director and tax auditors as the representatives. One of the general policies of the tax administration is to strengthen tax auditors and this approach is fundamental to effective management of tax compliance. In addition, identifying the factors related to the quality of tax audits to prevent tax uncertainty can help the government trust and strengthen the relationship between the manager and the agent. On the other hand, the quality of tax audit and identifying its factors have not been considered in the financial domain. Improving the quality of tax audits by increasing the reliability and validity of the financial reporting process in line with accounting rules and laws can help enhance tax revenue and tax efficiency for governments. This process promotes social justice in the government's public service. Promoting the quality of tax audits greatly reduces tax avoidance and increases the country's tax revenue. Finally, economic growth stability can be achieved by allocating resources by the government, which is an important factor in increasing economic efficiency and decreasing dependence on oil resources. On the other hand, given that one of the most fundamental challenges of the economy is income and financing, improving the quality of tax audits can eventually lead to increasing social participation in the supply of public resources and resistance to economic conditions.

Researchers have emphasized political factors, cultural issues, and auditors' scientific expertise in tax audit quality investigations. During the past years, studies have examined various factors that affect the quality of audited tax audits and different aspects of tax audit quality. In other words, so far, no model has been developed to enhance the quality of tax audits and the factors influencing them. As such, the main objective of this study was to present a model to improve the quality of tax audits.

2.1. Literature Review

Zarei Majd and Jannati Far (2017) examined the issue of tax audit quality from the perspective of accounting standards. Their results indicated that the national accounting standards devised by the Accounting Agency and the Ministry of Finance and Economic Affairs make due observance of them and have increased accounting quality. In addition, Shiri Hakimabadi et al. (2018) conducted a study on tax audit solutions based on the audited risk assessment model and reported that the efficiency of

the accounting model variables has the reduction of sampling risk efficiency. Alaei (2019) prioritized identifying and prioritising effective factors on tax compliance in the medical community of Ardabil province. His findings showed that, except for the social dimension, legal, administrative, economic, tax and political factors were identified as effective factors in tax compliance among the physicians in Ardabil province. Taheri and his colleagues (2020) conducted a study to improve the quality of the tax audit model in the value-added tax system of Iran. Their designed model included the causal conditions, the intervening factors, the platform, and the strategies to achieve VAT quality and its consequences. They developed a multi-disciplinary model that resulted from the experts' view in the mentioned levels to offer a comprehensive view of the quality of tax audits in the VAT system in Iran. Kazazi et al.'s (2020) study reported that The VAT policy on various industry sectors had less inflationary effects on these sectors and the maximum effect of the extraneous effect was at the rate of value-added tax rate approved in that period. According to the VAT scenario on various industries, a 9% increase in the price of products was observed, while the so-called aggregation policy had different consequences for different industries. Valizadeh Javadareh (2020) also conducted a study to understand the perception of many in the Yazd Tax Department via risk-based tax audits and found that the model had sufficient knowledge of risk-based tax accounting ratios. Furthermore, the identification of mining to risk-based tax audits was not significantly different. Risk-based tax audits are more known for practicing in legal entities. Moreover, Chal and Mzee (2018) studied factors affecting the effectiveness of tax auditing in Tanzania. Their findings indicated that the first factor was the implementation of recommendations of tax auditors by the administration, which was referred to under the organizational category. The second factor was the adequacy of tax accountability, referred to as tax auditors, and the third factor was taxpayers' attitude. The fourth and fifth factors included access and use of tax audit regulations and standards; leadership and tax policies for tax audits were legally categorized.

Also, Mansour and Caleb (2019) also examined the effect of using analytical procedures to reduce tax audit costs and reported that analytical methods reduced tax audit costs. They believed workshops, training programs, planning, and audit costs could be significantly reduced. Additionally, Kleanthous and Chatzis (2020) performed a VAT audit with the problem of choosing a targeted value-added tax case using machine learning. Their findings showed that their approach could greatly facilitate the VAT audit case selection process.

To improve the quality of tax audits, a hierarchical structure was developed to enhance the quality of tax audits. Any corrective action without a pathological view will not lead to fruitful results. Improving the quality of tax audits to make appropriate packaging in tax agencies and tax agencies. Therefore, by identifying the problems and challenges of tax audits, tax revenues can be provided by offering tax rules and audit standards. Avoiding tax evasion can accelerate the process of tax identification and collection and help manage this process more effectively.

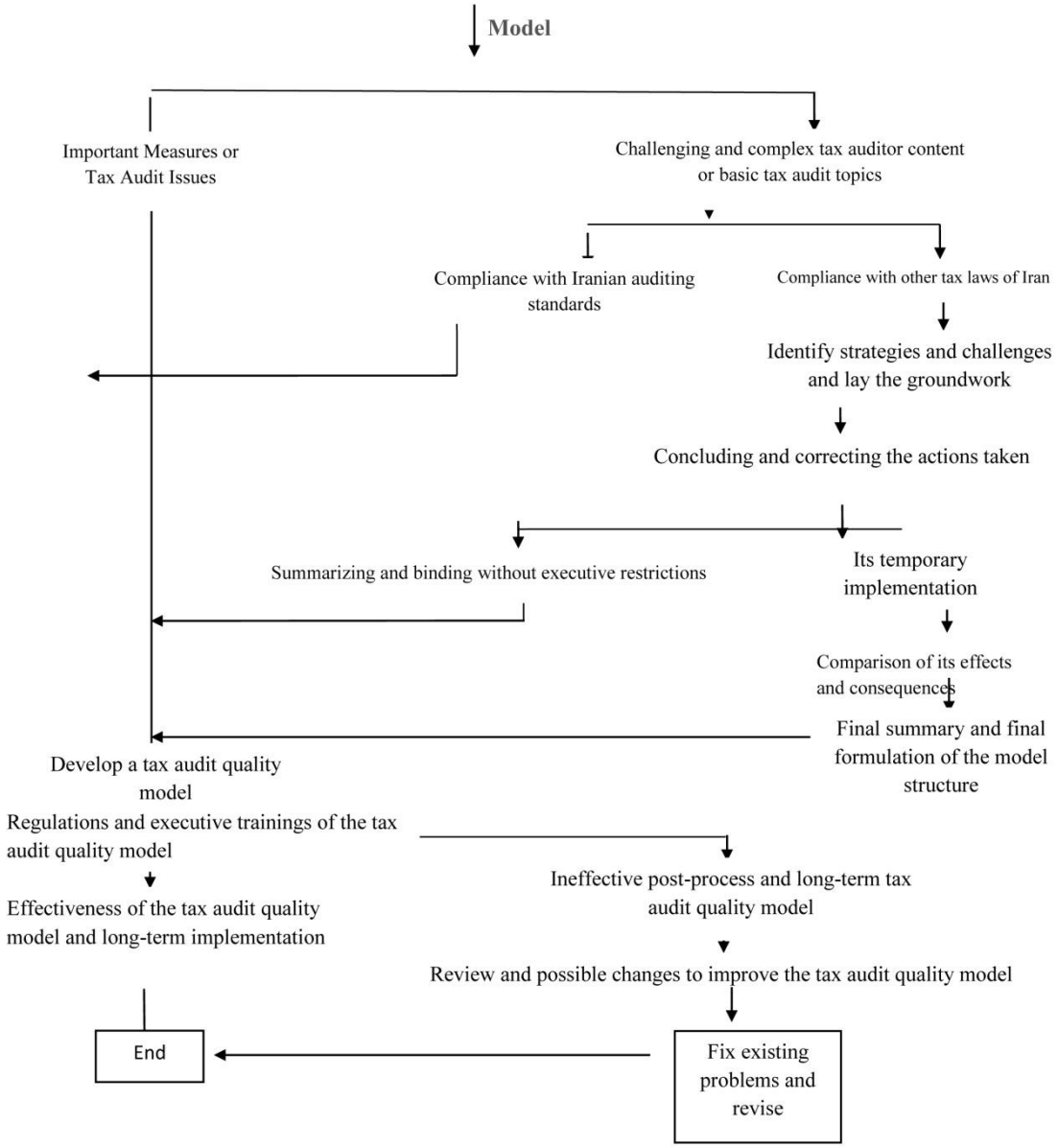

Figure 1. Suggested hierarchical structure develop and upgrade tax audit quality

2.2. Research Questions

The following research questions were proposed based on the literature review and the study's objectives.

1- On what principles is the tax audit quality improvement model's structure based?
2- How are the elements related to the tax audit quality improvement model formed?
3- What measures are needed to improve the quality model of tax audit?
4- What are the requirements of the tax audit quality improvement model?
5. What are the intervening factors in improving the quality model of tax audit?
6. What are the elements of the achievements of the audit quality improvement model?

3. Research Methodology

This research is fundamental research in which the researcher, without any specific applied

objective, merely studies for knowledge development. The researcher used different approaches, including the inductive approach and research method of grounded and systematic theory (Strauss and Corbin, 1978).

3.1. Research Area, Society and Statistical Sample

The data has been collected over the years(2019 and 2020). This research method's number of interviews (sample size) was not specific. Therefore, 23 experts (Tax Experts and Official Accountants, Accounting Professors and Accounting Professors of universities and corporate financial managers).

3.2. Sampling Method

Samples were selected using theoretical sampling. In theoretical sampling, participants are selected based on their ability to provide information on the topic of the study. The theoretical sampling technique indicates that the researcher cannot determine an exact number of participants from the beginning, and at the end of the study, the number of participants is confirmed. Theoretical sampling is the process of gathering data to generate the theory. The researcher collects, encodes, and analyzes data at the same time. Then the researcher decides what data to collect and when and where to find it to generate the emerging theory.

Semi-structured interviews were performed with 23 participants using open questions. The interviews lasted from 30 and 120 minutes. In order to realize reliability and increase credibility, it was attempted to communicate the results of interviews with participants from the very beginning of data collection and interviews. This was done to interpret the data and intended by participants correctly. Also, the results were shared with the teachers after analysis, coding interviews, and other data groups. In the following, in terms of cognitive methods and the research path based on the strategies of the data theory research method, the research process was revised by the professors.

Table 1. Details of Research Participants

Participant	Level of education / Field of study	Position	Number
1	PhD in Accounting	Faculty member	4
2	Master of Accounting	Certified Public Accountant	3
3	Master of Accounting and Management	financial manager	4
4	PhD in Accounting	Representative of the organization in the tax dispute resolution board	1
5	Master of Accounting	Representative of the organization in the tax dispute resolution board	3
6	PhD in Accounting	Head of Tax Audit	1
7	Master of Accounting	Head of Tax Audit	2
8	Master of Accounting	Head of Tax Audit	2
9	PhD in Accounting	Senior Tax Auditor	1
10	Master of Accounting	Senior Tax Auditor	1
11	PhD in Accounting	Member of the board subject to repeated Article 251 of the Penal Code	1

3.3. Data analysis

The data analysis was done using the grounded theory method in three coding phases. According to this theory, first, the researcher should find conceptual categories related to data. Then, the researcher should look for the relationships between these categories, and finally, these communications should be conceptualised and reported. According to the grounded theory method,

the data analysis involves open, axial, and selective coding. These coding phases do not necessarily come sequentially and may overlap or take place simultaneously. Each of these stages of analysis is described in the following subsections.

1- Open Coding

The first stage of analysis for theory building is open coding. Open coding refers to categorizing pieces of data under a name, title or label, which concurrently summarizes each piece of data. The codes show how the data have been chosen, separated, and classified to begin the analytical process.

2- Axial Coding

Classification and categorization in open coding reduce the number of units we must work with. At the axial coding stage, information is linked in new ways by linking categories. In this step, the foundation data theorist chooses an open coding stage category, places it in the center of the investigation process (as a central phenomenon), and then relates other categories to it.

3- Selective Coding

Strauss and Corbin (2006) believed that selective coding is the last stage of coding in which the main category is chosen and its link to other categories is determined. Interpretation and expression of relationships between the main category and other categories are made according to the presented model of the study. The basic coding is based on selective coding. In this study, after the selective coding stage, the quality model of tax audit was developed, which consequently was presented as a model, and then the components of each of the main categories were given as a table of exposition.

3.4. Validation of the Model for Improving Tax Audit Quality

In this study, the main focus on pluralism in order to enhance the internal reputation has been in Iran. After analyzing the data obtained from interviews using the triple coding method, the category extracted from interviews and the results were presented to 10 experienced and expert authorities. Based on this, acceptability and model validation were evaluated.

4. Research Findings

Based on qualitative data analysis, an axial coding paradigm was developed. According to this method, the communication line between research categories included: causal conditions, axial phenomenon, confounders, ground conditions, strategies and consequences.

Figure 2 shows the axial coding paradigm and the qualitative process model of the research. After collecting and analysing data and coding and interrelation of categories, the "Model for Improving the Quality of Tax Audit" was designed (see Figure 2).

The first Research Question: On what principles are the structure of the tax audit quality improvement model-based?

- Model structure: When coding collected data, it was observed that four subcategories of professional actions, structural actions, accounting practices, and the professional environment constituted the model structure with the same conditions and were the main effective conditions in the formation of the quality improvement of tax audits.

Professional Actions: Professional actions refer to those activities that prove the role of a job. According to the interviews, the professional practices fell into three categories: institution characteristics, operating platforms and requirements.

Structural Measures: Structural measures are the necessary mechanisms for the advancement of the audited profession and include the commitment and nature of the profession. During the interview process, cases such as the commitment of auditors, regulations, regulations, laws and regulations, enforcement of laws and regulations, and their execution procedures were some of the cases that formed the professional commitment and nature of the work.

Professional Environment: The professional environment is related to the required platform for conducting audited activity in a transparent and scientific environment according to professional ethics standards. The professional environment consisted of two categories of occupational content and environmental conditions. The interviewees referred to the factors such as new technologies, legal interruptions, and the country's political, regulatory and economic conditions while shaping the factors of the professional environment.

Audit Procedures: Audited procedures are related to tax audits and audits. They were divided into two categories of audit and audit rules. Compliance with the government's laws, regulations and policies, databases, political and economic factors of society, and tax sector-based economic structures were among the cases the interviewees referred to and could be classified as audit procedures.

The Second Research Question: On what basis are the elements of the tax audit quality improvement model?

- Model elements: The elements of the model or central phenomenon represent the main subject of the study. This category can bring other categories together to explain the whole. As Strauss and Corbin (2006) note, the criteria for selecting the elements of the model are:

- This phenomenon must be central, i.e. other major categories can be related to it.
- It should repeatedly appear in data. It means signs of it are found in all or most study cases.
- The explanation of the connection of categories is logical and coherent and has nothing to do with force.
- The depth and power of explaining it become more profound by refining it analytically through integration with other concepts.

In this study, a model for improving the quality of tax accountability was selected as a central phenomenon. The concept of the SAI, the quality enhancement model, was the main topic. All participants referred to their content, whether directly or indirectly. Every part of the data or viewpoints of the research participants entailed signs of the quality of the tax audit. When interviewed by the participants, their views of various dimensions were considered in the model for improving the quality of tax audits.

The main phenomenon or core of the process studied in this research was the tax audit quality improvement model. These reasons led to the selection of this category as a central phenomenon. Analysis of collected data showed that considering the model content, organizing the model, and the process of the model was effective in forming the model for improving the quality of tax audits.

Model content: Consideration of the model's content involved individual and organizational factors. Conclusions drawn from the interviewees' viewpoints included inference of auditors, the role of colleagues, size and process volume, paying attention to the dimensions of tax justice, paying attention to the social attractions of tax, and auditors' ability.

Model Organization: Organizational management and regulation were among the main factors in the tax audits model. The results showed that some studies were done based on financial and motivational aspects of financial accounting, which positively impacted financial performance,

employee satisfaction, managers' opportunism, and the presence of a strong team and legal claims.

Model Process: Standardized ways and professional procedures determine the model's formation process for improving the quality of tax audits. These two factors summarized interviewees' opinions regarding items such as the accounting period, the satisfaction of the interviewees, tax risk, company profitability, information transparency and transactions, and executive guarantees.

The Third Research Question: What measures are required to improve the quality of tax audits?

Actions or Strategies: Actions or strategies refer to actions, methods, and practices that act in various situations, contexts and conditions. The participants also tried to achieve behavioral strategies and tactics based on causal reasons. They adopted various behavior strategies due to the quality improvement of tax audits and the fields and conditions in which they were located, which in this study emerged as three subcategories of development measures, support measures, and lining.

Development Measures: Development measures included plans, systems and activities that paved the way for the development of human resources to promote the tax accountability model. In the context of the extracted concepts from interviews with experts, measures such as increasing community awareness, increasing the skills and expertise of auditors, comprehensive and full accounting program and increasing auditors' financial auditors' confidence were identified.

The Fourth Research Question: What are the requirements of the tax audit quality enhancement model?

Model Requirements: The model requirements or context conditions are specific forms or conditions defined as general conditions of the interventionist. These special forms are assembled in a specific place and time to create a situation where individuals respond to them with their actions and interactions toward the social reality under study. In order to study the model of improving tax audit quality, it is necessary to understand and consider its underlying conditions. Data analysis showed that the four categories of auditor requirements, process platform, institutional context, and auditor capabilities were the most important context in which the main conditions were effective in developing tax audited quality. Causal factors affect central phenomena (Tax Audit Quality Improvement Model).

In Table 2, the codes related to the auditor's requirements, the process context, the institutional context, and the capabilities of the auditor are mentioned. In analyzing the data and viewpoints of participants, these four categories were salient.

Auditor Requirements: Behavioral and feedback factors and environmental conditions were the auditor's requirements in the tax audit process. The data collected from interviewees showed that auditor requirements included neutrality, professional uncertainty, conflict of interest, tax liability, appropriate, professional limitations, employer ethics, auditor's independent opinion, and mutual trust-building.

Process Platform: The platform of the process was related to the professional tendencies and commitments of auditors in the field of improving the quality of tax audits, which was primarily based on concepts such as increased responsiveness, interaction, the responsibility of auditors, disclosure and evaluation, and professional requirements.

Institutional Context: The factors that held the balance and the utility of the audit were the factors that paved the way for the institutionalization of the Tax Audit Quality Promotion Model. They included auditor security topics, motivating the tax authority employees, neutrality, accountability of auditors and moderates, experienced personnel, and people's finance.

Auditor's Abilities: The auditor's knowledge and skills were among those that showed the auditor's abilities. They are among the interviews conducted in the form of concepts such as

The Fifth Research Question: What are the main interventional factors in improving the quality of tax audits?

Interventionist conditions: The interventional conditions involved in the model were general conditions that moderated the effect of causal factors. Four subcategories of human, structural, administrative, and regulatory factors were identified in explaining the main categories of interventionist conditions that effectively formed the quality evaluation model. Each of these categories encompassed a code that is shown in Table 1.

Human Factors: People's organizational and professional status shows the human characteristics of the audit quality improvement model. This was in the form of tax constraints, set ranking, taste, meritocracy, transparency of law, reporting accuracy, and lack of Board expertise.

Structural Factors: Organizational content and legal processes were structural factors informing the Financial Audit Quality Improvement Model. The analysis of experts' opinions indicated that issues such as lack of corporate transparency, knowledge and awareness, the appropriate performance of state tax administration, tax audit process, tax management process, tax culture, time pressure on the auditor, political pressure on the auditor, wealth control, type of tax audit, dependable audit reports, methods of accounting, time limits, and limitation of relation with the owner of business constituted the structural factors.

Management Factors: Technical and perceptual cards represented the ability of management that could make a model of tax audit quality improvement. The identified categories for this level were legal limitations, the time specified for auditors, welfare and motivational issues, the reasonableness of tax auditors' rights, the acceptance of tax auditors' skills and expertise, the amount of companies' income as an interventionist, and regulators, the monitoring of the public sector of accountants, careful monitoring of auditors' accounts, and the monitoring institutions.

Regulatory Factors: Supervision factors point to the efficiency of resources and procedures. The concepts obtained from experts' opinions for this level were follow-up systems and auditor attitudes.

The Sixth Research Question: What are the consequences of the model for improving the audit quality?

Outcomes: In the quality evaluation model, the results and effects of the behavioral strategies and cause, as well as the results of tax audits, are presented. Regarding the specificity of outcomes, Strauss and Corbin (2006) state that some outcomes are either intended or unintended and the result can be one or many, short-term or long-term. Also, consequences can be visible to someone but hidden from others. Outcomes can be immediate or gradual and returnable or irreversible. They can be unpredictable or unpredictable and have low or wide effects.

The tax audits quality improvement model results in this study are categorized and presented in Table 1. The effect of structural effects and process improvement are determined based on the participants' views.

Structural Effects: Qualitative improvement and procedural efficiencies can lead to long-term

effects and preserve the achievements of efforts to improve the quality of tax audits. Concepts such as the effectiveness of laws, restoration of government rights, promoting tax knowledge and improving the quality of audits can increase the validity of information, the satisfaction of the believers, of vesicles, honesty and satisfaction, improve the efficiency and effectiveness of tax audit, and benefit taxes and realization of taxes. This helps us avoid confusion, tax evasion, corruption, and error.

Process Improvement: Facilitation, packaging and increasing the efficiency of concepts can be found in categories such as industry growth and development, the general well-being of the community level, transparency and achieve high goals, saving, tax justice, reduced tax and tax risk, reduced tax breaks, reduced costs (in the model), and reduced tax collection costs.

Based on open coding, axial and selective codings of 23 interviews, 20 main categories and 123 subcategories were extracted. The relationships between formed categories in the data showed that the pattern conforms to the original form of Strauss and Corbin paradigms, i.e. axial phenomenon (improving tax quality) is affected by the causal conditions and affects the strategies. These strategies in turn shape the related consequences under the effect of the axial phenomenon, contextual conditions and interventionist factors. This paradigm pattern is shown in Figure 2. In the following section, we discuss the abovementioned pattern categories and give examples of the quotes by the interviewees in most of the table.

5. Conclusion

One of the most important ways of financing governments is tax revenues. In addition, taxes can control the amount of liquidity and improve the distribution of income and wealth among individuals in countries. The tax belongs to the company's profits and business units and individuals and causes costs for them. In other words, taxes are part of their income and profits. Thus, they may use methods to decrease tax costs for various reasons. By increasing the quality of tax audits, we can better evaluate the accuracy of information provided by the participants and the present study aims to answer this need.

Twenty categories of professional measures, structural measures, professional environment, audit procedures, paying attention to the content of the model, model organizing, human factors, structural factors, regulatory factors, auditor requirements, procedural requirements, procedural bed, organizational capabilities, development measures, support measures, bed planning, structural effects and improvement constituted the dimensions of the tax audit quality model.

Professional actions, structural measures, professional environment and accounting procedures were the causal categories of the designed model. In fact, these categories were among the main categories that created axial phenomena, which is the quality of tax audits. Kenchel et al. (2012) contend that professional practices related to auditor and business owner characteristics may considerably influence creating a framework or conceptual model to describe the structure of audited services. Professional practices can improve the level of confidence in the documents and the reliability of the information, raising the quality of tax audits.

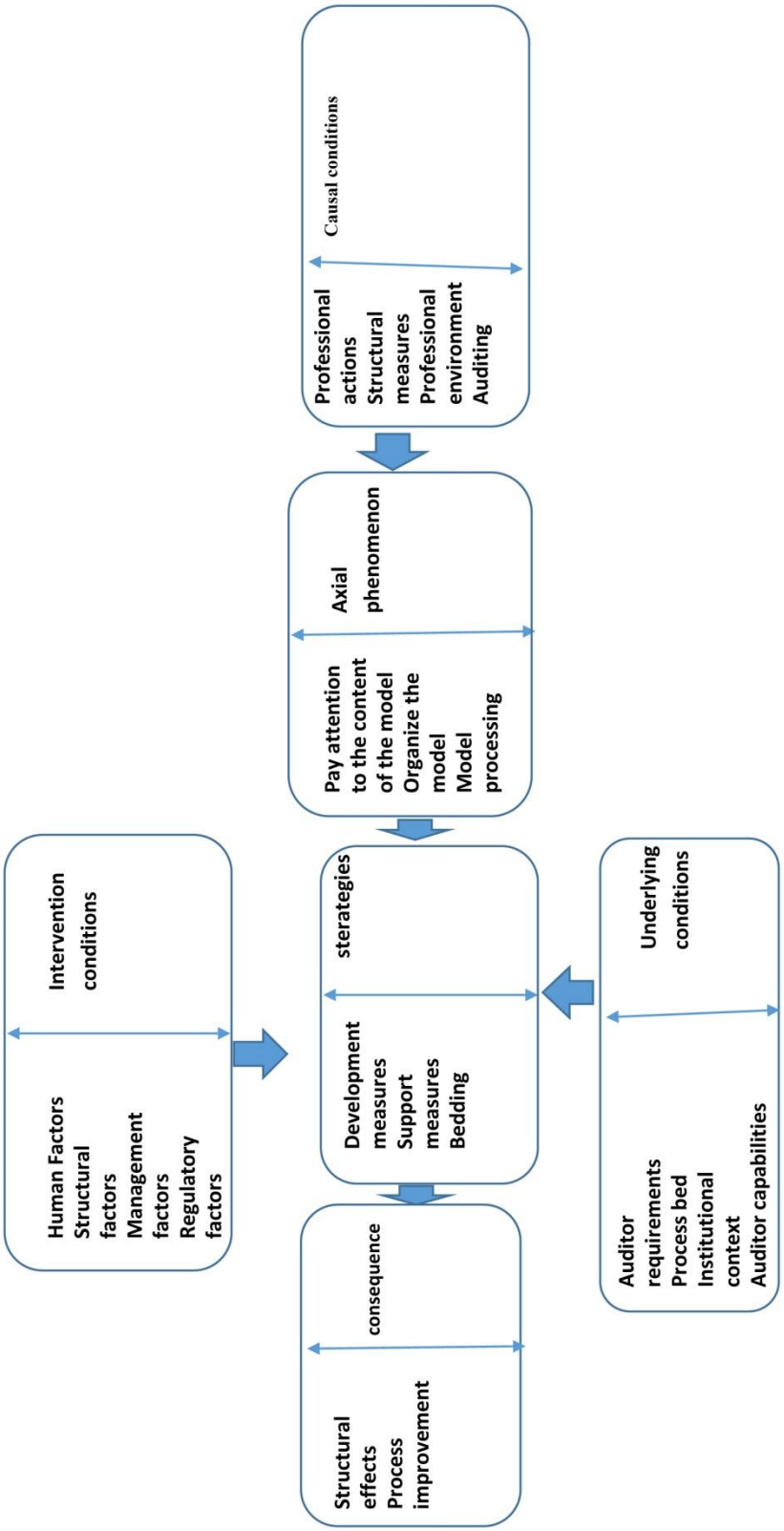

Figure 2. The general model of tax audit quality improvement model

Table 2. The Main Categories of Data Collection and Interview Analysis to Improve the Quality of Tax Audits

Casual conditions							
Professional actions	Audit firm size	Structural measures	Commitment of auditors	Professional environment	Changes in the rules	Auditing procedures	Economic and political factors of society
	Hiring accounting expertise in companies						
	Use the latest directives and be aware of changes in tax laws						
	Reforming the structure of the economy		Pay attention to the etiquette of the auditor's professional conduct		How to handle taxes		New technologies
	Amendments to tax laws						
	Test and selection of the auditor						Existence of a strong database
	Business complexity		Observance of the principle of auditor independence		Eliminate political issues for the appointment of managers		
	Industry experience						Legal interruptions
	Forming an audit committee						
Axial phenomenon							
Pay attention to the content of the model	Inference of the auditor	Model organization	Pay attention to profit manipulation	Model processing	Audit tenure		
	Notices		Paying attention to the opportunism of managers Pay attention to a strong team		Satisfaction of taxpayers		
	Process size and volume						
	Examining all the protagonists		Periodic rotation of tax auditors				
	Compliance with tax laws with accounting and auditing standards		Pay attention to profit manipulation		Tax risk		
	The proportion of the number of auditors to the number of works referred				Company profitability Executive guarantee		
	Paying attention to the dimensions of procedural justice		Compliance audit				
	Attention to ethics and values		Support the tax audit profession		Comprehensive tax plan		
	Paying attention to the consequences of the company's income				Sociable law		
	Paying attention to the social attractions of taxation		Compliance audit		Company profitability		
interfering factors							

Tax restrictions	Human Factors	Structural factors	Lack of transparency in corporate transactions	Management factors	Legal restrictions	Regulatory factors	Tracking systems
			Proper performance of the country's tax affairs organization				Attitudes of auditors
	Auditors' tastes		Tax audit process		Auditors' welfare and motivation issues		Existence of the same procedure
			Tax culture among taxpayers				Existence of activity tracking systems
	Merit in choice		Time pressure on the auditor				
			Political pressures on the auditor		Acceptability of tax auditors		Existence of a healthy system for the activity cycle
	Transparency of rules and regulations		Lack of manpower in auditing				
			Wealth control		The amount of income of companies		Social costs
	Accuracy and reliability of reporting published by managers		Reliable and reliable audit reports				
			Accounting methods and methods		Close monitoring of tax auditors		Control costs
	The expertise of the board of directors of companies		Restrictions on communication with the employer				Synchronization of accountants
			Occupational restrictions				
Underlying conditions							
Auditor requirements	Neutrality	Processbed	Increase accountability	Institutional context	Motivate the employees of the Tax Affairs Organization	Auditor capabilities	Experience and expertise of auditors
	Conflict of interest		Increase interaction				
	Mutual trust-building		Increase the work commitment of auditors		Auditor Accountability		Professional doubt
	Increase confidence		Disclosure and evaluation		Accountability of taxpayers		Consistency
Strategies							
Development measures	Increasing the level of community awareness	Support measures	Outsourcing and handing over small files	Bedding	Encouragement and education of taxpayers		
					Decision-making and legislation and commentators		
					Interaction between the audit organization and certified public accountants with the tax administration		
	Increase the skills and expertise of auditors				Interaction between the auditor and the auditor		
					The proportion of the number of auditors to the number of files		
					Sanctions and political issues in the country		
			Full implementation of the comprehensive tax plan and		Environmental category and formulation of green taxes		
	Comprehensive and complete audit				Social tax costs		
					Ranking of auditing firms		

	program		comprehensive database		Transparency of financial statements
	Increase the financial ability of auditors				Transparency of tax laws
					Identify new tax sources
					Organizational and tax culture
consequences					
Structural effects	Effectiveness of the rules		Process improvement		System availability
	Realization of government rights				Ability to track accounts and operations
	Upgrading tax knowledge				
	Increase information credibility and easy access to information				Reduce the costs of information asymmetry
	Increase taxpayer satisfaction				
	Increase receipts				Reduce audit risk
	Avoid confusing people				
	Avoid tax evasion				Reduce audit time
	Prevent corruption				
	Growth and development of industries				Reduce tax breaks

Structural measures and structural factors will enhance the ability of auditors to evaluate structural and integrated actions, lead to better monitoring of auditors, provide timely reports, and increase the speed of audits. Moreover, the auditor's independence principle is one of the most important components of structural measures. In this regard, Kenchel et al. (2018) showed that the observance of the principle of auditor's independence had a significant role in his judgments, and the auditor issues his own report, which is the basis for economic decision-making of individuals. These judgments will increase the effectiveness of the tax accountability profession.

The categories of the professional environment and audit procedures determine the conditions and position of the tax audit model. Changes in laws and a strong database are the most important elements of these two categories, which may pose opportunities and limitations to ensuring the quality of tax audits. Paying attention to these elements encourages auditors to seek fraud or other illegal actions, improving the quality of tax audits. In this regard, Singh et al. (2012) have shown that changes in laws and the enforcement of strict laws, inconsistencies and corruption are major incentives to hide activities by economic activists, which eventually affect the tax rate. Hops et al. (2012) also believe that tax audits can increase tax monitoring by reducing audit time and thus affect tax evasion and legality.

Considering the content, organizing, and the process of the model make it better planned on the method of tax audits and can also provide conditions for solving the problems and shortcomings. In the model's content, better conditions can be provided for compliance with tax laws with accounting and auditing standards by creating a specific structure. By forming strong accounting teams and supporting auditors and the audit profession, the tax audit process is organized; therefore, tax audit output is more effective and tax audit quality will be improved.

Human and managerial factors are the key factors in the capability of any organization. The greatest challenge in any organisation's management is to ensure people's participation in benefiting from their experience and working together to achieve the desired results. Hence, the critical success element of organizations is how to use human and management factors. In this research, the concept includes all the human resource's attention and considerations in the social environment of audit organizations, tax agencies and audited institutions. The concept of human and administrative factors,

including human resources with code sets that pay attention to management in an audit or tax organization, tax restrictions, meritocracy in the selection, auditors' taste of welfare and motivational issues are related to these factors and also affects the process of improving tax audit quality.

According to the study's findings, the supervisory category is one of the main categories of the intervention factors of the designed model. In this regard, Mohammad Alavi (2012) believes that there are currently two approaches to monitoring the audit profession, including self-monitoring and independent governmental supervision in the world. Through the self-control system approach, supervision has existed in countries since the mid-2000s. Following a continued decline in the quality of audits, the system has replaced itself with independent government oversight. The purpose of monitoring is to guarantee the quality of the auditing and win the stakeholders' trust. The regulations developed by the regulatory bodies in independent governmental supervision include various financial reports and audit chains. It significantly affects the quality of auditors and audits.

According to the results, the auditor's requirements are the first component of the designed model's ground condition. Auditors' requirements for neutrality and professional competence make auditors more willing to upgrade the audited quality in order to build mutual trust. Also, the requirement of auditors to obtain professional certificates from the Official Accountants Community as a tool to increase auditors' professional competence affects the audit quality. The process and institutional context are the other components of ground conditions. Creating process and institutional contexts can increase the performance of the accounting profession. Process and institutional context can provide the necessary conditions for improving the quality of tax audits through fullfiling expectations and goals of lawmakers, regulatory authorities, auditors and auditors. Auditors' ability, as a component of underlying conditions, has a significant role in monitoring the believers' financial reporting process. Auditors with high ability, fraud risk platforms, know how to operate and use these platforms for audits, and understand their importance will be more successful than other auditors. On the other hand, there may be many disputes and difficulties between auditors, accountants, and taxpayers. It is concluded that, in such situations, a capable auditor with appropriate analysis and the correct decision can play a significant role. The auditor's ability plays a significant role in improving the quality of tax audits. In this regard, Gorji Zadeh et al. (2016) showed that capable auditors have an important role in monitoring the financial reporting process and consequently increase the quality of audits.

Strategies are an important part of quality evaluation because the quality of processes can affect the quality of outputs and outcomes. For example, lack of development measures, supportive actions and effective packaging are reasons for low tax audit quality. Therefore, by developing and supporting measures and creating appropriate contexts for implementing the SAI process, one can circumvent the impact and provide a quality tax audit.

The last category of the designed model includes structural effects and process improvement. Most experts agree that long-term outcomes are obtained and emphasize that the outcomes should be replaced with inputs and processes in such measurements. If the factors and conditions mentioned in the CPI model work well, the outputs and desired and expected outcomes are expected to be achieved. These consequences consist of two general categories of structural effects and process improvement. The use of outcomes as output evaluation criteria is common. The quality of outcomes is largely a perceptual structure and is usually invisible. Outcomes, however, are determining criteria for evaluating the quality of tax audits. Evaluating the quality of tax audits through outcomes is mostly conducted with a practical view.

6. Research Recommendations

According to the nature of the present study, which was designing a model for improving the

quality of tax audits, it is possible to suggest some proposals for the planning and policy section of the tax administration:

- Structural issues such as the observance of the independence principle of auditor, paying attention to the regulation of professional behavior of auditor, and the temporal and political pressure of auditor should be placed on the agenda of the policy-makers of this organization, as facilitates the implementation of the quality improvement of tax audits.
- Policy design in such a way that there is no breach of trust between human resources and management factors of the organization and prevent managers' opportunism.

The structure of tax laws and amendments of tax laws using the latest directives and awareness of changes in tax laws are the most important subjects of the causal provisions that must be changed to create an efficient upgrade system.

Tax policymakers should pay more attention to the identification of superior and merited talents in the selection of auditors as well as their career promotion.

Policies are adopted in a way that, by attention to auditors' welfare and motivational issues, supports the efforts of auditors and the audit profession. This will increase the accountability and commitment of auditors.

Considering that expertise in corporate boards and careful management planning in investment and financing ultimately improve the company's performance and provide more quality reporting output. In addition, the reliable output of the management makes it possible for these companies to be timely, accurate, and of good quality. These criteria can attract many investors and boost the speed of foreign surveillance such as independent auditors, with which tax and tax auditors will have a relatively easier job. Thus, considering the benefits of specialization, it is recommended that the owners of companies try to hire more experienced managers. Tax auditors should pay more attention to board expertise, especially for companies whose boards lack expertise, as financial reports offered by these companies may have more deliberate and unintended errors than those of other companies.

The results showed that increasing awareness and encouragement of society and organizational culture significantly improves the quality of tax audits. Considering that education and culture from the perspective of consequentialism contain ethical messages, increasing awareness and improving the quality of education can create a positive view of taxation in them. Therefore, it is recommended that the tax administration publicize the positive consequence of tax adoption through advertising and provide the conditions for a tax acceptance culture. Hopefully, this way, society will regard taxation as a social cost and have an obligation to pay it to profit from the resources and facilities of the country. In addition, when taxpayers practice duties that they recognize, regardless of rules and regulations, they facilitate the quality of tax audits.

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RESEARCH ARTICLE

Presenting a New Model for Evaluating the Performance of Iranian Stock Exchange Firms by Emphasizing the Localization Approach

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Abstract

In this research, we present a new model of a balanced evaluation system in listed firms on the Tehran Stock Exchange. The study's statistical analyses were carried out based on the extracted data from 166 questionnaires of listed firms on the Tehran Stock Exchange during 2020. In this paper, Cochran Formula is used for sampling and since all CEOs and financial managers of listed firms on the Stock Exchange were 688 people, the sample volume is 166 people. A questionnaire is used to collect the required information and evaluate the opinions of the statistical sample. The findings at a 95% of confidence level show that based on the Kolmogorov-Smirnov test, the significance level of all variables of balanced evaluation (customer, internal processes, growth, learning, and finance) was more than 0.05, and the result was normal. The structural equations indicate that it is possible to position the perspective (customer, internal processes, growth, learning, and finance) for designing and implementing the revised model of the balanced evaluation system in listed firms on the Tehran Stock Exchange. According to the study results, we recommend that organisation managers pay more attention to productivity, training programs, and education level enhancement of the employees and try to improve the productivity.

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1. Introduction

Due to the competitive pressure in today's industries, the productivity of these companies is emphasized. Traditionally, performance studies have assumed that inefficiencies are due to mismanagement and occur under the same conditions. However, given the proliferation of international environments, it must be examined why only internal factors should be considered and not the external environment, which is not under control. When the impact of unmanageable variables is not considered, the performance of companies in an external environment can be unfavorable. This may lead to wrong decisions if they are based on the performance of the companies (Tran, Nguyen and Hoang 2021). Maximizing performance is one of the main goals of many public and private companies. In order to achieve this goal and optimize efficiency, organizations strive to make the most of their resources and create the highest efficiency of financial, operational, technological, and human resources (Chin yang et al., 2020). Performance metrics have received more attention in recent years, and such performance measurement systems should include essential performance elements such as customer satisfaction, growth and learning, internal process, and financial viability. Kaplan and Norton also shared this view: "(The amount of) research lacks valid structures for the BSC and focuses too much on planning, measurement, and control (after submission)." Therefore, more research is needed on the design and implementation of BSCs in different types of organizations. BSC is a flexible measurement tool (Hegazy, Hegazy and Eldeeb, 2020).

Kaplan and Norton's 2006 Balanced Scorecard, a performance appraisal and planning system, has been used in various industries worldwide. The experiences of different industries in using this model have been different in other parts of the world. This model has been associated with several successful implementations in the West, especially in North America and continental Europe. However, the Balanced Scorecard model has recorded several failures in some cases. These observations show that the results obtained from the implementation of this model were not random. The ability or inability of managers to understand and use concepts of the balanced evaluation model, such as its socio-cultural dimensions, is one of the reasons for success or failure in designing this model. Accordingly, Demura et al. believe that before designing and implementing such a model, managers should fully understand the basic concepts of the model to achieve their goals by implementing it in companies (De Moura et al., 2020).

It is noteworthy that the Balanced Scorecard model is designed for countries governed by a capitalist system. In the capitalist system, maximising shareholder wealth is the only reason for notable joint-stock companies. In this system, most shareholders ignore other stakeholders who directly impact the success of joint-stock companies (Miria and Xavier, 2020). On the other hand, the balanced valuation system has been designed by countries where maximising shareholder wealth is the only reason for the existence of special joint-stock companies, and because Western societies are different from Iran in various social and cultural aspects, this study needs to be designed and implemented. A new model of a balanced rating system to evaluate the performance of Iranian listed companies is felt to be consistent with the infrastructure of Iranian companies and lead to increased reliability and trust in the results of the implementation of the balanced rating system. We must say that the product of this model is more efficient and effective for Tehran Stock Exchange companies.

Considering the companies listed on the Tehran Stock Exchange, they formulate a strategic plan to achieve their predetermined goals. On the other hand, the selected strategic plan is compatible with the policies and structure. The firm is essential and improves the efficiency and effectiveness of the selected strategic plan, so this research becomes an essential research need. Further, western societies differ from Iran in many aspects such as infrastructure, literacy level, markets, customers,

capital sources and capital structures, government interventions and social and cultural contexts.

For this reason, the traditional model of the balanced measurement system, proposed according to various aspects of the capitalist system, will not have the necessary efficiency and effectiveness to evaluate the performance of companies listed on the Tehran Stock Exchange. One of the innovations of the recent study is implementing a new model of the balanced measurement system to evaluate the performance of Iranian listed companies in terms of the above dimensions, more coordination, compatibility, and compliance with Iranian listed companies. According to the presented materials, the main purpose of this research is to better understand the model of a balanced measurement system, a new perspective is needed to be developed conceptually and which shall be compatible with member companies of the Tehran Stock Exchange. Based on the research, a new model of a balanced measurement system will be developed per Iran's working and business conditions, which includes different perspectives and perspectives.

2. Literature Review

There are different theoretical views on corporate performance. Shareholder theory focuses on financial performance metrics to examine how companies maximise their profits to meet the needs of shareholders. Hansen and Schaltegger state that stakeholder theory considers the satisfaction of all stakeholders as an indicator of firm performance (Hansen and Schaltegger, 2017). The scholarly literature shows several determinants of corporate performance. From an agency perspective, corporate performance is affected by agency conflicts because management focuses on personal interests. Therefore, they may lead to ethical risks for shareholders by claiming more resources than they need or underworking to maximise their profitability. Their poor performance is supported by asymmetric information, which points to the advantage of managers' control over shareholders because they participate in companies' day-to-day operations. Therefore, agency conflicts must be minimised by developing effective corporate governance mechanisms to improve corporate performance. However, empirically, strong corporate governance mechanisms are not sufficient to justify corporate performance (Aurora et al., 2016). Instead, other factors, such as the effectiveness of business strategies and management capabilities, determine how companies operate. In addition to agency conflict, companies' working capital strategies also affect their financial performance. Working capital is defined as the difference between current assets and current liabilities. Heavy investment in working capital, called conservative working capital management, enables companies to respond effectively to customer demand and meet customer needs (Chauhan and Banerjee, 2018). Traditionally, companies have only measured performance financially through profits or other related measures. However, companies need to balance financial and non-financial indicators to link performance measures with strategy and competitive advantage (Nugroho and Pangeran, 2021). Numerous frameworks have been developed to create such a balance: performance pyramids and hierarchy (Emmanuel Joel Aikins Abakah et al., 2021), determination of results and framework (Abakah et al., 2020), intangible assets scorecard (Córdova et al., 2019), integrated performance management systems (Liping et al. 2022), and performance charters (Yin Liu et al. 2022).

Kaplan and Norton developed a multidimensional system of indicators known as the Balanced Scorecard (BSC) in the early 1990s to act as a management concept for implementing strategies. BSC is a concept for measuring, documenting, and managing the activities of a company or organisation according to the implementation of its vision and strategy in order to balance the four perspectives of services. BSC is a link between strategy development and implementation. In this sense, the goals of the traditional financial strategy are added to the customer's operational goals, the internal process, and the resource-oriented learning and development perspectives. The whole

value chain in this system of indicators in the direction of cause/effect relationships is presented in four objective areas (perspectives): finance, market and customers, internal business processes/work processes, learning and growth (innovation) / potential (Sanjeev et al. 2020).

The conceptual framework identifies the interrelationships and relationships between the company's activities and other stakeholders and the interrelationships between stakeholders. On the other hand, the conceptual framework shows the organisational interactions and stakeholder relations in different layers of systems. In this conceptual framework, there are four system layers: company level, industry level, community level, and environmental level. In this context, the government, which provides the infrastructure and laws, is also recognised as an important stakeholder (Nair, 2019). Other stakeholders include customers and end consumers, suppliers (who supply raw materials for production), competitors (competition for information), and society (which supplies labour and is often the final consumer). Waste from production and consumption is returned to the natural environment to complete the ecosystem.

It must be considered from different angles (Brown, Kim, and Faerman 2019). In general, five approaches to performance appraisal are introduced: a comparative approach, attribute approach, behavioural approach, results in approach, and quality approach.

The comparative approach uses a comprehensive evaluation of an individual's performance or value to rank individuals in a working group. This approach uses three techniques: ranking forced distribution and pairwise comparison (Hesti et al., 2020).

Individual attributes approach: This approach to performance management emphasizes the development of certain attributes considered desirable for the organization's success (Venilin et al., 2020). Techniques used in this approach consist of behaviours and characteristics, such as initiative, leadership, competitiveness, and evaluation of individuals. The graphical ranking scale, standard mixed scale, forced-choice, and essay methods are used in this approach (Camilleri, 2021).

The behavioural approach tries to define the behaviours that an employee must perform to succeed in his/her work. The techniques used in this approach are recording sensitive events, checklist method, behavioural ranking scale method, behavior observation scale (Hegazy and Eldeeb 2020).

The results approach focuses on managing the goals, measurable results of a job, and workgroups. The two performance management systems included in this approach include management based on goals and the balanced scorecard method (Falcon et al. 2020).

In addition, in this framework, four sources of capital are identified: financial capital obtained from shareholders; capital provided through debt secured by debt investors; human capital derived from labour and natural resources capital derived from the natural environment (Obeng, 2019).

Relationships between different stakeholders can be divided into six perspectives according to their impact on performance appraisal and planning:

The first perspective is culture and organisational relationships. Culture describes the relationships that exist between an organisation and its stakeholders. In this regard, organisational culture has been translated as organisational values, norms or theories that manage people’s behavior for organizational improvement (Teymoori et al., 2022). At the organisational level, culture plays an important role in influencing the performance of companies in terms of financial return and other factors (Brown, Kim, and Faerman 2019). Therefore, organisational relationships with different stakeholders are the basis of company success (Nair, 2019). Meng and Berger (2019) states that in order to research organisational performance, special attention should be paid to organisational culture because it plays a vital role within the organisation. Such an intra-organizational context includes broad and relatively stable organisational characteristics such as structure, culture, power, and political characteristics in which organisational activities occur (Meng

and Berger, 2019).

The second perspective is the perspective of stakeholders, which identifies the involvement of different stakeholders in the company's success. The stakeholder perspective indicates that stakeholders' personal contributions to an organization's internal operations are consistent with the understanding of the senior management team (Nguyen et al., 2021). Stakeholders participate in the continuity of an organisation in various ways; for example, the environment provides the raw materials, the trade union provides the manpower needed for production, and ultimately the final consumer of the organisation's products and services is formed (Perminas et al. 2021). Therefore, stakeholder relationships must be managed by balancing the interests of the various participants in the organisation. However, the stakeholder approach and balancing their interests are too focused on maximising shareholder wealth. Thus, the Balanced Scorecard model, which follows a stakeholder focus approach, often ignores many stakeholders on whom the company's activities depend (Langer and König, 2021).

The third perspective is intellectual capital, which connects other sources of capital to achieve the best performance and value. This perspective shows the relationship between intellectual capital characteristics and the company's performance describes the amount of intellectual capital that links all other sources of capital and looks at intellectual capital as a valuable strategic asset that can operate an organization (Rebecca et al., 2021). Vladimir et al. (2020) define intellectual capital as a set of all the knowledge that a company can use to lead the company to create value. Alofan, Chen and Tan (2020) also describe intellectual capital as knowledge-related intangible assets that include intellectual competencies, intellectual equipment, and intellectual resources. Intellectual capital is classified as a primary source. Other traditional reproduction factors such as land, financial capital, and labour are considered secondary sources because they are very easy to obtain, provided the organisation has specialised knowledge (Bahl et al. 2021). The strategic issue of intellectual capital has a significant share of the types of capital in terms of organisational performance, and intellectual capital acts as a catalyst for innovation in value creation processes and activities. Further, intellectual capital now plays an important role in creating value for the economy of organisations and creates value in knowledge-based organisations and, in order to increase their competitive advantage, have more emphasis on scientific assets (Ahmed et al. 2022). Ashour et al. (2018) state that the last component of intellectual capital is the physical or tangible part of the capital, consisting of physical and financial assets.

Intellectual capital has the following characteristics:

1- It is invisible;

2- It is related to the knowledge and experience of employees or users and the technology used by the organisation;

3- It can allow organisations to succeed in the future.

The fourth perspective is value creation, which refers to recognising the activities that play an important role in creating an organisation's overall value. The value creation perspective expresses the important factors that create value in an organisation. It is essential that managers' perspectives in creating value for their organization be evaluated (Terziev and Georgiev, 2020).

Thus, the value creation perspective focuses on affective factors in maximising the wealth or value of the organization (Jell-Ojobor et al., 2022). Value creation shows that those involved in such activities must contribute to the wealth allocation and distribution (organizational conscience) (Solakis, Peña-Vinces and Lopez-Bonilla 2022).

The fifth perspective is the perspective of organisational ethics, which is related to the proper allocation and distribution of organisational wealth among different stakeholders.

This perspective focuses on how the organisation's wealth is allocated and distributed to those

directly or indirectly involved in the value creation process. To fit modern global thinking on business ethics, the conceptual framework of our new model considers business ethics issues, corporate governance, and corporate conscience as part of corporate performance appraisal and planning systems (Urquía-Grande et al., 2021). The perspective of organisational ethics (corporate conscience) shows that the organisational wealth created must be shared equally and correctly among all stakeholders who have played a role in the value creation process. Therefore, each company must follow a fair and ethical approach to sharing the value created or resources with different stakeholders (Haryanti and Pribadi, 2019). Certainly, participation in social responsibility in local communities and protection and strengthening of the environment is where organisations can show their citizenship and organisational conscience (Bujak, 2021). Lewis states that corporate ethics emphasises that the organisational wealth created should be shared fairly among stakeholders who have intervened in the company's value creation processes. Therefore, each business unit must show its conscience by sharing the value created or resources most fairly and ethically (Quezada, 2019).

The five perspectives discussed above are based on a conceptual framework that shows that internal social interactions and internal relationships between an organisation and different stakeholders in an environment and solidarity between members of stakeholder groups are important for an organisation's success. (Acuña-Carvajal et al. 2019).

Fatima and Elbanna (2020) examined a balanced scorecard's performance appraisal in auditing firms. The BSC formulation for performance appraisal includes five key elements: learning and growth, customers, internal business processes, financial resources, and perspectives on corporate ethics auditing. The results showed that the proposed BSC measures' development and application increase audit firms' performance.

Elbanna et al. (2022) stated that despite the importance of BSC and the fact that it has been studied extensively over the last three decades, the concept of causality among BSC perspectives has not been adequately explained and has been remained ambiguous. To investigate the issue, the authors collected data from 175 five- and four-star hotels in the two Gulf Cooperation Council countries (GCC), the United Arab Emirates (UAE) and Qatar and examined the causal links among the overall perspectives of the BSC framework. Results indicated the traditional cause-and-effect relationships in the BSC, segregation of innovation and learning perspectives, and existence of indirect relationships between learning and customer perspectives.

Chao et al. (2021) studied different levels of learning, such as single- and double-loop learning, implementation of BSC in the health and industry organization, as well as barriers to its implementation. The study's findings showed that the learning perspective is more likely to improve the efficiency of the strategic management and strengthen the existing capabilities of the company, but it is not possible for single-loop learning to develop new capabilities.

Sachin et al. (2021) explored the performance measures in humanitarian organizations based on a sustainability balanced scorecard (SBSC). Results revealed that "beneficiaries' and donors' perspectives" are the most significant HSCM performance perspectives.

To aid an organization in responding to its stakeholder expectations, Guix and Font (2020) integrated the Balanced Scorecard as a well-established performance management system with the inclusiveness, materiality and responsiveness principles of the AA1000 Stakeholder Engagement Standard. The framework provided a systemic, structured, and integrated approach and an opportunity for sustainable value creation. They tested the framework using data reported by 20 of the world's largest hotel groups to see if current sustainability reports contain hierarchical cause-and-effect chains and hierarchical effects at their system level. They concluded that charities could improve their managerial supervision concerning the quality, transparency, and consistency in their accountability.

3. Research Methodology

The main purpose of this research is that in order better to understand the model of the balanced valuation system, there is a need for a new perspective that shall be conceptually developed and adapted to the companies listed on the Tehran Stock Exchange. Based on the literature, a new model of a balanced assessment system will be developed per Iran's working and business conditions, which includes different perspectives and perspectives.

The statistical population in the qualitative section includes professional experts, including faculty members and teachers of financial management and industrial management in universities and educational institutions, PhD candidates in industrial management and financial management, production managers, financial managers, and management accountants in executive departments organizations. In the qualitative part, this type of research is phenomenological. The present study uses qualitative methods by which the researcher seeks to examine the experiences of the sample around the variables under study. In the quantitative part, the descriptive method is used. In qualitative research, data collection and data analysis are not discrete steps. In this approach, the data analysis process can begin after each data collection so that the researcher can apply the emerging insights into data collection. Therefore, managing the interaction between the researcher and the data source d

First, by collecting the opinions of 30 professional experts, including faculty members and teachers of financial management in universities and educational institutions, PhD candidates in financial management, management accountants, production managers and financial managers in executive departments and organizations' offices. Turns. The dimensions and components are reviewed in parallel books, articles, records, and dissertations. Then, a questionnaire will be developed based on the research literature, and feedback from experts and university professors will be collected. Formal and content validity will be assessed by presenting a questionnaire to some professors and experts, and the questionnaire will be then modified using structural validity analysis. Finally, in order to assess the reliability of the tests, this research is evaluated through Cronbach’s alpha. The results of the Delphi technique are presented, and inferential statistics Kolmogorov-Smirnov test are used to show the data distribution. Due to the normality of data distribution, a one-sample t-test was used to evaluate the significance of the research variables. An exploratory factor was used to determine the revised model of the balanced valuation system in the companies listed on the Tehran Stock Exchange and the amount of variance determined by each variable in the form of packaged factors. Finally, the conceptual model and adverse findings of the research are presented.

4. Research Variables and Model

4.1. Fuzzy-Delphi

In the Delphi model, questions are asked in two or more rounds, and the previous round/s will be used in each round. Hence, from the second round, the experts and officials are under the influence of the opinions and beliefs of their peers, and it is the obtained results of the previous round that answer the questions. The Delphi Technique is a strong process based on a group-relation structure that analyses the information via a questionnaire. People's opinions and judgments will be collected within a certain area for this purpose. In other words, judgment will be assigned to the experts. The Delphi methods aim to detect innovative and reliable ideas and/or provide appropriate information for decision-making. The method surveys people to assess the perspectives and judgements of people and expert groups and balance between views. The surveys are usually performed via a questionnaire with no obligation for people to gather in a particular place in several steps. At the

end of the conclusion, valuation, and analysis of total views and opinions of people, a basis for setting goals, plan development, and decision-making will be formulated. In this method, omitting the eloquence power of people's opinions and beliefs will be collected and returned to the respondents after the required analyses. Hence, anonymity and opinion feedback are essential elements of the Delphi method. One of the advantages of the method is that when the experts and officials figure out that their opinions have been false due to some convincing reasons, they can restate their opinions without losing their fame. The Delphi method is a strategy for creating a group-relation process. The process allows a group with separate and independent components to deal with complex problems. In the Delphi model, questions are asked in two or more rounds, and the results of the previous round/s will be used in each round. Hence, from the second round, the experts and officials are under the influence of the opinions and beliefs of their peers, and it is the obtained results of the previous round that answer the questions.

The initial questionnaire structure for sending via email is a spreadsheet file that responds smartly to the respondents' presented answers. For each item, an appropriate answer will pop up on display. Moreover, the electronic questionnaire shows error messages in case of not responding to some sections. The present study uses the Delphi method, in which with the aim of indirect circulation of findings and information among the experts, the opinions of the respondents in each round will be given back to them anonymously and generally in the next round to modifying their initial opinions if they confirm them, to be able to reach a more solid consensus about the contributing factors to the model. Further, the first-round questionnaire is designed in a semi-open method to make it possible to give an opinion about the classification of factors and the addition of new factors for respondents.

Table 1. The Summary of different steps for questionnaire distribution and the result of each step

Questionnaire	No. of indices	Respondents	No.	The purpose of sending	Result
First	25 items	Scholars	30	Omitting, combining, and modifying the index	Classification, modification, and extraction of factors to 21 factors
Second	21 items	Scholars	30	Modification and prioritization of indices and classifying them	Making partial modifications for some indices
Third	21 items	Scholars	30	Reassessing indices for final confirmation	Developing the questionnaire

The scholars distributed the questionnaire to confirm the model and approved criteria. The third-round questionnaire was delivered via landline (virtually) and Email to 30 panel members and the follow-ups started four days later. For this purpose, each member is called on average 3 times via landline (virtual networks) and once via email. So, 30 questionnaires were received. The third-round questionnaire has two sections. The survey section and revised model indices section of the balanced evaluation system in the Tehran Stock Exchange-listed firms. The first-round participants have been considered the indices of revised model indices of the balanced evaluation system in listed firms on the Tehran Stock Exchange. In this section, the respondent should voice his opinion about the range of effects of each index in the model by selecting one of the existing options. These alternatives are presented in the form of the Likert Spectrum and include “extremely low effect: 1”, “low effect: 2”, “moderate effect: 3”, “high effect: 4”, and “extreme effect: 5”.

Table 2 illustrates the results of the third round of the Delphi method, like the number of

responses of each item, mean responses, standard deviation, Kendall number, significance order of each factor based on mean responses and the percentage of members that determined the order of each factor following the group.

Table 2. The results of the third round of the Delphi method about the revised model indices of the balanced evaluation system in listed firms on the Tehran Stock Exchange. Third Delphi round

Factor description	No. of responses	Mean responses	The standard deviation of responses	Kendall	Significance order
1. Customer					
Organizational consciousness	30	4.24	0.616	2.28	3
Organizational culture and relationships	30	4.32	0.529	2.34	4
Intellectual capital	30	4.03	0.574	2.06	1
Beneficiaries	30	4.37	0.442	2.45	5
Value creation	30	4.09	0.616	2.19	2
2. internal process					
Standardization of the organization processes	30	4.14	0.863	2.26	2
Identification of key organization processes	30	4.28	0.625	2.31	3
Systematic thought	30	4.33	0.579	2.37	4
Feedback evaluation	30	4.03	0.916	2.13	1
Operational skill improvement	30	4.39	0.628	2.52	5
3. development and learning					
Training improvement	30	4.19	0.636	2.16	5
Knowledge management	30	4.06	0.745	2.09	2
Participation	30	4.25	0.696	2.19	6
Knowledge creation	30	4.03	0.729	2.03	1
Self-learning	30	4.14	0.795	2.14	4
Encouragement	30	4.11	0.641	2.11	3
4. finance					
Financial resources enhancement	30	4.06	0.742	2.19	2
Supervision and budgeting	30	4.15	0.691	2.34	5
Supervision and budgeting system	30	4.03	0.638	2.16	1
Correct estimation of expenditures	30	4.11	0.823	2.22	3
Financial transparency	30	4.09	0.766	2.28	4

As seen in the Table, the results of the second and third rounds of Delphi are similar, and there is no need for performing a new round.

4.2. Evaluating the normality of items

Normality test (Kolmogorov Smirnov)

Since the value of the significance level of components is larger than the error value (0.05), the null hypothesis is concluded that the identified components are normal.

Table 3. The results of the Kolmogorov Smirnov test

Variable	Significance level	Error value	Hypothesis confirmation	Result
Customer	0.362	0.05	H0	Normal
Finance	0.149	0.05	H0	Normal
Internal process	0.295	0.05	H0	Normal
Development and learning	0.388	0.05	H0	Normal

4.3. Structural Equation Modeling and the design of the final model

Structural Equation Modeling is a strong tool in multivariate statistical analyses. The method, referred to as SEM, uses, in a particular mode, those methods present in the multivariate analysis and present some appropriate models for data related to the qualitative studies. The SEM test extracts the effect of indices and components in the final model. In this section, the outputs of the run model by the LISREL Software are illustrated, including the obtained weights for the final model of the study that determines to what extent the residual indices in the research can influence the balanced evaluation system in listed firms on the Tehran Stock Exchange.

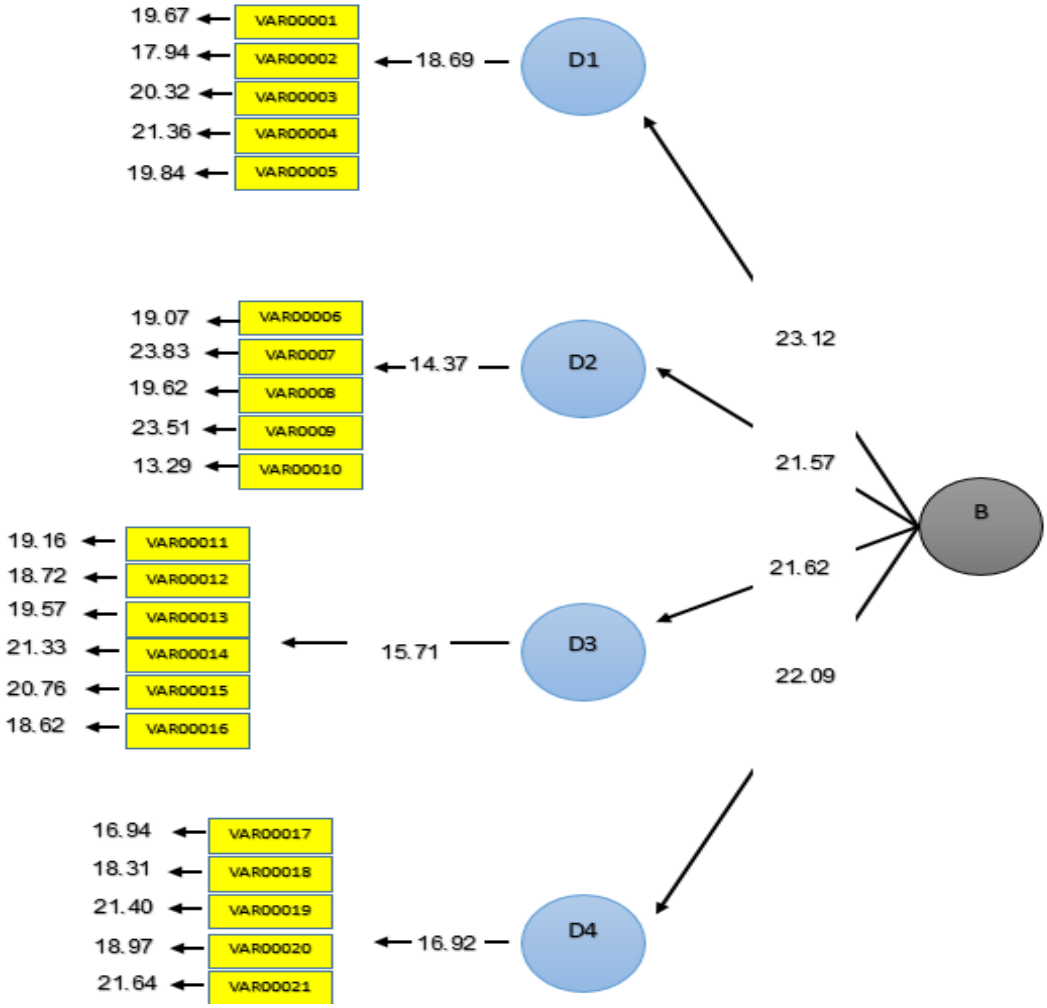

Figure 1. The Structural Equation Modeling of the balanced evaluation system in listed firms on the Tehran Stock Exchange

The obtained factor load by the diagram for indices and components is measured by the LISREL Software that shows the significant coefficients or, in other words, the factor loads from the criterion in proportion to the desired factors. The circular model is summarised as follows:

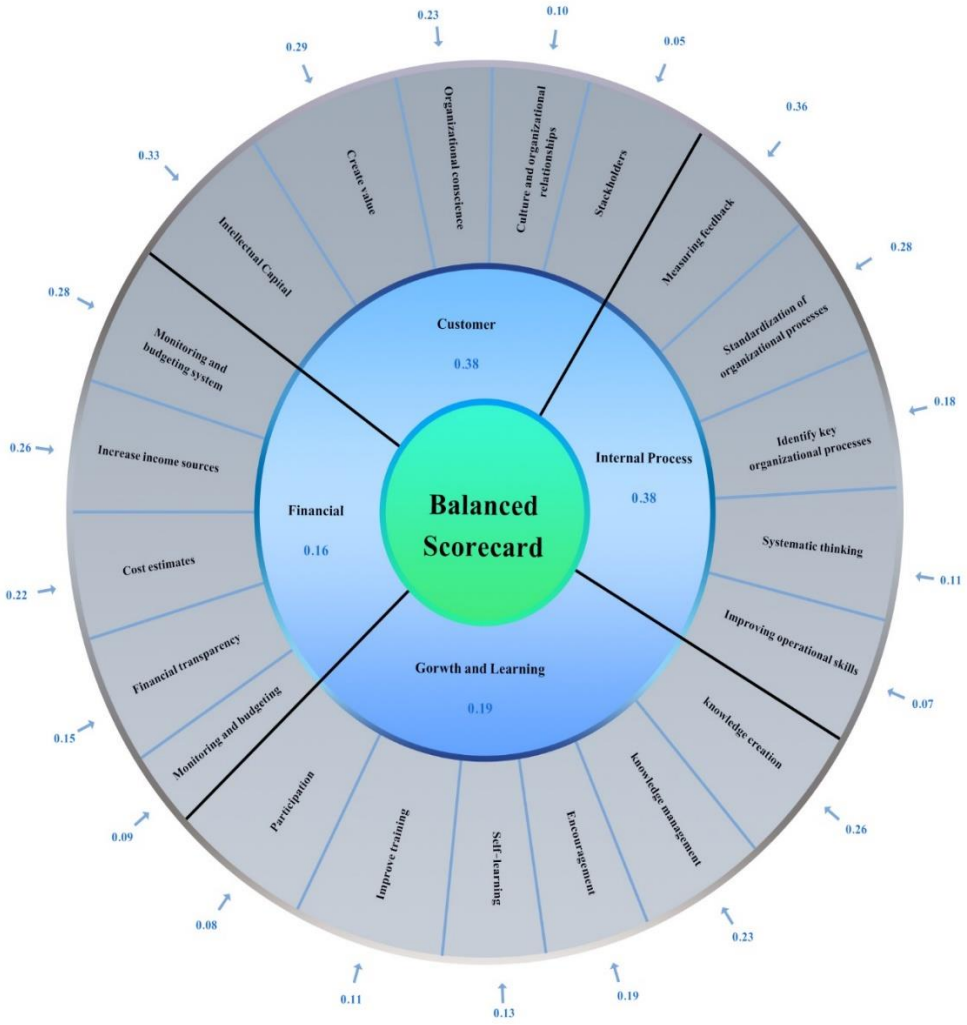

Figure 2. The final research Model

5. Conclusion

The present study analysed a new design of one of the performance measurement models called the balanced measurement model for localization and compatibility with different infrastructures of Iranian stock exchange companies. Based on experts' opinions and three Delphi rounds, the client's perspective variables have been identified, including organizational conscience, organizational culture and relationships, intellectual capital, stakeholders, and value creation. The ranking also showed that the client's perspective is first. A performance measurement system determines how an organization achieves predetermined goals by measuring indicators. Most organizations plan their operations somehow, but what has caught the attention of experts in the field in recent years is what needs to be measured, in other words, the debate about the right size. In this regard, many managers have noticed that their performance measurement system is not working properly. This is because

they have not identified their performance indicators or, if they have, they have not identified them correctly. Throughout history, there have been systems for measuring the performance of financial business units, but financial metrics are insufficient to guide and evaluate the organization's paths in a competitive environment. In the balanced scorecard model, besides financial indicators, considered function indicators, conductor and performance indicators are also considered. This approach covers all financial and non-financial aspects of organizational performance and balances past performance outputs with future performance drivers. It is a balanced military scorecard for performance management. The Balanced Scorecard aims to provide key business success factors for managers and align the organization's overall performance and strategy. The Balanced Scorecard also gives managers the tools to lead the organization to be competitive. Over time the idea has evolved, so much so that a performance measurement tool has become a strategic management system. In this regard, Ghasemi (2020) also showed a positive and significant effect on company performance from a client's perspective. Yeh et al. (2021) showed a positive and significant relationship between intangible assets and organizational performance and a balanced scorecard. Further, the correlation test results showed that all components of intangible assets or organizational performance have a positive and significant relationship, and human capital has the greatest impact on the organizational performance of companies.

Based on experts' opinions and three Delphi rounds, the variables of the internal process perspective have been identified. Internal process perspectives have included standardizing, identifying key organizational processes, systems thinking, measuring feedback, improving operational skills, and creating value. In this regard, Khan Mohammadi et al. (2019) also showed that it is acceptable and very good in the organization under study from internal processes.

Growth and learning landscape variables have been identified based on expert opinion and three Delphi rounds. Growth and learning perspectives have included improving education, knowledge management, participation, knowledge creation, self-learning, encouragement, and persuasion. In this regard, in evaluating the performance of Mammoth Company,

Based on the opinion of experts and three Delphi rounds, financial landscape variables have been identified. The financial perspective included increasing revenue sources, oversight and budgeting, oversight and budgeting system, accurate cost estimation, and financial transparency. The available data show that many companies have dramatically changed their management and performance measurement systems over the past decade. This transformation has been significant in accepting the strategic performance measurement system. In confirmation of this common process, it is claimed that the strategic performance measurement system has very beneficial effects on performance and that this effect is achieved through the participation of the strategic performance measurement system in the successful strategic implementation of the desired (Such as better communication, better execution, and more effective support) (Gamma et al., 2021). Financial measurements are good indicators for reflecting on past events. Still, showing the real factors and drivers of value creation in today's organizations, i.e., intangible assets such as employees' knowledge and ability, information networks and customer relations, are insufficient and inefficient. This valuation method emphasizes financial-non-financial aspects, short-term-long-term strategies, and external business measurements. In this regard, Quezada (2019) and Fatima and Elbanna (2020) also showed that it has a positive and significant effect on the company's performance from a financial perspective. Shao (2019) showed that the perspectives of "sustainability" and "learning and growth" are key elements that can greatly improve performance. The proposed framework could help authorities promote the competitiveness of sustainable development decisions. Pei et al. (2018) showed that performance appraisal might affect all aspects of employee perception and reaction to performance appraisal; ultimately, performance appraisal directly impacts the

organization because a company's performance is the performance of its employees. Mark (2019) showed that measuring organizational performance is a complex process. Performance is a multifaceted phenomenon whose component elements may be distinct from managerial priorities or even mutually contradictory. Hansen and Schaltegger (2017) showed that companies need practical tools to evaluate the performance of the board and the proposed method is a suitable tool for measurement. The results also show that the relative importance of performance criteria is different among the three samples.

Performance appraisal and management play a crucial role in a competitive environment characterized by resource scarcity. Performance measurement systems have always been recommended to facilitate the implementation of the strategy and improve organizational performance. Today, contemporary performance measurement involves using financial and non-financial performance metrics related to the organization's business strategy. In the present century, the issue of performance appraisal is of particular importance to organizations and managers, given the challenges faced by the Twenty-first is facing it, trying to use the abilities and talents at their disposal to face the minor damage in the face of the unexpected changes that occur, and to make the most profit.

Suggestions

According to the results of this research, some suggestions are presented:

1-The managers of the organization are suggested to pay attention to organizational research and development in order to improve organizational performance.

2-Organizational managers are suggested to institutionalize office automation to improve organizational performance.

3-In order to improve organizational performance, it is recommended to attract new customers.

4-Organizational managers are suggested to pay much attention to identifying key customers.

5-organizational managers are suggested to pay much attention to the mutual benefits between the organization and customers.

6-Managers are suggested to make investments that bring good returns to the organization.

7-The managers are suggested to use appropriate strategies in debt and liquidity management.

8-The managers of the organization are suggested to use appropriate strategies and investment policies to increase the return on equity and improve the company's performance.

9-Managers of the organization should pay more attention to employee productivity and improve productivity.

10-Managers of the organization should pay more attention to employees' training programs to ultimately improve organizational performance.

11-organizational managers try to provide conditions for improving the level of education of employees.

Further to the study

Finally, practical suggestions are provided for those who are interested:

1-Identifying and ranking the factors affecting the improvement of organizational performance using multi-criteria decision-making methods

2-Examining the company’s investment strategies in improving the company’s performance

3-Examining the strategic management of the organization and organizational performance

4-Examining the customer relationship management system and organizational performance

5-It is suggested that the role of variables as mediators and moderators (such as gender - work experience, age, etc.) be addressed in future research.

6-Since it may not be possible to provide a specific model for evaluating all firms with different activities, it is suggested that such a design be done separately in each specific category and production area.

Research limitations

Researchers are always faced with limitations in their research, some of which manifest themselves even initially. This research, like other research based on the scientific method, has a series of limitations which are mentioned below:

1-Limiting the statistical community to industrial managers, management accountants and financial managers of companies listed on the Tehran Stock Exchange to collect more accurate and common information

2-Problems of determining the composition and converting qualitative categories into quantitative values

3-Basically, conducting numerous researches and distributing questionnaires with many questions has caused the completion of questionnaires not to be done with reflection and accuracy and to affect the results.

4-Respondents do not have much faith in applying the research results in the implementation phase, so they do not pay much attention to the answers.

5-Lack of cooperation of some employees due to lack of time and boredom.

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RESEARCH ARTICLE

Investigating the Factors Affecting Accountants' Behavioral Intentions in Accounting Information System Adoption: Empirical Evidence of Unified Theory of Acceptance and Use of technology, and Task-Fit Model

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Abstract

Accounting information systems have recently received many investments in the implementation, resulting in introducing of its technology and gaining importance. However, factors affecting the accounting information system's success are the adoption and use by accountants in organizations. The present study used the unified model of acceptance and the use of technology and the model of task-technology fit to investigate the factors affecting the accountants' behavioral intentions regarding an accounting information system adoption. The present study was a descriptive survey regarding the applied purpose and collecting data tools. The data were collected using a questionnaire distributed among accountants of companies listed on the 2020 Tehran Stock Exchange, and 200 questionnaires approved by structural equation modeling were analyzed by Smart PLS 3 software. The results showed a direct and positive association between all model constructs (i.e., self-efficacy, effort expectancy, performance expectancy, and perceived technology fit) in accounting information system adoption, except the facilitating conditions in the research.

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1. Introduction

As an information system (IS), accounting measures economic activities, analyzes information as a report and provides the results to decision-makers. Accounting is regarded as the language of commerce; in this case, the accounting information system (AIS) is the intelligence or provider of that language. An accounting information system involves gathering, recording, storing, and processing data to provide information for decision-makers, which can be manual or computer-assisted, or sometimes between the two (manual and computer-assisted) (Tilahun, 2019). Traditional AIS only provided financial statements with less accounting data to managers, which limited the use as well as the incorrect entry of information and the inefficient performance of tasks. In the 21st century, information technology (IT) development has significantly affected the accounting profession, especially the methods. Accounting systems have led to changes in accounting information systems and accounting software (Salehi, Rostami and Mogadam, 2010)

Since the 1990s, the implementation of accounting information systems has attracted great attention and investment by companies and, thus, its technology found a place among accountants. Many companies have now adopted the accounting information system and entered the post-implementation phase; still, the implementation of technology does not mean that companies are more efficient and effective in accounting operations, so issues concerning the use of accounting information systems by accountants have become very important (Aoun, Vatansakdakul and Li, 2010). Due to the features in the information system or characteristics of accounting tasks, accountants may withdraw from using the system. How accountants adopt, a system is of special importance to confirm a high level of acceptance of the system. This issue is a prerequisite for any effort to apply an accounting information system in organizations. Studies on information technology devices have indicated that end users are often less likely to accept and use computer devices, especially when they have other options (Gonzalez, Sharma and Galletta, 2012). User adoption and confidence are critical to the development of any new technology. In addition, it is vital to examine the factors affecting Accountants' Behavioral Intention (ABI) in adopting an accounting information system. Behavior is a motivational factor that determines the effort a person must make. Showing a behavior assumes that behavioral goals drive individual behaviors. Behavior shows how much people are willing to try. They put a lot of effort into planning this behavior. In general, the stronger desire to perform a behavior stimulates people to do it (Özer and Yilmaz, 2011). The adoption of an accounting information system will require special attention. Behavioral intentions are a person's perception of the occurrence of a particular behavior; in other words, it is a mental and probable situation that connects the person with his action. Morris (2005) defines behavioral intentions as the intensity of the individual's intention and desire to do a specific action. According to the association between behavioral intentions and behavior, it is revealed that people are more likely to engage in behaviors they desire to perform, so the behavior is always determined by the individual's intention to engage in it and is associated with it. (Alamin et al., 2020)

Based on the literature on the current technology or techniques used in accounting, such as goal-based costing (Yazdifar and Askarany, 2012), most studies have focused on educators' and managers' roles, even if accountants have roles in various aspects of accounting information systems. Before adoption, the accounting information system remained relatively underdeveloped. Several individuals, organizational, institutional, and technological factors should be considered to better understand accountants' adoption of accounting information systems. However, the factors affecting accountants' behavioral intentions in adopting the accounting information system have not been fully studied. The factors each end-user considers influence his/her intentions, revealing their opinions and perceptions as well as the probability of acceptance or rejection of the technology (Alamin et al., 2015).

Since various technologies are now used in the workplace and the accounting information system and regarding the limited research in the literature on the accounting information system and the issue of adoption from the perspective of accountants, as well as because the successful implementation of the accounting information system depends on the actual adoption and use of accountants in companies, organizations should look for ways to ensure that accountants adopt the system instead of focusing only on the acceptance of decision-makers. Despite the important role of accountants' participation in the achievement of the system, the present study mainly focused on the issues associated with the design, development, and effects of implementing the system (Naheb, Sukoharsono and Baridwan, 2017). The case of technology adoption has led to the emergence of several accepted theories and models, providing a general understanding of the factors potentially affecting the adoption of IT (Taherdoost, 2018). In this regard, examining the general framework of the accepted model of individuals and theories that explain the behavioral origin of individuals can determine the reasons and factors influencing the adoption of technology. In this regard, the present study used a combination of the unified theory of acceptance and use of technology (UTAUT) and the model of the task-technology fit (TTF) as well as the use of individual self-efficacy factors to investigate the effective factors on the accountants' behavioral intention to adopt the accounting information system. The mentioned models have investigated the adoption of different information technology applications. Together, they have been used to explore the individuals' behavioral intentions in organizations (in Iran, no research has used a combination of these two models in this case). The factors under study in this research included effort expectancy (EE), performance expectancy (PE), facilitating conditions (FC), self-efficacy (SE), and perceived technology fit (PTF). Given that there are several technology packages in the country that provide computer-based accounting information systems, examining the acceptance of this system by end-users (accountants) can help organizational decision-makers who choose the new accounting information system to implement policies and trust the latest technology and also let the system developers know how to design a new accounting information system to be accepted and used by end-users. In the following sections, the review of literature, hypotheses, research methods, statistical findings, and conclusions.

2. Literature Review

2.1. The Unified Theory of Acceptance and Use of Technology (UTAUT)

Many studies on technology adoption have used the unified theory of acceptance and use of technology for analysis. This theory is one of the newest models in technology acceptance, aiming to provide a comprehensive viewpoint toward adoption by users (Odeh, 2019). The model is a combination of eight known models in the discussion of technology acceptance (innovation diffusion theory (IDT), technology acceptance model(TAM), social cognitive theory(SCT), model of PC utilization(MPCU), theory of reasoned action(TRA), technology of planned behavior(TPB), motivational model(MM), and combined model of TAM and TPB). The advantage of this model over other models is that it is the most comprehensive model ever proposed for acceptance. Capabilities can predict 70% of people's acceptable behavior in the face of innovations and technologies (Venkatesh et al., 2003). In this model, four factors can influence the behavioral tendencies in the acceptance and use of end-users: facilitating conditions, performance expectancy, social influence, and effort expectancy. The factors of performance expectancy, effort expectancy, and facilitating conditions influence the behavioral intention of adopting technology and can also be important in adopting the accounting information system (Aoun, Vatansakdakul and Li, 2010; Curtis and Payne, 2008; Katurura and Cilliers, 2018). But previous studies (Forward, 2009) and

Andwika and Witjakson (2020) showed that the factor of social influence, as an important and significant factor in ideation and measurement methods, is not very noticeable, so this factor was omitted in this study (Aoun, Vatansakdakul and Li, 2010). According to Venkatesh et al. (2003), performance expectancy refers to "the extent to which a person believes that using a system helps him or her achieve his or her goals in his or her job." The constructs that are similar to performance expectancy in the past models and theories are Perceived usefulness, which is derived from TAM; Extrinsic motivation, which is derived from MM, Job fit, which is derived from the MPCU; Relative advantage, which is derived from the IDT; and Outcome expectations, which are derived from the SCT. Previous accounting research has demonstrated that this factor 1) significantly affects behavioral intention (Aoun, Vatansakdakul and Li, 2010) and 2) influences auditors' decisions to adopt and use computer-based auditing tools (Mahzan and Lymer, 2014). Venkatesh et al. (2003) defined the expectation of effort as "the degree of ease associated with using a technology among users". Origins of the construct can be traced in TAM Complexity of technology, derived from the MPCU model, and Ease of use, derived from IDT. Therefore, it is claimed that this factor has predictive power for behavioral intention. The unified model of technology acceptance and use assumes that the technology acceptance is influenced by the expectation of trying to know and use new technology (Damanpour and Schneider, 2006). Venkatesh et al. (2003) described facilitating conditions as "the degree to which one believes one can provide organizational and technical infrastructure support if one uses technology.". This factor of UTAUT refers to various constructs that were captured by the existing theories and models. These constructs include Perceived behavioral control, which was adopted from TRA and TPB; FC, which was captured from MPCU; and compatibility, which was derived from IDT; ironically, the presence of performance expectancy and effort expectancy diminishes the influence of facilitating conditions on behavioral intentions in the UTAUT2 model. Venkatesh, Thong and Xu (2012) hypothesized that facilitating conditions affect users' behavioral intention and behavior. According to a study by Boontarig et al. (2012), facilitator conditions affect behavioral tendencies, and behavioral use of IT services has a positive effect

However, the weakness of this theory is that it does not consider the individual element in its ability to explain intentions. In the discussion of information technology, various studies have highlighted the impact of differences on adopting and using; therefore, understanding why and how users use IT is crucial (Alsyouf, 2021). In the study of technology adoption, it is important to examine personal characteristics due to differences in people's behaviors. One of the factors directing individuals to adopt information technology, including accounting, is self-efficacy. Bandura's social cognitive theory (1997) is the theoretical source of self-efficacy. Observation of others' performances led to the formulation of this theory. Bandura (2006) also considered individual performance resulting from different abilities to show the behavior to formulate the theory. This theory understands the result that one will achieve by using technology. Self-efficacy can be highly effective on a person's behavior and motivation. This perception of a person's ability to achieve the standards s/he has pursued affects individual behavioral and cognitive responses. The individuals who doubt their ability are quickly disappointed and fail, while those who are confident in their ability to perform the goal intensify their efforts until they succeed (Naheb, Sukoharsono and Baridwan, 2017). Self-efficacy is the belief in a person's ability to show a particular behavior. It is considered a major structure in social psychology that influences decisions about the behaviors to be performed (Hayashi, 2004). According to the definition by Compeau and Higgins (2017), Self-efficacy can be defined as "judging a person's ability to use a computer" to perform a specific task. Despite the association between self-efficacy and the findings of technology mastery theory, and because it cannot directly determine the behavioral intention in the unified model of technology

acceptance and use, studies have indicated that it is a significant factor in the adoption of new technologies (Chiu and Wang, 2008).

2.2. Task - technology fit model

Goodhue (1995) proposed a model of the association between technology and task to evaluate the success of information systems, which emphasizes the user's assessment of the efficiency and effectiveness of the business. He defined the concept of a fit model between task and technology as the effectiveness and success of a particular technology in assisting a user in performing his/her tasks. The task-technology fit model expresses the degree of matching between job requirements, individual abilities, and functions in the system (Shahreki & Nakanishi, 2016). It has been found that this concept significantly and positively affects IT adoption. If the technology is used for the user's needs, then such technology will positively affect the user's efficiency and performance. A large number of studies on IT adoption have used this model, which has added considerable empirical support to it. The model is mainly dealt with the fit between technology features and the existing methods and values. Most applications of accounting technology are not previously determined and flexible, contributing to making changes in their features to meet some special local or organizational needs; therefore, it makes sense to consider adopting accounting information systems from the perspective of the technology task fit model. It positively and significantly affects the adoption of information technology, so the appropriate perceived technology is also included in the research model (Naheb, Sukoharsono and Baridwan, 2017). As Goodhue (1998) and Goodhue & Thompson (1995) asserted, the word "fit" refers to the degree to which technology features help individuals perform their tasks to convert inputs into outputs. Zhou, Lu and Wang (2010) showed that the fit between user's duty requirements and mobile banking practices determines users' acceptance of mobile banking

2.3. Behavioral intentions

Behavioral factors are motivational factors that reveal individuals' willingness and plan to make efforts. As a rule, the higher a person desires to perform a behavior, the higher the probability is of acting. Fishbon-ajzen (1977) defined the desire of each individual to perform a particular behavior. This is a critical indicator in forecasting whether individuals are doing what they are doing or not doing it. The unified theory of acceptance and use of technology focuses on explaining the behavior of individuals based on their beliefs and regardless of psychological characteristics (Venkatesh, Thong and Xu, 2016). They found a direct association between behavioral inclination and the use of technology in the widespread acceptance of technology (Alamin et al., 2020). Behavioral inclinations measure a person's intention and desire to use the system. In examining the unified model of acceptance and use of technology, Vanktash et al. (2003). found that hope for expectation performance, the expectation for effort, and social influence behavioral intention to use technology determines the behavior and conditions that facilitate the use of technology; therefore, the direct association between a person's behavioral intentions and the use of technology is strongly confirmed. On the other hand, in the technology fit model, it can be claimed that a more efficient fit between existing accounting practices and accounting information systems performance processes improves people's behavioral intentions to adopt this system; at the same time, weaker proportions reduce accountants' behavioral intention to adopt such systems. This study considers accountants' behavioral intentions in adopting and using technology (equivalent to accounting information systems) the dependent variable.

2.4. Research background

In general, research on the adoption of accounting information systems is focused on two areas: 1) review of accounting information system and its comparison with a manual system, and 2) review of design and implementation of the accounting information system; however, few studies have been performed on factors affecting accounting information systems such as acceptance and use. Existing texts focus on managers' views on guidelines for technology implementation and accounting techniques (Askarany, Smith and Yazdifar, 2007). Aoun, Vatansakdakul and Li (2010) used a unified technology acceptance model to explain behavioral intention in accounting information systems in Australia. They aimed to examine the factors affecting accountants' use of accounting information systems. By measuring the expectations of effort, performance expectations, and cultural factors by a questionnaire, they concluded that the use of a unified acceptance model in the study of accounting information system acceptance is approved by accountants. Their results showed that performance expectancy, effort expectancy, and facilitating had a direct and significant effect on behavioral intentions and accounting information systems; however, the impact of social influence was small and insignificant. Özer and Yilmaz (2011) examined the behavioral intention of accountants in adopting information technology in Turkey. He hypothesized that mental attitudes and perceptions of behavior control could positively affect accounting goals toward information technology. This study showed that strong and positive tendencies towards using information technology could be enhanced by factors such as accountants' positive and strong attitudes, perceived behavioral control, and mental norms. Dowling (2009) developed a theoretical model that included factors that affected the auditors' support system use. Using inferential statistical analysis, the auditors showed a willingness to use the audit support system. The results also revealed that auditors with positive attitudes toward normative pressure and high self-efficacy would use the audit support system more. In a study of the audit program, Gonzalez, Sharma and Galletta (2012) used the model to study the behavioral intention in adopting the monitoring technology unit. The results confirmed their model because the four factors of effort expectancy, performance expectancy, social influence, and facilitating conditions played a key role in the dependent variable.

Naheb, Sukoharsono and Baridwan (2017) conducted a study to investigate the factors affecting behavioral intention in using computerized accounting systems in Libyan cement products from the two integrated models of technology acceptance and task fit and technology. They examined the factors affecting behavioral intention, including performance expectancy, effort expectancy, facilitating conditions, self-efficacy, and fit of task technology. The analysis showed that all variables except the expected effort affect the behavioral intention of accountants in using the computer accounting system. Tilahun (2019), in a study on the identification of key determinants in the acceptance of the accounting system by companies around the world, showed that committed management support, perceived ease of use, human resources, performance expectancy, and government support are the most critical factors that affect an accounting information system adoption. Using the modified model of technology adoption and combining it with institutional theory and the model of task-technology fit to investigate the factors affecting the adoption of the accounting information system by accountants, Alamin (2015) used the analysis of the questionnaires and concluded that the probability of adopting the accounting information system by accountants is influenced by five main factors, i.e., effort expectancy, self-efficacy, facilitating conditions, perceived technology fit, and mandatory pressure.

Odeh (2019) examined the influential factors on the acceptance of financial information systems by small and medium-sized companies in Jordan. It showed that social impact, effort expectancy, performance expectancy, and facilitating conditions affect small and medium companies' approval

of financial information systems. To examine the factors influencing the acceptance and use of ERP, Andwika and Witjaksono (2020) used the unified model of research acceptance and found the following results: factors such as effort expectancy, performance expectancy, and facilitating conditions positively and significantly affected users' behavioral intention, while social impact did not have a positive and significant impact on users' behavioral intention.

2.5. Research models and hypotheses

Considering the theoretical foundations and research background and since the purpose of the present study was to use the unified model of acceptance and use of technology and the model of the task-technology fit in examining the factors affecting the behavioral intention of accountants in adopting an accounting information system, the five factors of performance expectancy, effort expectancy facilitating conditions, self-efficacy, and perceived technology fit were revealed to have an impact on the model, so the following conceptual model and hypothesis were proposed (Figure1).

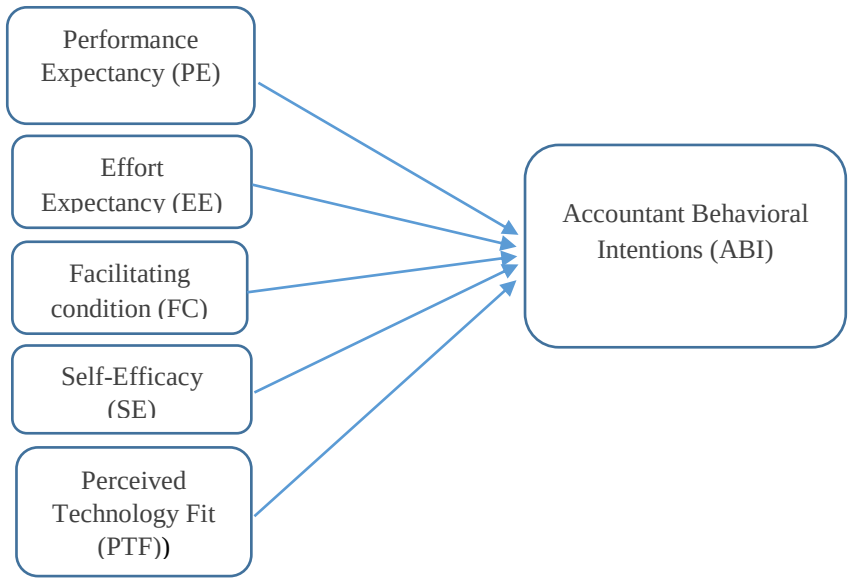

Figure 1. Conceptual model of research

Hypothesis 1 - Perceived performance expectancy of the accounting information system has a significant effect on the behavioral intentions of accountants in adopting the accounting information system.

Hypothesis 2 - the perceived effort performance expectancy of the accounting information system has a significant effect on the behavioral intentions of accountants in adopting the accounting information system.

Hypothesis 3 - Perceived facilitating conditions significantly affect accountants' behavioral intention in adopting the accounting information system.

Hypothesis 4: Perceived self-efficacy in accounting information system adoption has a positive and significant effect on accountants' behavioral intentions in accounting information system

adoption.

Hypothesis 5 - Perceived technology fit has a positive and significant effect on the behavioral intentions of accountants in adopting the accounting information system.

3. Research Methodology

The present study applied research in terms of purpose and descriptive-correlational research regarding data collection. Researchers used the library method with journals, textbooks, and websites to design its theoretical framework. The target population consisted of the accounting staff working in companies listed on the 2020 Tehran Stock Exchange. The data collection instrument was a questionnaire. A standard questionnaire by Venkatesh et al. (2003) was used to measure the variables related to the UTAUT model (performance expectancy, effort expectancy, facilitating conditions, and self-efficacy), and a questionnaire was used for perceived technology fit variables (Goodhue, 1995). The questionnaire consisted of 39 questions based on the purposes of the study; it covered all the hypotheses of the research in three parts: 11 general questions in the first part, two questions about the accounting system information system in the second part, and 26 technical questions the third part, which were measured by a 5-option Likert scale. The researchers could find no study on the subject under study and no model in accounting. The researchers translated the questionnaire. The first ten questionnaires were distributed among the participants in the next step, experts' and specialists' opinions. Experts confirmed the face and content validities of the questionnaire, and Cronbach's alpha was used to confirm its reliability. Model analysis and measurement were performed using structural equation modeling. Structural equation modeling as a powerful statistical technique was used to examine the linear relationships between unobserved and observed variables and confirm the measurement model (confirmatory factor analysis) and the structural model in regression or (path analysis) in rejecting or adapting it to the data. The software used in this research for analysis was Smart PL3. This software analyzes structural equations with several variables and direct, indirect, and interactive effects. This software is suitable for testing the moderating effect of software. The first generation of structural equation software, such as Emus Wizzler, needs more than 200 samples. Still, the PLS software belongs to the second generation of structural equation modeling software, so one of the reasons for its popularity and versatility is the lack of any need to use a high sample size in research. One of the well-known rules for determining the minimum required sample in this method was proposed by (Barclay, Higgins and Thompson, 1995) to select statistical samples in modeling structural equations Smart-pls3. The minimum sample size required to use this method is equal to the most significant value obtained from two rules: 1) 10 times the number of indicators of the measurement model that has the highest index among the measurement models of the primary research model 2) 10 times the most relationships in the structural part The primary model. According to Figures 1 and 2, the most common relationships are 7 relationships in the performance expectancy item, which multiply 10 by 7 to become 70 samples. On the other hand, the highest indicator in our model was the behavioral intention to which 8 arrows are entered, so 8 multiplied by 10 becomes 80, and we chose the maximum of 80 as the sample size.

Due to the special conditions of the COVID-19 epidemic and the consequent problems for face-to-face communication, the questionnaires were collected from late March 2019 to June 2020. After designing the approved questionnaire on the online platform, it was sent to the accountants via websites and emails of the listed companies. Moreover, the researchers used the capacity of online channels and groups of accounting activists. About 350 electronic links were sent, and 206 electronic questionnaires were sent back to the researcher. Six questionnaires were answered incompletely and thus were omitted

4. Data Analysis

4.1. Reliability of the questionnaire

To evaluate the face and content validities, a questionnaire was given to 10 academic experts to confirm its face and content validities. Content validity was assessed through two indicators, i.e., CVR and CVI, which were proved to be within acceptable limits for all items. To answer the question of the study, the opinions of ten professors and experts were obtained, and after several revisions and corrections, the final 26 factors in the form of five components of performance expectancy, effort expectancy, facilitating conditions, self-efficacy, and perceived technology fit were identified (Table 1). It was observed that, for all items, the CVR value was more than 0.62 and the CVI value was more than 0.79; thus, all the items were confirmed by the experts and were used in the study.

Table 1. CVI and CVR indicators to identify the factors affecting accounting behavioral intention and the adoption of accounting information systems

NO			CVR	CVI
1	performance expectancy	Using the AIS in my accounting tasks would be useful.	1	1
2		Using the AIS in my accounting tasks would enable me to accomplish my accounting tasks more quickly.	1	1
3		Using the AIS in my accounting tasks would increase my productivity.	0.8	1
4		Using the AIS in my accounting tasks would increase my chance of getting a promotion	0.8	0.9
5		Using the AIS in my accounting tasks would increase my satisfaction at work.	1	1
6		Using the AIS in my accounting tasks would fulfil accounting information needs for my judgment quality.	1	1
7		Using the AIS in my accounting tasks would enhance all AIS processes in my organization.	0.8	0.8
8	effort expectancy	My interaction with the AIS would be clear and understandable	1	1
9		It would be easy for me to become skillful in using the AIS.	0.8	0.9
10		I would find that the AIS easily does what I want it to do.	1	1
11		Learning to operate the AIS would be easy for me.	1	0.8
12	facilitating conditions	I have the necessary (hardware) resources to use the AIS for accounting tasks.	1	1
13		I have the necessary knowledge to use the AIS.	0.8	0.9
14		The accountants in my organization are getting the training needed to use the AIS.	0.8	1
15		A specific person (or group) is available to assist with AIS difficulties	1	0.9
16	self-efficacy	I could complete my accounting tasks using the AIS if there was no one around to tell me what to do as I go	1	1
17		I could complete my accounting tasks using the AIS if I could call someone for help if I got stuck.	0.8	0.9
18		I could complete my accounting tasks using the AIS if I had a lot of time to complete the job for which the software was provided.	1	1
19		I could complete my accounting tasks using the AIS if I had just the built-in help facility for assistance	0.8	0.8
20	Perceived Technology fit	Using the AIS fits well with the way I like to do accounting tasks.	1	1
21		I can count on the AIS to be 'up' and available when I need it.	0.9	1
22		My organization's AIS would be compatible with all aspects of my accounting practices.	0.9	0.9
23		In helping me perform the accounting tasks, the functions of the AIS would be enough.	0.8	1
24	Behavioral Intention	I plan to use the AIS in the future.	0.9	0.9
25		I predict that I will use the AIS in the future.	1	0.8
26		I plan to use the AIS in the future.	1	1

We followed the following steps to examine the confirmatory factor analysis of this questionnaire. To evaluate the reliability of the questionnaire, Cronbach's alpha and combined reliability indices were used. A value higher than 0.7 is considered desirable for these two indicators. Table 2 shows that the Cronbach's alpha and combined reliability indices for all questionnaire dimensions were higher than 0.7, indicating their desirability. Convergent validity exists when the scores obtained from the two tools on a concept are highly correlated. In other words, convergent validity means measuring the degree of explanation of the hidden variable by observable variables, which is measured by the mean of extracting variance (AVE). If this index is more than 0.4, convergent validity will be confirmed. According to the following table, it can be seen that the AVE index for all dimensions of the questionnaire was higher than 0.4. Divergent validity also measures the ability of a measurement model to differentiate the observability of the latent variable of the model from other observations in the questionnaire and is complementary to convergent validity measured through the Farnell-Larker matrix.

Table 2. Reliability and discriminant validity

	Performance Expectancy	Effort Expectancy	Perceived technology fit	Facilitating Conditions	Self-Efficacy	Accounting Behavioral Intentions
Performance Expectancy	0.729					
Effort Expectancy	0.534	0.792				
Perceived technology fit	0.458	0.587	0.818			
Facilitating Conditions	0.417	0.497	0.678	0.765		
Self-Efficacy	0.227	0.203	0.306	0.278	0.694	
Accountant Behavioral Intention	0.406	0.363	0.333	0.226	0.336	0.849
Cronbach's Alpha	0.853	0.803	0.836	0.778	0.704	0.808
Combined reliability	0.887	0.871	0.890	0.848	0.785	0.886
AVE	0.531	0.628	0.668	0.585	0.481	0.721

4.2. Descriptive findings

Based on 200 analyzed questionnaires, the following results were obtained: regarding the gender, 87 (43.5%) of the participants were women and 113 (56.5%) were male. Regarding the age of the subjects, 54 people (27%) were 30 years old and younger, 108 (54%) were 31-40 years old, and 38 (19%) were older than 40. In terms of education degrees, the highest frequency (86 people, 43%) was related to people with master's degrees, and the lowest frequency (10 people, 5%) was related to people with an associate degree. Most participants (148 people, 74%) studied accounting, and eight (4%) studied economics. Forty-two of the subjects (21%) were financial managers, 118 (59%) were accountants, and 21 (10.5%) were auditors. 19 people (9.5%) had activities in other fields. Most subjects (59 people, 29.5%) stated that they had worked in their current position for more than ten years. Eighteen people (24%) said they had been working in the current organization for more than ten years. The majority of the subjects (57 people, 28.5%) said that they had worked in accounting for more than ten years and had gained experience in information technology and computers. Most people (97 people, 48.5%) considered their level of knowledge in accounting information systems to be good. 51 people (25.5%) were working in manufacturing companies, 99 (49.5%) in service companies, and 50 (25%) in commercial companies. 122 (61%) people stated that their company's accounting information system was composed of manual and computer-assisted systems, and 78 people (39%) had worked in companies with computer-assisted systems.

4.3. Testing the hypotheses of the research model

Confirmatory factor analysis was used to investigate the research hypotheses. The association intensity between a hidden variable and the corresponding observed variable during the path analysis process is determined by a numerical value between zero and one as factor loading. The negative index of the factor loading indicates its negative effect in most structures; still, the main criterion is larger than the t-statistic. If the t-statistic value for judging the critical statistic is at the error level of 0.5, i.e., 1.96, the observed factor load is significant.

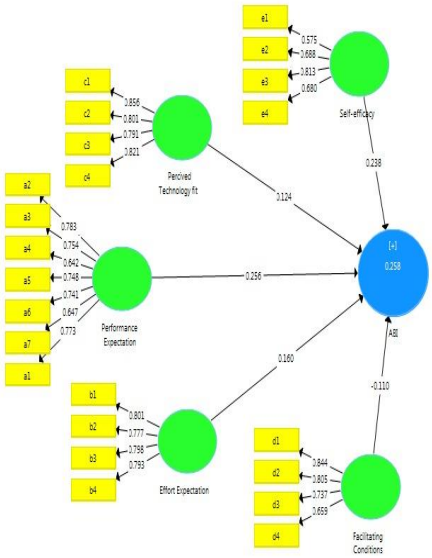

Figure 2. path coefficients

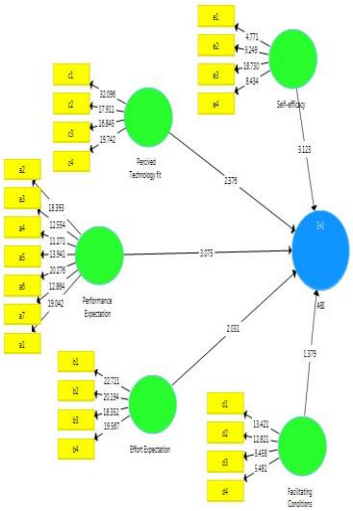

Figure 3. Statistics t

4.4. Goodness–of–fit measure

The GOF criterion refers to the general part of structural equation models. It helps the researcher control an available part fit by examining the fit of the measurement part and the structural part of the general research model. To measure fit in a general model, only one criterion, i.e., GOF, is used.

GOF = √average (Commonality) × average (R2)

Since the value of Commonality in AVE is equal to AVE in partial least squares, Wetzels, Odekerken-Schröder and Van Oppen (2009) have proposed the following formula:

GOF = √ average (AVE) × average (R2)

There are three values for evaluating the GOF index: Weak: the GOF value between 0.1 and 0.25; an average value between 0.25 and 0.36; and a strong value for values higher than 0.36.

Using Table (3), we obtain the mean AVE. According to figure 2, R2 is equal to 0. 258

Table 3. Calculation of goodness of fit of the structural model

Variable	R2	Average (AVE)
Behavioral Intention	0.258	0.5786

GOF=0.380

A value of 0.38 for GOF indicates a strong overall model fit.

4.5. Summary of the findings of the research

The test results are presented according to the model test results in the form of path coefficients

with t-statistic hypotheses according to Figure (2) and Figure (3).

The first hypothesis stated that the expectations of the perceived performance of the accounting information system have a significant effect on the behavioral intention of accountants in adopting the accounting information system. In the analysis of this hypothesis, the value of the t-statistic related to the effect of perceived performance expectancy on accountants' behavioral intention was 3.075, which is higher than 1.96. On the other hand, it was observed that the value of the expected performance path to the accountants 'behavioral intention was 0.256, showing a direct effect of the positive effect of the perceived performance expectancy on the accountants' behavioral intention.

The second hypothesis stated that the expectations of perceived effort from the accounting information system have a significant effect on the behavioral intention of accountants in adopting the accounting information system. In the analysis of this hypothesis, the value of the t-statistic related to the effect of perceived effort expectations on accountants' behavioral intention was 2.031, which is more than 1.96. Accountants' behavior value was 0.160, and the positive coefficient of this path indicated the direct effect of perceived effort expectancy on accountants' behavioral intention.

The third hypothesis stated that the facilitating conditions perceived by the accounting information system affect the behavioral intention of accountants in adopting the accounting information system. The value of the t-statistic related to the effect of perceived facilitator conditions on accountants' behavioral intention was 1.379, which is less than 1.96. The negative effect of this path coefficient indicated that the effect of perceived facilitating conditions did not affect the accountants' behavioral intention, and thus this hypothesis was rejected.

The fourth hypothesis stated that the perceived self-efficacy of the accounting information system has a significant effect on the behavioral intention of accountants in adopting the accounting information system. In the study, the value of the t-statistic related to the impact of perceived self-efficacy on accountants' behavioral intention was 3.123, which is higher than 1.96. The positive coefficient of this path indicated that self-efficacy's perceived effect on accountants' behavioural intention had a direct impact.

The fifth hypothesis stated that the perceived technology fit from the accounting information system has a significant effect on the behavioral intention of accountants in adopting the accounting information system. In the study, the value of the t-statistic related to the impact of perceived technology fit on accountants' behavioral intention was 2.376, which is higher than 1.96. The positive coefficient of this path indicates that the effect of perceived technology fit on the behavioral of accountants had a direct impact.

5. Discussion and Conclusion

This study examined the factors that affect the behavioral intention of accountants in adopting the accounting information system using a combination of two models, i.e., the unified theory of acceptance and use of technology and the task-technology fit and task-technology fit. The results showed that, except for the facilitating conditions, other factors including performance expectancy, effort expectancy, self-efficacy, and perceived technology fit, were significantly influential in researching accountants' behavioral intention in adopting accounting information systems.

According to the results, performance expectancy was the first significant factor in respondents' adoption of technology; the higher performance the new technology has in their view, the more successful it will be. Indeed, the accountants found that the new system can increase their convenience and save time and ease of operation. They will take a positive approach to its use. This finding is in line with that found by Aoun, Vatansakdakul and Li (2010), Gonzalez, Sharma and Galletta (2012), and Odeh (2019), but Alamin et al. (2015) reached a different and inconsistent finding.

Another important factor in adopting the technology is effort expectancy. It is not surprising that accountants' understanding of whether adopting an accounting information system is easy or difficult is considered an essential factor in adopting it. Using a system needs mastery of skills for them. If accountants realize an accounting information system is easy to use, they will use it more. Accountants often prefer to adopt a system that is not complex and is easily enforceable. This finding is in line with the findings of the empirical research by Aoun, Vatansakdakul and Li (2010), Gonzalez, Sharma and Galletta (2012), Odeh (2019), and Alamin et al. (2015).

Another factor in technology adoption is the facilitating conditions. It is noteworthy that using new technology requires sufficient knowledge and support. Usually, people resist using whatever is unique, and the facilitating conditions work to eliminate this resistance. People believe that there is the infrastructure required to support the system, and lack of infrastructure and support leads to technology rejection and non-acceptance; in this study, no significant factor was found in the behavioral tendencies of accountants in accepting the system. This could be due to insufficient technical support, poor IT infrastructure, and poor knowledge of accounting information systems. This finding is consistent with the research results by Venkatesh et al. (2003) because he believed that when both the performance expectancy construct and the effort expectation construct exist in the model, the facilitating conditions are insignificant in predicting tendencies. This result is consistent with the results of studies by Gonzalez, Sharma and Galletta (2012) and Odeh (2019), but Alamin et al. (2015) reached a different result.

Another influential factor was self-efficacy, which reflects an individual's judgment of their ability to use technology as long as they perform a particular task. These individuals find themselves able to learn how to use and apply it because the adoption of the system is due to the ability of accountants to do it, and accountants with a higher sense of self-efficacy are more inclined to adopt information systems. Research by Alsyouf (2021) and Alamin et al. (2020) confirmed this factor.

Perceived technology fit is an important factor in adopting accounting information systems. It was found that the fit between the characteristics of accounting information systems and existing accounting practices was one of the biggest concerns of accountants for adopting this system. This means that it will be highly acceptable if accounting information systems have their characteristics in line with current accounting practices. This finding is in line with Alamin et al. (2015) and Naheb, Sukoharsono and Baridwan (2017).

As a result, according to the findings and results of the present study, the aspects of profitability and its comparative advantage over previous methods should be emphasized when introducing new technology. On the other hand, the systems introduced to accountants should be as simple and understandable as accountants naturally prefer to use their traditional methods, which they are fully aware of and can solve in case of a problem with their own opinion or that of their colleagues; so, when introducing a system, the users need to be assured that the support experts are there to help them. Accountants can be considered to design or upgrade software and information systems to motivate them to use the system. IT does not have to be usable. On the other hand, companies and managers hold continuous courses such as short courses, conferences, and workshops on training, especially for new users. Continuous attention to the needs of accountants is recommended because the implementation stage is after the acceptance stage to investigate the impact of successful acceptance in implementing systems and better understand the factors of cross-sectional studies in different periods. Like other studies, there were limitations in the present study, such as the design and collection of the questionnaire. The most important problem in discussing the questionnaire collection was that this research was conducted during the coronavirus outbreak, which led to the widespread restrictions on the questionnaire's physical collection. The researcher had to design the

questionnaire online and send it electronically to accountants. There was another limitation; respondents may also have answered questions about acceptance based on their mental simulation of computer-based accounting software and did not consider the broader dimensions of the systems.

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