



Developing the Audit Quality Measurement Model Using Structural Equation Modeling

Alireza Aghaie Ghehie, Shohreh Yazdani*, Mohammad Hamed Khanmohammadi

Department of accounting, Damavand Branch, Islamic Azad University, Damavand, Iran

Abstract

The purpose of the present study is to investigate the factors affecting audit quality. For this purpose, the concepts of audit quality were extracted using the proposed conceptual model. The factors affecting audit quality, including policy-making, supervision, and operations (including the categories of input, process, and output), were identified by a systematic approach. The dimensions of supreme council independence, financial reporting requirements, audit institutions' size, industry auditor, audit fees, corporate governance system, stockbrokers or non-stockholders, thought-based auditing, formulating various industry guidelines, auditors' perceptions of governance, the use of information technology, and the establishment of a professional supervisory body constitute the conceptual model of audit quality.

After identifying and designing the primary model, a questionnaire was developed and distributed among the audit firm's partners. The audit quality measurement model was designed using Structural Equation Modeling, and the research hypotheses were identified.

According to the research results, the audit quality has a moderate positive and significant relationship with the audit profession's policy-making factors and a strong positive and significant relationship with the audit operations. Also, in terms of the operational factors, the audit quality has a strong positive significant relationship with the input, and a strong positive significant relationship with processes, and a moderately significant positive relationship with the output; finally, the audit quality has a moderately positive and significant relationship supervisory factors.

To date, the empirical evidence that justifies the validity of the influence of the factors such as policy making, supervision, and operations (including the categories of input, process, and output) all together on the development of the audit quality measurement model in Iran has not yet to be found.

Keywords: Audit Quality, Corporate Governance, Internal Controls, Audit Fee, Supervisory Body, Policy-Making

**Corresponding Author:* Assistant Professor of Accounting, Email: yazdani_82@yahoo.com



1. Introduction

The developments over the last decade, especially in regulations, have influenced the audit profession. From relying solely on dispersed and discretionary regulations in 2002, auditing has become a highly regulated profession by the government and independent legislators. An examination of these developments can show many issues about the motivation for regulation and, in addition, it can indicate the capacities (deficiencies) of the regulation of audit quality. According to the legal developments over the past decade, we can expect that the existing legal environment has unintended consequences which, though difficult to predict, there are many indications to confirm them.

There is still no consensus on the definitions, components, and metrics of auditing quality across multiple research and legislators, investors, and researchers, despite the importance of audit quality for the stability of capital markets (Bedard, Johnston & Smith 2010). By defining and measuring audit quality, stakeholders can determine whether the audit quality is improving over time, identify quality audits' weaknesses, and provide incentives for the audit firms to invest in audit quality improvement projects. To this end, the projects are on the agenda in the International Auditing and Assurance Standards Board (IAASB, 2013), Public Company Accounting Oversight Board (PCAOB, 2012, 2013, 2014), American Institute of Certified Public Accountants (AICPA, 2014), and Center for Audit Quality (CAQ, 2012, 2013, 2014) as well as the audit firms themselves (KPMG, 2011; PwC, 2014) seeking to define, measure, and evaluate audit quality and demonstrate a broad interest in understanding audit quality; however, they are still in the early stages of development. We contribute to this subject by understanding investors and auditing professionals (as the two key groups interested in the financial reporting and auditing process) about audit quality and their measurement criteria.

Most of the previous studies on the quality of audits are mostly conducted in the advanced countries that may bring their own culture and country's economic system to the research result. In addition, those researches have used several factors affecting the audit quality, including; the number of professional staff, the audit firm's age, audit fee, the application of quality control standards, and the audit firms' size. However, so far, the empirical evidence that justifies the validity of the influence of the factors such as policy making, supervision, and operations (including the categories of input, process, and output) all together on the development of the audit quality measurement model in Iran has not yet to be found. This research is conducted to extract audit quality concepts using the proposed conceptual model and identify the factors affecting audit quality through a systematic approach.

2. Problem Statement

Over the past decades, criticism by prominent auditing associations about the importance of credible and quality financial reporting has been increased following the global financial crisis and other turbulent events in the international economy. These associations also addressed the role and importance of the audit services quality in a new and innovative way, and considered the quality of the financial reporting and the audit process subjected to achieving the audit process quality and in general, the accuracy of the cycles as one of the factors affecting the supply chain of financial reporting. Audit quality is a measure based on the different people's tastes and perspectives on various variables. Hence, the society seeks to know "whether audit services are of required quality" and "what are the dimensions of criteria for evaluating audit quality?".

Although audit quality is no longer a new concept in auditing, there is still no single

universal definition that individuals can reach unanimously to date.

The International Association of Auditing and Assurance Standards (2011) defines audit quality as follows: "Audit quality can be viewed as a triangular system with inputs, outputs, and process factors at three angles." According to this definition, the audit quality can be influenced by resources such as the auditor's skill and experience, ethical values, and the approval process that an audit team has adopted; it is also clear that a rigorous legal environment and good corporate governance can positively correlate with audit quality.

International Auditing and Assurance Standards Board (IAASB, 2014) Framework on Independent Audit Quality includes inputs, processes, outputs, and interactions between corporate governance bodies, management, auditors, users, legislators and contextual factors (rules and financial reporting regulations, business practices, business law, financial reporting frameworks, information systems, corporate governance, cultural factors, auditing laws, legal environments, talent acquisition, financial reporting timelines, and cultural factors). The Public Company Accounting Oversight Board (PCAOB, 2013) framework is also similar to this framework.

Although several attempts have been made to define audit quality so far, none have led to the definition accepted by professional associations and the community of accountants or recognized by the international community. Because audit quality is one-dimensional, and at the same time, a complex and multi-faceted concept in essence, and many factors, directly and indirectly, affect audit quality. However, some factors that may have a direct impact on audit quality may be important. However, this view is only sufficient to address whether auditing quality can be achieved in a broader context.

Perceptions of the audit conceptual quality and the actual audit quality are different concepts. Although it is important to consider the actual audit quality rather than the perception of the actual audit quality, it is not easy to measure the actual audit quality because the actual audit quality is invisible and can only be observed after the audit. The uses legal claims against auditors to measure the actual audit quality. Sepasi et al. (2016) reported measuring the actual audit quality report of non-compliance with accepted accounting standards in audited financial statements (Murat, 2018).

Audit quality generally has three aspects of input, output, and environmental factors. Inputs affecting audit quality include auditing standards, individual characteristics (such as ability, experience, ethical values, and auditor's thinking), the right methodology of audit processes, effectiveness of tools, and adequate techniques. Outputs affecting audit quality are audit reporting and meeting community needs. Therefore, according to the research done and issues affecting the audit quality, this question is raised: Which of the following models can be considered an effective factor for measuring audit quality? And when all audit quality models are measured from a different perspective and with different variables, how can we determine which model is optimal and appropriate? Therefore, the researcher seeks to identify the factors affecting the audit quality in firms listed in the Iranian Association of Certified Public Accountants based on the literature.

Audit quality is undoubtedly one of the most important accounting and auditing research areas evaluated both academically and professionally. The strong dependence of the auditing profession on the academy requires mutual consultation and the university's integrity. This indicates that the auditing profession requires academic research and utilizing the research in accounting and auditing. Therefore, it is necessary for the researcher to establish a continuum and a turning chain between the research on audit quality and linking the assumptions of audit quality research together to take a fundamental step in the country's audit field.

3. Research Background

Much research has been done regarding the audit quality inside and outside the country that some have addressed in this research.

Research conducted by Mohamed et al. (2019) emphasizes the importance of prior ideas on auditor-client compatibility. According to their findings, high compatibility between the client and the auditor is generally characterized by high efficiency in the audit process. In other words, the audit effort effectively affects audit quality. According to their findings, the highest compatibility ensures the best outcome for the audit process. However, from an earlier perspective, auditor-client compatibility is known for the market members such as investors, client companies as well as market auditors. According to their model, poorly adapted auditors can improve auditing with more specific compatibility. So, suppose the independent auditor's audit plays a relatively moderate role. In that case, auditors with poorer compatibility have stronger incentives to exert effort and are expected to produce higher audit quality and audit added value.

In a study conducted by David et al. (2019), the important inputs for auditing and analyzing audit quality determinants based on PCAOB indices and their benefits are examined. According to their research results, the audit team's composition is the most important factor in audit quality. Their findings also indicate that the division of labor between audit staff, audit executives, and audit partners, and the interaction between the audit team and senior audit executives, expands the empirical relationship between them and improves audit quality. They also found that auditors allocate most of their time to submit audit files to PCAOB inspectors, which indicates an increase in audit quality because the items evaluated by PCAOB inspectors shows the audit quality improvement.

Research conducted by Mohamed et al. (2019) has addressed the impact of disclosing significant audit issues and auditors' confidence in investors' decisions based on PCAOB requirements. According to their findings, one of the key issues in improving the audit quality is the auditors' requirement to report important audit issues that have been required recently by the Public Accounting Oversight Board. Their research concluded that the need to report important audit issues causes investors to respond to reported information, thus providing a proper report. The impact of the information contained therein makes auditors more sensitive to reporting. As a result, they provide better quality audits.

Murat (2018) investigated the impact of reporting weaknesses in internal controls following PCAOB requirements on audit quality. Using accruals anomaly and the probability of identifying material weaknesses in internal control, they found that if auditors had to report internal controls' weaknesses, they had to perform a better quality audit to report weaknesses in internal controls. This causes companies to be sensitive to this issue and respond to establishing appropriate internal controls, which reduces abnormal accruals and improves financial reporting quality.

In a study using audit market analysis, Adam et al. (2018) examined audit quality and audit pricing's structural features in the US audit market. In this study, using modeling of the audit quality structural characteristics, they surveyed audit pricing and the audit market in 138 areas between 2004 and 2016. Their research shows a positive (negative) relationship between audit focus and audit quality (audit pricing). However, there has been less improvement in audit quality in large markets, with institutions having a larger number of clients, even when the focus is low. Given the pricing of audit services, more focus leads to improving the competitive cost (lower audit costs) because of the economy scale improvement. However, this is only when the audit markets are small. When markets are large and centralized, the audit market's greater focus is

associated with higher audit costs (monopoly). This shows that trade is between economies of scale and market domination.

Fung, Raman, and Zoo (2017) looked at the effects of PCAOB surveillance indices in countries outside the US and evaluated 55 countries in their research. In their research, they examined the impact of PCAOB standards and indicators on improving audit quality in other countries. According to their results, the use of the PCAOB International Audit Program will improve the audit quality in these countries.

Chen and Hsu (2010) examined the relationship between audit firm size, audit quality, and audit fees with a large sample of audit firms from 2000 to 2005. According to the results of their research, the audit firm size is positively correlated with audit quality. The larger audit firm is less financially dependent on a particular auditor, and therefore better able to resist the auditors' pressures in issuing biased reporting. By examining the relationship between audit firm size and audit report quality in China, Constantinou and Clive (2008) found a significant relationship between audit firm size and reports quality.

The research conducted by Nikbakht and Khoshrow (2017) examined the factors affecting the audit quality in Iran, according to the PCAOB Accounting Audit Board Indicators. According to their findings, average work experience, industry expertise, affiliate scheduling, and workflows, managers and quality audit to total audit work, independence-related indicators and observance of indices, financial restatements and its impact on the market, partners and staff workload and the frequent relocation of partners and senior executives of the institution have the most impact on audit quality. These eight indicators account for about 80% of the cumulative percentage of the current study's indices.

Mohammad Rezaei and Yaghoub Nejad (2017) criticized the theory and method of previous internal research based on audit firm size theory between 2006 and 2015. According to their findings, the audit organization lacks most of a large auditor's characteristics according to the audit firm size theory. Also, criticism of the research methodology indicates that Iranian researchers do not control auditors' endogenous selection. The endogenous variable is a variable affected by one other variable in the designed model or pattern. When the independent variable is endogenous, it presents major statistical problems in model estimation. Their research addresses the theoretical research problem in Iran and proposes two contradictory theories of "audit fee pressure" and "public auditor and auditee".

Investigating the factors affecting the audit quality in audit firms of the Iranian Association of Certified Public Accountants has been addressed in Alavi et al. (2015). This study showed a significant positive relationship between the variables of audit quality, including the number of certified auditors employed, the number of professional staff and the age of the audit firm with audit quality control score, and the significant negative relationship between the variables of the number of partners and the number of audit firm's work with audit quality control score. According to their findings, there is no significant relationship between the audit firm's annual earnings and audit quality control score.

3.1. Research objectives and questions:

The objectives of the present study are:

- Providing a conceptual model of audit quality in the Iranian Association of Certified Public Accountants
- Identifying the factors affecting the Audit quality in Iranian Association of Certified Public Accountants
- Identifying the relationship between different factors in audit quality in the Iranian

Association of Certified Public Accountants

Then, according to the stated research objectives, the research questions are as follows:

- 1) What model does the Iranian Association of Certified Public Accountants follow to measure audit quality?
- 2) What are the factors affecting the audit quality in Iran?
- 3) How is the relationship between the factors affecting the audit quality in the country?

3.2. The conceptual model

This section addresses whether a final and comprehensive model can be presented of the factors affecting audit quality. In this regard, by reviewing the research background and interviewing experts in the audit profession, the identified factors were divided into three main categories: policy, operational, and regulatory factors. This study's independent variables are classified into six categories, and the dependent variable is audit quality. Table 1 provides the sub-construct of each independent variable, and then the research model is formulated:

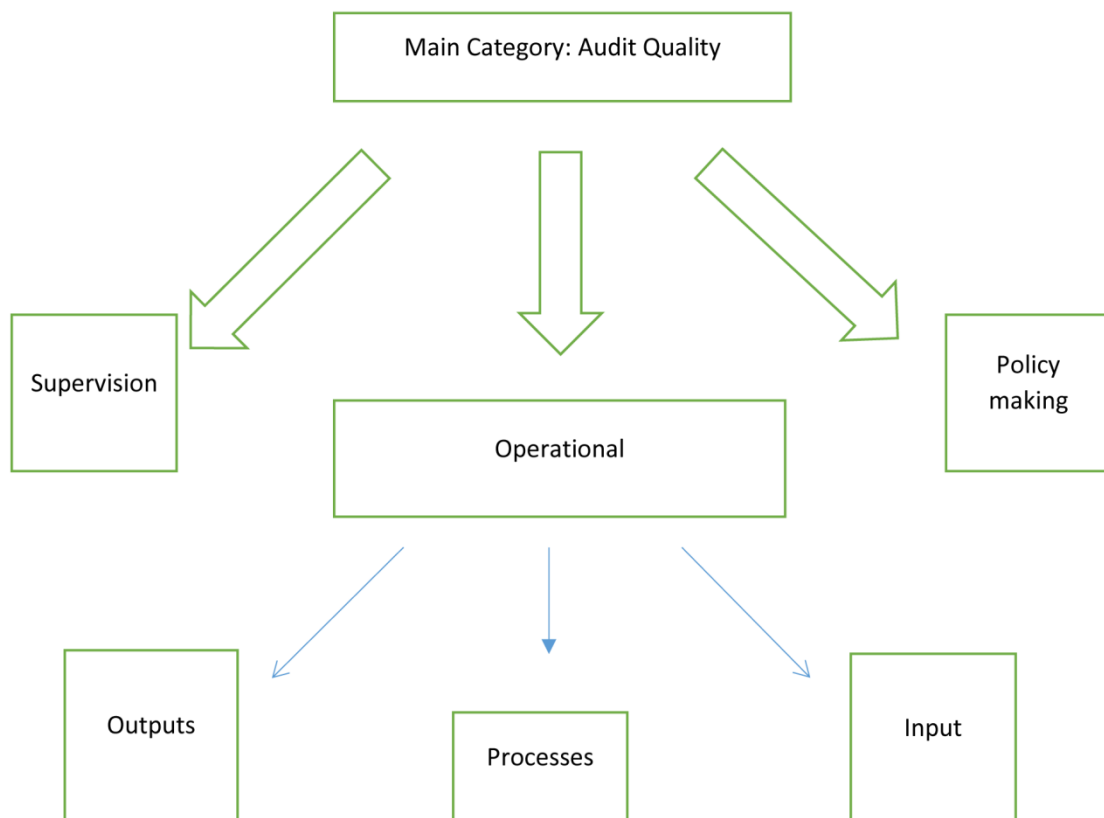
Table 1. sub-construct of each independent variable

Theme analysis	Conceptual category	Theme
P1,P3,O1,Q2,Q3,Q4,B1,B3,B5	Supreme Council Independence	policy
P1,P2,P3,O2,Q1,Q2,Q4,B2,B4,B3,E2,E3	Financial reporting requirement	
P1,P2,P3,O1,O2,Q1,Q2,Q3,Q5,B2,B3,B4,B5,E1,E2	Financial transparency requirement	
P1,P3,Q2,Q3,Q4,B1,B4,B5,E2,E3	The partnership of audit firms with international audit firms	
P,2,P3,O1,O2,Q1,Q2,Q3,Q4,T1,B3,B4	Academic syllabuses modification	
P1,P2,P3,O1,O2,Q1,Q2,Q4,Q5,B1,B3,B4,B5,E1,E2	Linking the audit industry with university	
P1,P3,O1,O2,Q1,Q2,Q4,Q5,B1,B4,B5,E1,E2,E3	Professional juvenility and career creation for young people	
P1,P2,P3,O1,O2,Q1,Q2,Q3,Q4,Q5	Mandatory provisions for the better observance of the Code of Professional Conduct	
P1,P2,P3,O1,O2,Q1,Q2,Q4,Q5,B1,B3,B4,B5	Elitism in auditing and elaborating elite maintenance conditions	
T1,T2,B1,B2,B4,E2,E3,E4	Audit firm size	Input
P1,O2,Q3,Q4,T1,T2,B2,B3,B4,E1,E2,E3	Auditor tenure	
P1,P2,P3,O2,Q2,Q3,Q5,T23,B2,B3,B5,E1,E4	Industry auditor	
P1,P2,P3,O2,Q1,Q2,Q4,Q5,T3,B2,B4,E1,E3,E4	Audit fee	
P1,P2,P3,O1,O2,Q1,Q2,Q3,Q5,B2,B3,B4,B5,E1,E2	Governance mechanisms	
P1,P2,P3,O1,O2,Q1,Q2,Q3,Q4,Q5,B1,B2,B3,B4,B5,E1,E4	Operational Management of Audit Institutions in Controlled Oversight	
P1,P2,P3,O1,O2,Q1,Q2,Q3,Q4,T1,T3,B1,B2,B3,B4,B5,E1,E2	Identification of the auditor client	
P1,P2,P3,O1,O2,Q1,Q2,Q3,Q4,T1,T3	Thought-based audit	

P1,P2,O1,O2,Q1,Q2,Q3,Q5,T1,T2,T3,B1,B2,B3,B4,B5,E1,E4	Increase auditors' knowledge skills		
P1,P2,O1,O2,Q1,Q2,Q4,Q5,T1,T2,T3,B1,B2,B3,B4,B5,E1,E4	Proper supervision of audit team		
P1,P2,O1,O2,Q1,Q2,Q3,Q4,Q5,T1,T2,T3,B1,B2,B3,B4,B5,E1,E4	Increase the skill level of fraud detection based audit		
P1,P2,O1,O2,Q1,Q2,Q3,Q5,T1,T2,T3,B1,B2,B3,B4,B5,E1,E2,E3,E4	Increase auditors' skills in-laws and regulations and formulating various industry guidelines		
P1,P2,P3,O1,O2,Q1,Q2,Q3,Q5,T1,T2,T3,B1,B2,B3,B4,B5,E1,E2,E3,E4	Auditors' understanding of corporate governance and internal controls		
P1,P2,P3,O1,O2,Q1,Q2,Q3,Q5	Use of IT in auditing		
P1,P2,P3,O2,Q2,Q3,Q5,T23,B2,B3,B5,E1,E4	Improving auditing courses in various fields with an industry approach		
P1,O2,Q3,T1,T3,B2,B5,E2,E3,E4	Practical and non-audit financial experience		
P1,P2,P3,O1,O2,Q1,Q2,Q3,Q4,Q5,T2,T3,B3,B5	Quality control before issuing an audit report		
P1,P2,P3,O1,O2,Q1,Q2,Q3,Q4,Q5,T2,T3,B3,B5	Increase the skill level of the quality control team at the audit firm level before reporting		
Q1,Q3,Q5,B2,B4	Paying more attention to audit reports on specific items or future financial information		
P1,Q4,B5	Improving auditing courses with the approach of reporting internal controls and independent auditing		
P1,P3,O1,O2,Q4,Q5,B3	An independent supervisory body such as PCAOB	Regulatory Theme policy	
P1,P3,O1,O2,Q2,Q4,Q5	Increasing the level of precision in the quality control group investigations		
P3,O2,Q1,Q4	An official report of audit institutions' Quality control weaknesses		

P3,O1,Q3,T1,T3,B5	An appropriate framework for reporting audit firms' error by staff	
P1,P3,O1,Q2,Q3,Q4,B1,B3,B5	Training special surveillance forces and efforts to protect them	
P3,O1,Q3,T3,B2	Periodic changes in regulatory forces	
P1,P2,P3,O2,Q1,Q2,Q4,Q5,T3,B2,B4,E1,E3,E4	Training industry-specific regulatory forces	
P1,P2,P3,O1,O2,Q1,Q2,Q3,Q5	Use of information technology and proper platform for instant monitoring	

In the present study, the content of the qualitative interviews with the participants provides a basic research model for measuring the audit quality as follows:



3.3. Research hypotheses

Six main hypotheses and six sub-hypotheses are proposed for this research based on the obtained model:

Main hypotheses:

Hypothesis 1: there is a positive and significant relationship between policymakers in the audit profession and audit quality.

Hypothesis 2: There is a positive and significant relationship between operational audit factors and audit quality.

Hypothesis 3: There is a significant positive relationship between regulatory audit factors and audit quality.

Hypothesis 4: There is a positive and significant relationship between policymakers in the audit profession and operational factors related to audit quality.

Hypothesis 5: There is a positive and significant relationship between policy-making factors in the audit profession and supervisory factors related to audit quality.

Hypothesis 6: There is a positive and significant relationship between operational audit factors and supervisory factors related to audit quality.

Subsidiary Hypotheses:

Hypothesis 7: There is a positive and significant relationship between the operational factors of audit input and audit quality.

Hypothesis 8: There is a positive and significant relationship between operational factors of the audit process and audit quality.

Hypothesis 9: There is a positive and significant relationship between the operational factors of audit output and audit quality.

Hypothesis 10: There is a positive and significant relationship between the operational factors of audit input and the audit process operational factors with the audit quality.

Hypothesis 11: There is a positive and significant relationship between audit inputs and audit outputs, and audit quality.

Hypothesis 12: There is a positive and significant relationship between the operational factors of audit process factors and audit output and the audit quality.

4. Research Methodology

The present study is applied research in terms of the purpose and descriptive-analytical research in terms of the method. This study seeks to provide a model for measuring audit quality. In the theoretical section, the needed data to conduct the research were gathered by referring the books, journals, and internet sites. The questionnaire was used to collect data in the field stage. In the first step, the effective factors were identified by studying the theoretical foundations and confirmed by 22 experts. The final items were then distributed among 207 auditing partners of the Iranian Association of Certified Public Accountants, and 160 Likert questionnaires were finally received. The data were then analyzed through structural equation modeling.

The minimum number of samples is obtained according to the Cochran formula:

$$n = \frac{NZ^2pq}{Nd^2 + Z^2pq}$$

$$n = \frac{920 \times 3.8416 \times 0.25}{920 \times 0.0036 + 3.8416 \times 0.25} = 207$$

4.1. Reliability and validity

The composite reliability (CR) method was used to determine the reliability of the constructs. If the CR value for constructs is greater than 0.7, the reliability is more acceptable, and the closer this value is to 1 for a construct, the greater its reliability.

Unlike Cronbach's alpha, the composite reliability, which implicitly assumes that each index has the same weight, relies on each construct's actual factor loadings, and provides a better criterion for reliability.

The formula for calculating the composite reliability is as follows:

$$CR = \frac{(\sum \lambda)^2}{(\sum \lambda)^2 + \sum \delta}$$

Where:

CR: Combined reliability

λ : extracted factor load for each marker in the form of confirmatory factor analysis;
and

δ : the variance is the standard error of the indices.

Table 2. Composite and Cronbach's Reliability

Variables	Combined reliability coefficient CR ² (CR >0.7)	Cronbach's alpha reliability coefficient
policy	0.945813	0.932975
Inputs	0.936443	0.908970
Operational	0.924645	0.877609
processes	0.952545	0.937671
Outputs	0.932939	0.904244
Supervision	0.953604	0.943210

In Table 2-2, the Cronbach's alpha coefficients and the composite reliability of all variables in this study were greater than 0.7.

In addition to the questionnaire, reliability, content validity, and convergent validity were analyzed using PLS structural equation modeling. Convergent validity refers to the principle that the indices of each construct are moderately correlated with each other. According to Magner et al. (1996), the convergence validity criterion is that the mean extracted variance (AVE) is greater than 0.4.

Table 3. Convergent validity

Variables	Average extracted variance (AVE)
policy	0.814050
Inputs	0.845990
Operational	0.886757
processes	0.800625
Outputs	0.876696
Supervision	0.803595

The model is at a very good level in terms of all three criteria mentioned above, as can be seen.

4.2. Data analysis method

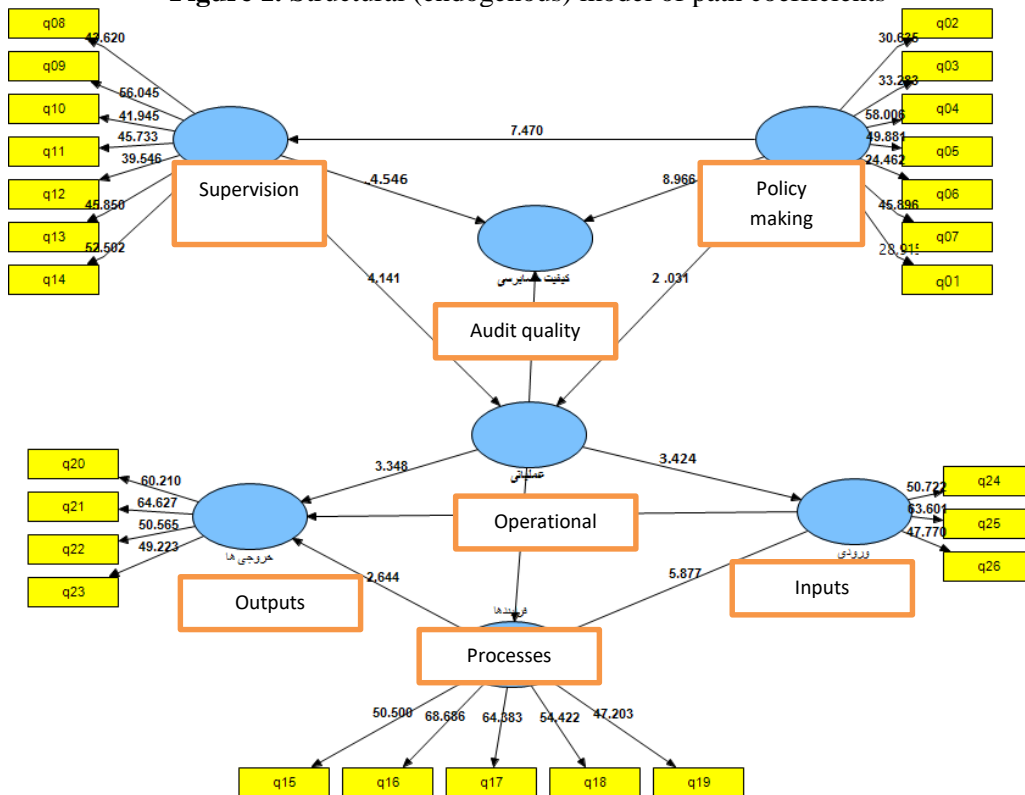
Structural Equation Modeling technique is a powerful multivariate analysis of the multivariate regression family and, more specifically, the development of "the general linear model to allow researchers to test a set of regression equations, simultaneously. Structural Equation Modeling is a common approach to test hypotheses about observed and latent variable relationships occasionally named as the structural analysis of covariance, empirical causal models, structural equation modeling, or SEM in short (Henock, 2005). Also, according to Henock (2005), multivariate analysis is one of the most powerful and appropriate analytical methods in behavioral research. This is because such issues are multivariate and cannot be solved by by-variable methods (where an independent variable is considered with a dependent variable). "Covariance analysis structures" or "Structural Equations Modeling" is one of the most original methods of the complex data analysis and one of the new methods for examining cause and effect relationships to analyze the various variables that, in have simultaneous effects on variables a theory-based structure. This method can test theoretical models' acceptability in their communities using correlation, non-experimental and experimental data. In addition, to meet the coefficients of equations of the linear estimate, LISREL Method is developed to fit models involving latent variables, measurement errors in each of the dependent and independent variables, mutual causality, and interdependence.

5. Research Findings

The overall research model was designed in the PLS Smart software environment. There is one dependent variable (audit quality) and six independent variables in this model, including policy, operational, (input, process, output) monitoring. The latent variables are shown as circles, and the explicit variables are shown as rectangles. Relationships between latent variables and explicit variables are called factor loadings. Structural equations are also relationships between latent and observed variables and are used to test hypotheses. These coefficients are called path coefficients. For testing the significance of the independent variable relationship with the dependent variable, value-t is used. At 95% confidence level, the value-t must be outside the range of -1.96 to 1.96 to be considered significant.

In the Structural Equation Model, we show how the latent variables relate to each other. The researcher develops a structural equation model to show specific relationships between latent variables and illustrates it by drawing arrows. In fact, we use this model to investigate the research hypotheses. After validating the measurement models and calculations of structural and diagnostic validity in the present study, we can test the relationships between the research structures at this stage. For this purpose, the model is implemented in LISREL software. Charts 2 and 3 show the research model with standard and significant coefficients.

Figure 1. Structural (endogenous) model of path coefficients



Since there is a latent first-order endogenous variable in this model, the $\overline{R^2}$ is equal to 0.76
So the GOF index is:

$$GOF = \sqrt{*} = .624 \quad .76 \quad .69$$

Considering the three values of 0.01, 0.25, and 0.35 introduced as a low medium, and strong values for GOF. Finding a value of 0.724 for this criterion indicates a good fit for the overall research model.

According to Hashi and Mazaheri Fard (2013), the proposed value of $GOF > 0.35$ means the model quality reaches 97% of the covariance.

Figure 2: structural (endogenous) model in the standard coefficient estimation mode

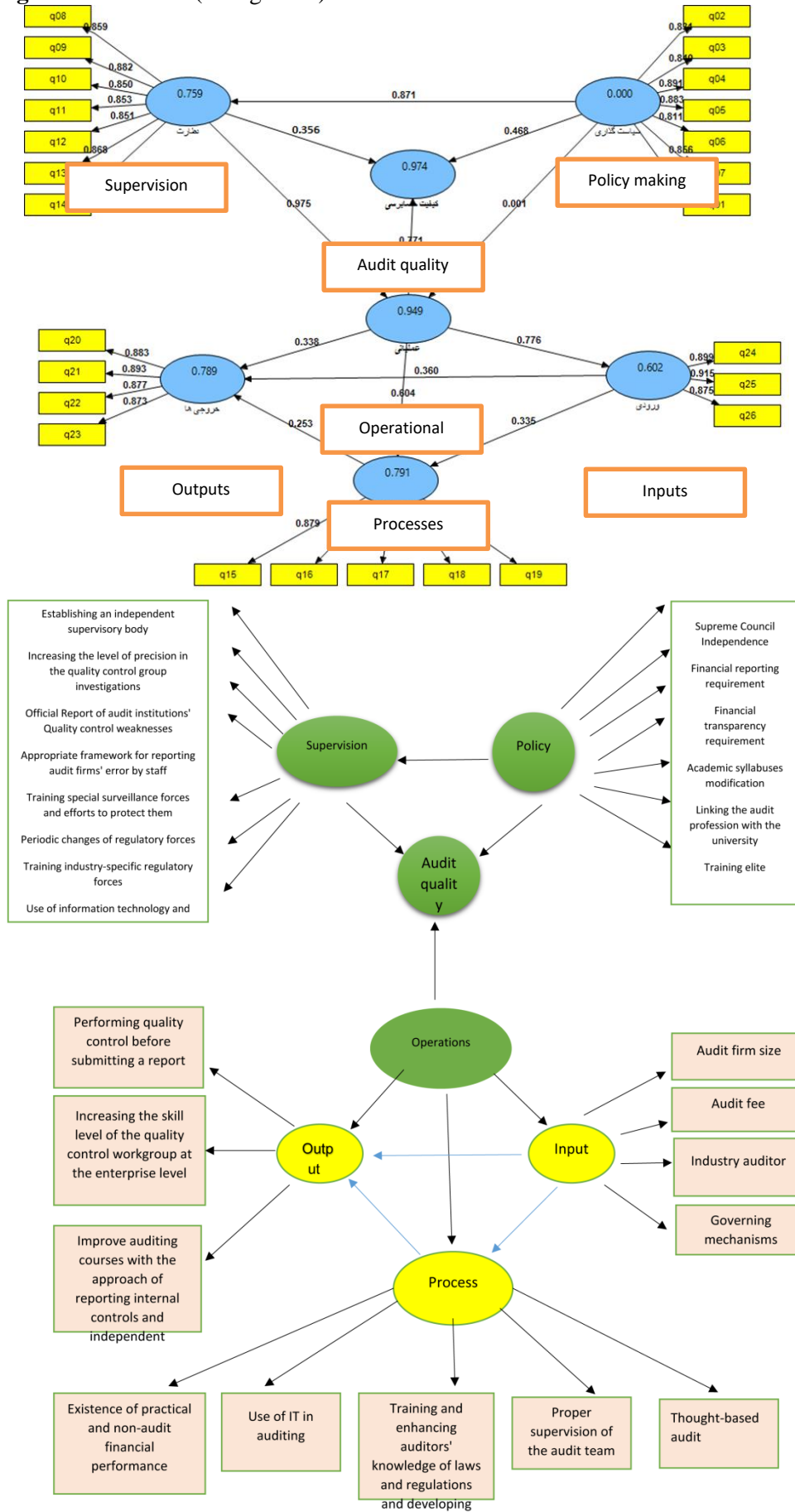


Figure 3. The final model of auditing quality measurement

Table 4. Measurement Model values for research sub-constructs (Structural Validity)

Dimensions	Component marker	Components	Factor loading	t-value
Policy-making	q1	Independence of the Supreme Council	0.799	28.915
	q2	Financial reporting requirement	0.824	30.625
	q3	Requires financial transparency	0.840	330283
	q4	Modifying syllabuses according to the audit profession	0.891	58.006
	q5	Linking the profession with the university	0.883	49.881
	q6	Professional youth	0.811	45.896
	q7	Audit elitism	0.856	45.896
Supervision	q8	Establish an independent supervisory body	0.859	42.620
	q9	Quality control working groups	0.882	56.045
	q10	Official quality control weaknesses report	0.850	41.945
	q11	Proper bedding to report errors	0.853	45.733
	q12	Training special supervisory forces	0.851	39.546
	q13	Use of information technology	0.868	45.850
	q14	Training industry-specific regulatory forces	0.881	52.502
Operational Processes	q15	Perform thought-based audit	0.879	50.500
	q16	Proper supervision of the audit team	0.913	68.686
	q17	Training and enhancing auditors' knowledge of laws and regulations and formulating industry guidelines	0.909	64.383
	q18	Use of IT in auditing	0.898	54.422
	q19	Existence of practical and non-audit financial performance	0.875	47.203
Operational - Inputs	q20	Audit firm size	0.883	60.210
	q21	Audit fee	0.893	64.627
	q22	Industry auditor	0.877	50.565
	q23	Governing mechanisms	0.873	49.223
Operations - Outputs	q24	Performing quality control before submitting a report	0.899	50.722
	q25	Increasing the skill level of the quality control group at the enterprise level	0.915	63.601
	q26	Improving auditing courses with the approach of reporting internal controls and independent auditing	0.875	47.770

Table 5. Fit indices of the general research model

Variables	Shared values	\bar{R}^2
policy	0.714050
Operational	0.786757	0.949068
Inputs	0.803595	0.601716
processes	0.800625	0.790929
Outputs	0.776696	0.789260
Supervision	0.745990	0.758641

According to the above values, the mean of shared values is 0.69

5.1. Hypotheses testing

For the last two decades, Structural Equation Modeling has been a common research

tool in management, medical, and social sciences. Considering the material presented in this section, SMART-PLS will investigate whether these factors are influenced by the factors mentioned below. Then, factor measurement indices and factor determination coefficients will be examined.

The data obtained from the field research were executed in SMART-PLS software, and the following results were obtained.

Table 6. Regression coefficients and their significance level

Hypothesis	Path coefficient (B)	T-) (VALUE)	Results
1. Policy factors affect audit quality.	0.468	8.966	Confirmed
2. Operational factors affect audit quality.	0.771	2.617	Confirmed
3. supervision factors affect the audit quality	0.356	4.546	Confirmed
4. There is a significant positive relationship between policy-making factors in the accounting and auditing profession and operational factors related to accounting quality.	0.001	2.031	Confirmed
5. There is a significant positive relationship between policymakers in accounting and auditing and supervision related to accounting quality.	0.871	7.470	Confirmed
6. There is a significant positive relationship between supervision in the auditing profession and operational factors related to accounting quality.	0.975	4.141	Confirmed
7. There is a significant positive relationship between operational factors in the audit profession and input factors related to audit quality.	0.776	3.424	Confirmed
8. There is a significant positive relationship between operational factors in the audit profession and process factors related to audit quality.	0.604	10.888	Confirmed
9. There is a significant positive relationship between operational factors in the audit profession and output factors related to audit quality.	0.338	3.348	Confirmed
10. There is a significant positive relationship between the audit profession's input factors and the process factors related to audit quality.	0.335	5.877	Confirmed
11. There is a significant positive relationship between process factors in the audit profession and output factors related to audit quality.	0.253	2.644	Confirmed
12. There is a significant positive relationship between input factors in the audit profession and output factors related to audit quality.	0.360	6.663	Confirmed

6. Conclusions and Suggestions

The present study aimed to provide an audit quality measurement model using structural equation modeling. For this purpose, the research has identified the factors affecting audit quality and has introduced the model of auditing quality measurement using structural equation modeling. The research results show that policy-making in the audit profession will have a high effect on audit quality. The appointment of an Independent High Council to select qualified people in the Association of Certified Public Accountants and influence the government for the benefit of the Association of Certified Public Accountants may provide requirements for financial transparency and reporting. On the other hand, policymakers in the audit profession can enhance the

auditing industry's relationship with the university, build productive interactions, and effectively communicate by synchronizing syllabuses with the profession. Policymakers in the auditing profession should seek elitism and rejuvenation because of their current status and the low audit fee. It is possible for the auditing to exit because of low income. Considering that most constituent communities are made up of senior accountants, special attention may need to be paid to rejuvenation. From the audit operation perspective, it is necessary that the staff of the corporations move toward thought-based auditing rather than routine audits. The audit profession is a critical professional that requires familiarity with up-to-date issues and techniques. The prerequisite of the audit quality improvement is to supervise auditing tasks and utilize information technology more quickly. Train industry auditors, and ultimately increase the quality audit work and publish more quality reports or increase corporate income level. Although most international corporations derive their income from other financial services and earn more than reassurance services, their audit fees are high. The rationality of audit fees makes institutions more sensitive to auditing, preventing the departure of strong auditing forces, increases institutional-level elitism, focuses on training, and so on that. In addition to the policy-making level, these issues should also be addressed at the institution's operations level. The absence of an independent oversight body, either from the government or from the public body, is one of the major problems in today's public accountant community, leading to poor audit quality. In most countries in the world, such as the United States, Britain, and China, the overseer body is public. It operates under the Stock Exchange or the Ministry of Economic oversight. The establishment of an overseer body will give greater attention to the audit profession, prevent audit reports, and complete poor quality audit records. On the other hand, increasing the Association of Certified Public Accountants' quality and software knowledge and skills will also prevent audit quality reports. These will all serve as monitoring tools for audit firms to improve the quality of audit work. Suppose auditing firms are aware of audit reports' quality weaknesses, such as the audit quality records published annually by the US Audit Quality Control Center. In that case, firms can better understand audit quality weaknesses and provide audit efforts with more accurate records following auditing standards.

Focusing on the audit quality in different dimensions, the present research addressed the issue from the policy point of view and suggested that it synchronize the audit profession's syllabuses. It is also necessary to appoint individuals to the Supreme Council. They have the power to lobby with government agencies to convince the authorities of the financial transparency required to conduct quality audits so that the auditing profession in the community can be more highlighted and the responsiveness is institutionalized in society. The practical application of the research findings and the model presented will help the community to take a more effective step towards enhancing the auditing profession, financial transparency, financial reporting, and the fight against corruption. Undoubtedly, the proposed model can be used by the Tehran Stock Exchange, Ministry of Economic Affairs and Finance, and the Association of Certified Public Accountants, and this model can be used to measure the audit quality and increase the audit quality in the country.

From the operational perspective, the Association of Certified Public Accountants is expected to support auditors and audit firms on audit fees. According to the research findings at domestic and foreign level, the fees have a significant impact on the good quality. Institutions cannot spend enough time on audit work or employ professional staff to perform audit operations as long as audit fees are low. Hence, the audit fee needs to be structured and systematic. The institutions are also required to continue professional education, and the community can also train and introduce industry-

specific auditors to enhance the audit quality. Most companies in today's world report a lack of time to perform audit quality control after publication, which leaves auditors unaware of any potential issues, so there is a need to provide a mechanism to standardize audit quality at the institutional level before issuing audit reports and make the necessary controls by the Association of Certified Public Accountants such as sudden visits.

Suppose the Association of Certified Public Accountants seeks to designate industry-specific auditors. In that case, industry-specific working groups can be set up, as well as industrial quality control audit groups to assess the audit quality that can result in the audit quality improvement.

The establishment of an overseer body can greatly contribute to audit quality and enhance financial reporting transparency. The Association of Certified Public Accountants, which operates under the Ministry of Economic and Finance supervision, is therefore suggested to have constructive interactions with the government to select the supervisory body and its executive form.

Several research has been conducted on audit quality, mainly regarding the relationships between audit quality and financial reporting, audit fees, audit report clauses, and so on. However, little research has been done on the dimensions that affect audit quality. It is therefore recommended to research the area of international financial reporting and audit quality. Also, given the widespread changes in information technology, it is suggested to perform research in information technology and audit quality. The capital market requires a major evolution in electronic financial reporting. This will not be the case until momentary auditing is established, so the qualitative aspects of auditing and financial reporting should be considered after transformation. Since that audit records have been kept on paper for many years and audits are still in paper form, future research is recommended to address the factors affecting audit technology and quality and determine the reasons for the lack of up-to-date auditors and records based on IT.

References

- Adam, E. Karim, J. and Shyam, S. (2018). Demand for and Assessment of Audit Quality in Private Companies. *Journal of Accounting, finance and business studies*, 54(35), 1-22. <https://doi.org/10.1111/abac.12138>
- Alavi, M. Ghorbani, B. and Rostami, W. (2015). Investigating the factors affecting audit quality in the Audit Institutions of the Iranian Association of Certified Public Accountants. *Auditing Knowledge*, 15(60), 47-70. <http://ensani.ir/file/download/article/20160528143601-9414-173.pdf> (In Persian)
- Constantinos, C. and Clive, L. (2008). Audit effort and earnings management. *Journal of Accounting and Economics*, 45(1), 116–138. <https://doi.org/10.1016/j.jacceco.2007.05.002>
- Chen, Y. and Hsu, J. (2010). Auditor Size, Auditor Quality, and Auditor Fee Premiums: Further Evidence from the Public Accounting Profession. *SSRN Electronic Journal*, Doi: [10.2139/ssrn.1325049](https://doi.org/10.2139/ssrn.1325049)
- David, C.M. Josep, G.B. and Monica, M.B. (2019). Auditor Independence, Current and Future NAS Fees and Audit Quality: Were European Regulators Right?. *European Accounting Review*, 29(2), <https://doi.org/10.1080/09638180.2019.1577151>
- DeAngelo, L. (1981). Auditor size and auditor quality. *Journal of Accounting & Economics*, 3(3), 183-199. [https://doi.org/10.1016/0165-4101\(81\)90002-1](https://doi.org/10.1016/0165-4101(81)90002-1)
- Fung, S.Y.K. Raman, K.K. and Zhu, X. (2017). Does the PCAOB international inspection program improve audit quality for non-US-listed foreign clients?.

-
- Journal of Accounting and Economics*, 64(1), 15-36.
<https://doi.org/10.1016/j.jacceco.2017.04.002>
- Henock, L. (2005). Acquirers Abnormal Returns, Audit Firm Size and the Small Auditor Clientele Effect. *Journal of accounting and economics*, 18-52. Doi: [10.2139/ssrn.483662](https://doi.org/10.2139/ssrn.483662)
- Hasas Yegane, Y. and Azin Far, K. (2010). Relationship between Audit Quality and Audit firm size. *Accounting and Auditing Reviews*, 17(61), 83-98.
<https://www.sid.ir/fa/journal/ViewPaper.aspx?id=131407> (In Persian)
- Mohamed A. Hegazy, M. and Samy, M. (2019). The Impact of Auditor Industry Specialization on the Retention and Growth of Audit Clients. *Journal of Ain-Shams University*, 2(20), Doi: [10.21608/atasu.2016.48624](https://doi.org/10.21608/atasu.2016.48624)
- Murat, O. (2018). The Impact of Auditor Education Level on the Relationship Between Auditor Busyness and Audit Quality in Turkey Cogent Business and Management. *Forthcoming Posted*, 5(1), <https://www.tandfonline.com/doi/full/10.1080/23311975.2018.1517588>
- Mohammad Rezaie, F. and Yaghoub Nejad, A. (2017). Audit Firm Size and Audit Quality: Theoretical Criticism, Critique of Research Methodology and Suggestion. *Financial Accounting and Auditing Research*, 9(36), 31-60.
http://faar.iauctb.ac.ir/article_533515.html (In Persian)
- Mashayekhi, B. Mehrani, K. Rahmani, A. and Madahi, A. (2013). Formulation of Audit Quality Model. *Quarterly Journal of Stock Exchange*, 6(23), 103-137.
<http://ensani.ir/file/download/article/20140722134653-9455-98.pdf> (In Persian)
- Mohammad Rezaei, F. and Mehrabanpour, M.R. (2016). Auditor Report Type and Number of Audits: The Effect of Ranking of Trusted Audit Institutions. *Accounting and Auditing Management Knowledge*. 5(17), 65-77.
<https://www.sid.ir/fa/journal/ViewPaper.aspx?id=472071> (In Persian)
- Nikbakht, MR. and Mahmoudi Khoshroo, O. (2017). Investigating the Factors Affecting the Audit quality in Iran with regard to the Indicators of Public Company Accounting Audit Board (PCAOB). *Accounting and Auditing Reviews*, 24(3), 441-462. <https://www.sid.ir/fa/journal/ViewPaper.aspx?id=467849> (In Persian)