

Modeling the professional judgment of the auditor

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Abstract

Professional judgment is the main essence of auditing. As a result, the quality of auditing depends on the quality of the judgment of the auditing profession, and access to more desirable professional judgments requires the identification of factors affecting the judgment and decision-making of auditors. The purpose of this article is to model the professional judgment of the auditor. For this purpose, the questionnaire method has been used and the sample size included 8 accounting experts in this study. This research has been conducted based on the pairwise comparison test and the data analysis has been conducted by the DEMATEL method. The results of the research test indicate that all the key components have direct and indirect effects on the judgment of the auditing profession. The most effective is on the judgment of the auditing profession of financial criteria and then the management criteria, financial performance, independent auditor, audit committee, internal auditor and finally the characteristics of the auditor's personality, which has the least effect on the judgment of the audit profession.

Keywords: Professional judgment, Auditor, Experts

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1. Introduction

Professional judgment is considered one of the professional characteristics of independent auditors that affects all aspects of auditing, including planning, determining the level of importance, quantity and quality of audit evidence, and finally, the assessment of independent auditors affects wide stakeholder groups including managers, investors, analysts. International Auditing and Assurance Standards Board (IAASB) (2018) defines professional judgment as the application of experience and

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knowledge gained about auditing and accounting standards and the requirements of professional conduct to make appropriate decisions [28]. Professional judgment is a key skill in the accounting and auditing profession, and in the current context of Iran, which is moving towards the application of international financial reporting standards and accounting standards based on principles, decision-making by professionals, including managers, auditors, financial analysts, accountants and standardizers, will be based on their judgments. Judgment is certainly difficult, and the ability to make good judgments is the cornerstone of the accounting profession, and professional standards without professional judgment will never play an effective role [14].

Since the auditing profession is a process associated with judgment, recognizing argumentative concepts to achieve a level of logic in auditing judgment is a theoretical and fundamental concept in the field of this profession [19]. Professional judgment is the essence of auditing. The value that is created by auditing financial statements is the result of the auditor's judgment and in general, it is the result of a set of professional judgments made within the framework of accounting and auditing standards. Professional judgment is the main result and essence of the audit. Consequently, the quality of auditing depends on the quality of auditing professional judgments and access to more desirable professional judgments requires identifying the factors affecting the judgment and decision of auditors [18], therefore, identifying factors that affect the professional judgment can help independent auditors. In addition to technical factors such as knowledge, experience, work complexity, individual psychological factors such as personality traits and motivational factors can also affect auditors' judgmental performance. If the auditors' judgment is based on professional principles and standards and away from any bias, the reliability of the audit reports will increase [26]. Therefore, paying attention to them has a special importance. In recent years, many researchers, students and professors of accounting have paid attention to auditors' professional judgment [15, 31, 16, 12, 4, 22]. This focus also highlights the importance of professional judgment.

2. Theoretical foundations

The Canadian official Association of Accountants defines professional judgment as follows: Professional judgment in auditing means the use of knowledge and experience within the framework of accounting and auditing standards and the method of professional conduct to choose from a variety of options. In addition, the auditor's disqualification from approving professional judgment can lead to wrong decisions, which often negatively affects the quality of the audit, the employer, and the occupants associated with the financial statements. Comments of professional acquisition always have natural limitations such as the auditor's judgment in the process of performing an activity and the auditor's activities for submitting comments. They are all influenced by professional judgments and decisions. Professional judgment in auditing means the use of related knowledge and experience based on accounting and auditing standards and the practice of professional conduct to make appropriate decisions about the selection of various guidelines [5]. Professional judgment among accounting experts has always been considered in practice and theory. In auditing, professional judgment for making the right decision about auditing practice and experience is based on accounting, auditing, and professional ethics standards. In addition, the field of accounting and auditing is increasingly recognized as a very important feature of professional judgment [8]. Professional judgment involves the rational care and professional skepticism. Rational care means accurate performance of duties according to relevant professional standards and considering ethical principles. Professional skepticism is an attitude that involves questioning and critically evaluating evidence [23]. Auditing is a profession that is very similar to judging in the courts. Both the judge and the auditor face claims, gather and evaluate the evidence supporting the claim, and ultimately judge based on the criteria.

Both of them must be fair in their assessment and judgments [13].

Criteria of auditors' decision making is one of the most significant complexities of accounting and auditing, because decision making exists in the whole process of auditing operations and the need to pay attention to features such as professionalism leads to increasing expectations in quality of auditors' professional judgment. From the perspective of behavioral theories in the field of auditing, it should be stated that the auditor is a specific person with technical knowledge, in a specific space, at a specific time and in a specific place and different from all his previous studies. In this situation, it should focus on both specialized and behavioral areas with a macro view and try to maintain communication with business owners from the perspective of business perspectives [19]. From the agency theory to explain the theoretical framework between governance mechanisms and professional judgment, it can be stated that shareholders, through the election of the board of directors, apply a layer of external control over the management that appoints external auditors [6]. Corporate governance and internal controls are important factors at the business unit level that determine the extent of the control environment and have important implications for the risk of judgments. DeZoort and Salterio [10] examined whether the audit experience and knowledge of audit committee members influence their judgments when there is a conflict between company management and the auditor. The results showed that the more experience of independent managers and their audit knowledge, the more the audit committee and its opinions will be supported by the company's managers. The results also showed that different levels of knowledge will lead to systematic differences in the judgments of the members of the audit committee in cases of disagreement between the manager and the auditor. Anderson et al. [3] concluded that the audit committee and their characteristics are important factors in the auditors' decision according to creditors' view. Cohen, J.R. and Hanno, D.M. [9] examined the effects of corporate governance quality and management controls on the professional judgments made by independent auditors at the planning stage and before. The results of their study showed that corporate governance has a significant and direct effect on the amount of content tests planned by the auditor. In other words, auditors generally want to work with employers who have a high level of corporate governance so that they can rely on the employers' internal control system and test less content. On the other hand, financial statements provide the main source of information needed by a company's investors, creditors and other stakeholders. Audited financial statements have added value; because the results report the relevance and reliability of the content of the financial statements. As a result, the complexity of financial statements, financial ratios, and profit quality metrics can affect the judgment of auditors.

3. Research background

Malekipour et al. [19] designed a model of philosophical themes for the auditor's wise tact in professional judgment. The methodology of this research is hybrid (qualitative and quantitative) based on the participation of two communities of experts as panel members in the qualitative sector and 30 independent auditors as members of the statistical population in the quantitative sector. In the qualitative part, the meta-analysis method was used to identify the themes related to the characteristics of wise tact in professional judgment and then the determined basic themes were examined based on two criteria of agreement coefficient and average in three round trip steps to reach the theoretical saturation point through Delphi analysis. The results in this section confirmed 14 of the 20 basic themes. Based on the results, the theme of adherence to the principles of professional ethics as the basic theme of professional thinking was selected the most effective feature of wise tact. Bakhtiari et al. [8] examined the identification of factors affecting the psychological characteristics of auditors in audit judgment. The data collection tool was semi-structured interviews and in order

to collect information, 20 experts, including university accounting professors, were interviewed using purposive sampling method. Data analysis was performed in three stages of open coding, axial coding and selective coding. Accordingly, a qualitative research model was designed. The results of the present study show the extraction of 107 primary codes or concepts from interviews as well as the enumeration of 20 concepts and 6 categories in the form of a paradigm model including causal conditions with subcategories: personal characteristics, emotions and mental health of auditors and demographic factors, underlying conditions with family subcategories, legal factors, environmental factors, culture and political environment, central category with subcategories: stress caused by work, independence and neutrality, intervening conditions: organizational factors and economic environment, strategy/ interaction with subcategories: skills, auditor knowledge, sense of belonging to the profession and decision-making power to decision-making and supervisory institutions and the consequence of the subcategory: professional judgments. Rohi Shah Ali Begloo et al. [23] examined the positivism effect on professional judgment of auditors. The statistical population includes 91 experts from the Institute of Certified Public Accountants who were selected using the convenience sampling method. Smart-PLS software was used to analyze the research hypotheses. Findings showed that individual factors affect auditors' positivism and auditors' positivism affects professional factors and professional factors affect the progress and development of auditors' profession. The results also indicate that positivism is the strength of logical and complementary doubt for trade-orientation and professional judgment of auditors. Sharifi et al. [30] explained the halo effect in auditing and its judgmental consequences. The research period was 2019 and the data needed to answer the research question were collected by distributing a questionnaire among the institute of certified public accountants. Accordingly, the data obtained from 122 supplementary questionnaires were analyzed using structural equations and smartPLS software. Findings show that the halo effect has an effect on audit judgment and also the code of professional behavior and personal characteristics play a mediating role on the relationship between halo effect and audit judgment. Samipour Khorramabadi and Ghasemi [27] examined the auditor's judgment and its challenges. They state that the many decisions made and the cumulative effects of these decisions are ultimately reflected on the financial statements as assessment. Auditors' decisions including significance and audit evidence are all important decisions that affect their professional opinion. Obviously, all of these provide the grounds for auditors to make wrong judgments.

The result is that the necessary attention at every stage of the work process from the time of negotiation to the issuance of the report, and especially the speed of consideration and finalization of the points collected during the proceedings, along with professional skepticism and maximum scrutiny, is absolutely necessary and effective. Sadat Ghaffari et al. [25] investigated the effect of goal orientation, self-efficacy and work complexity on auditors' judgmental performance. According to the available population size, according to the Cochran's sample size determination formula to increase the validity of the research, 350 questionnaires were distributed, of which 241 questionnaires were received and statistical analysis was used. The return rate of the questionnaires was set 80%. To test the hypotheses, the probability value obtained from the model fit in the significant state of the parameters was used. The suitability of the proposed model was investigated by explaining the hypotheses in the standard estimation mode and the significance of the parameters using Smart PLS software. The results showed that self-efficacy does not mediate the relationship between learning goal orientation and audit judgment performance. Self-efficacy mediates the relationship between tendency performance orientation and audit judgment performance. Self-efficacy mediates the relationship between avoidance performance orientation and audit judgment performance. The complexity of the work moderates the relationship between self-efficacy and the audit judgment performance of. Hasas Yegane and Amuzad [6] examined the factors affecting the professional judgment

of auditors and the pressures on them. The results showed that the size of the institution and the auditor's experience are inversely related to the pressures on auditors and have a direct and significant relationship with their professional judgment. Shahbazi and Mehrani [28] developed a model of professional judgment of independent auditors. The results led to the formation of a paradigm model in which 13 categories for causal conditions, 5 categories for context, 8 categories for interventionist conditions, 4 categories for strategy and 5 categories for outcome related to the main research phenomenon (professional judgment) were identified.

Badie et al. [6] performed the test of an audit quality and corporate governance mechanisms. The results indicate that the variables of board size, non-executive managers and the effectiveness of the audit committee/ number of meetings have a positive and significant effect on the quality of the audit and the variables of role duality (CEO), financial literacy of audit committee managers, ownership focus and field of activity have a negative and significant effect on audit quality. Adli Hamdam et al. [2] in a study titled the subject of auditor judgment and decision making in the macro data environment proposed a research framework. The proposed framework expects the cognitive process of integrating data visualization and intuitive data processing mode improve auditors' judgment decision. They state that the complexity of the task may affect the cognitive process of data visualization, integration, and processing modes, because of the large nature of the data and the complexity of business processes. Therefore, the relationship between data visualization integration and audit judgment decision and between processing mode and audit judgment decision should be adjusted with the complexity of the work. Donnelly et al. [11] examined the effect of attribute skepticism and diminished interests on the auditor's professional judgment. Previous research has shown that skepticism affects auditors' judgment, but situational variables may be associated with pessimism. They claim that if auditors' personality traits are reasonable, pessimism and skepticism affect the auditor's professional judgment. Conversely, when reduced, the auditors' and skepticism will not affect the auditors' judgment due to the lack of cognitive resources required for conscious information processing, and this judgment will be more plausible and reliable when responding. Test results including a risk assessment task confirm these expectations. Qawqzeh et al. [21] examine the question "Does the ownership structure affect the quality of auditing in countries with weak legal protection of shareholders?". The results showed that there is a significant relationship between managers' ownership, family and institutional ownership with audit quality. In contrast, managerial ownership had little effect on audit quality. The results of Hazianti Abdul Halim's [1] research showed that the level of position and experience are important in determining the level of judgment of the auditor's profession. The diversity of gender, knowledge and size of the company has no significant relationship with professional judgment. Regarding gender, past research has shown different results, and this research proves that there is no gender difference between Malaysian auditors in terms of their professional judgment.

According to the objectives of the research, the following questions have been asked:

1. Do management criteria affect the auditor's professional judgment?
2. Do the criteria of the audit committee affect the auditor's professional judgment?
3. Do the financial ratios of the client company affect the auditors' professional judgment?
4. Do the auditor's personality traits affect the auditor's professional judgment?
5. Does the performance measure of the employer company affect the auditors' professional judgment?
6. Do the independent auditor's professional criteria affect the auditor's professional judgment?

4. Research method

In the present study, the relationship between the effectiveness of key components on the auditor’s professional judgment is measured and then the influence of each component on each other and the relationship between them is examined based on the DETAMEL method. Based on research literature and theoretical foundations as well as library studies, key components influencing the auditor’s professional judgment include management criteria, audit committee criteria, internal audit criteria, performance criteria, financial criteria, independent auditor criteria and auditor personality. According to the purpose of the research, its application and analysis method, the present study is fundamental -applied objectively and it is descriptive in terms of data collection method.

5. Population and statistical sample

The statistical population of this research includes experts and specialists in the field of accounting. Also, according to the research methods, sampling of this research has been targeted, intelligently and judiciously available among experts and specialists. On the other hand, according to mathematical methods used for analysis and limitations of paired comparisons in DETAMEL method, the sample size was equal to 8 experts in the field of knowledge of this research.

6. Statistical Analysis

One of the most important stages of research is analysis. In the analysis stage, it is important to analyze the information and data in the direction of the research goal, answering the research questions. The overall purpose of this study is to analyze the decision-making to rank or prioritize the key criteria for the auditors’ professional judgment r of each organization and to determine the pattern of relationships between these criteria.

The appearance of the respondents shows that 88% of the auditing experts in this study are men and 12% are women. Also, the level of education, age and work experience of the respondents show that the experts of this research have the necessary expertise in terms of education, appropriate work experience and the necessary maturity in terms of age. Figure 1 shows the circle diagrams of the respondents’ view.

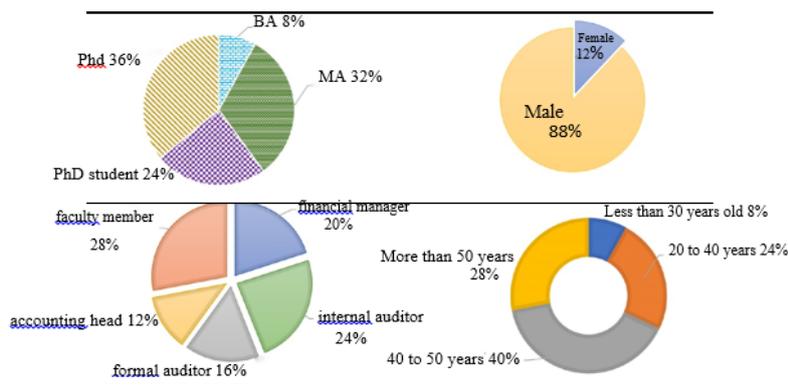


Figure 1: Circular diagram of the distribution of education, age, gender and professional history of the respondents

7. The pattern between the criteria affecting the auditor’s professional judgment

In this subsection, using pairwise comparisons and the DEMATEL method, we obtain the structuring between the criteria affecting the auditor’s professional judgment and the intensity of the relationships and the degree of effectiveness and influence of the criteria. The general view of the analysis steps of this section is as Figure 2.

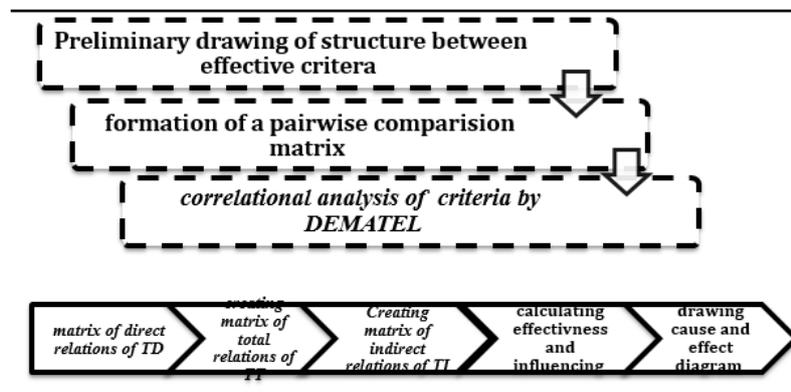


Figure 2: Steps of implementing Dematel method

Modeling and pairwise comparisons of criteria affecting the professional judgment of the auditor.

In this subsection, we seek to investigate the effectiveness or influencing of the criteria affecting the auditor’s profession judgment using the Dematel method, and also to obtain the intensity of relationships between components according to the opinions of auditing experts finally, draw the structure of relations. In this study, it is assumed that all the criteria affecting the auditor’s profession judgment are all related to each other. In the initial structure and diagram of the relationships between the criteria in this study, it is assumed that they are all related to each other. The basic structure of the correlation between the criteria in this research is as Figure 3.

According to the initial diagram of the correlation between the criteria affecting the professional judgment of the auditor, the pairwise comparisons were performed according to a researcher-made questionnaire which summarizes the results of the questionnaires in Table 1 of the matrix of final pairwise comparisons, which shows the opinion of experts. In this study, we show and have the final matrix of pairwise comparisons of experts with the symbol A.

Formula 1. Expert opinion matrix:

$$A = [a_{ij}]_{8 \times 8}$$

The pairwise comparison matrix of experts listed in Table 1 has been calculated and summarized from the results of experts’ opinions based on Formula 5.

Formula 2. Arithmetic mean,

$$\underline{X} = \frac{1}{n} \sum_{i=1}^n x_i$$

Formula 3. Medium

$$X = \text{data in the middle of the data}$$

Formula 4. Geometric mean

$$\underline{X}_G = \sqrt[n]{\prod_{i=1}^n x_i}$$

Formula 5. Mean of means

$$\underline{\underline{X}}_G = \frac{\underline{X} + \tilde{X} + \underline{X}_G}{3}$$

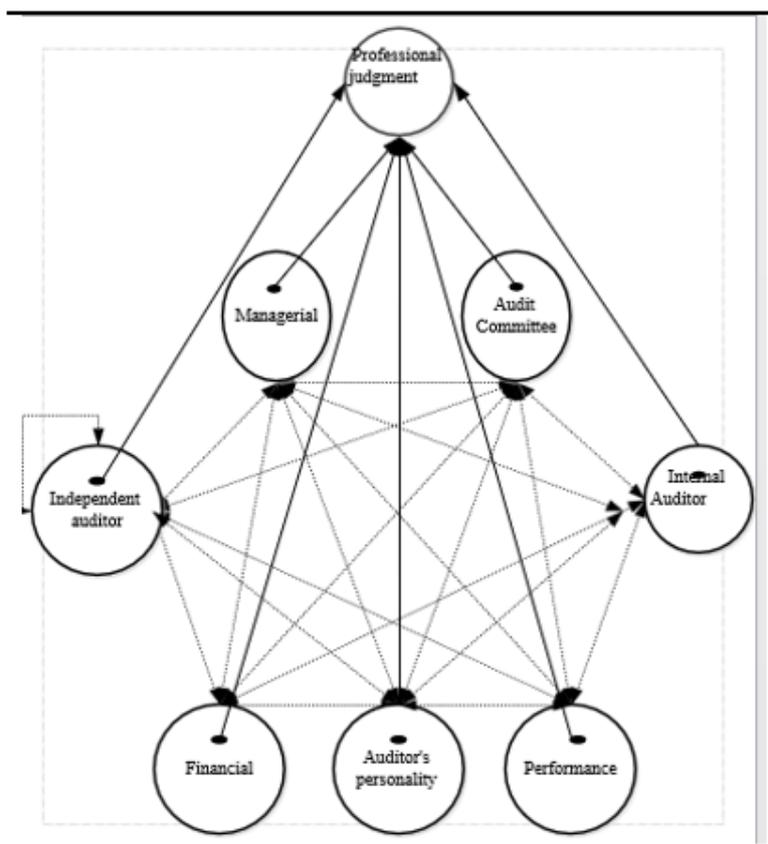


Figure 3: The structure of the initial correlation between the factors affecting the auditor's professional judgment

Correlation analysis of criteria affecting the auditors' professional judgment based on Demetel, The first step in implementing the Demetel method is the normalization of the matrix table of pairwise comparisons (No. 1), in which the normalization is calculated using Formula 6.

Formula 6.

$$s = \min\left[\frac{1}{\max \sum_{i=1}^8 a_i}, \frac{1}{\max \sum_{j=1}^8 a_j}\right]$$

In Formula 6, the sum of rows (or columns) of the final matrix of experts is calculated and the inverse of the largest row (or column) is selected as the normalizing number. According to the data in Table 1, the largest sum of rows or columns is 20.30 with an inverse of 0.049 ($s = 0.049$).

Table 1: Expert pairwise comparison matrix

Auditor's personality	Independent auditor	Financial	Performance	Internal Auditor	Audit Committee	Managerial	Professional judgment of the auditor	Criteria affecting the professional judgment of the auditor
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Professional judgment of the auditor
1.778	1.667	4.000	3.767	0.333	3.212	0.000	3.280	Managerial
0.333	0.333	1.778	1.667	3.767	0.000	0.333	2.741	Audit Committee
0.333	0.333	1.667	0.444	0.000	1.667	0.333	2.868	Internal Auditor
1.778	3.767	3.767	0.000	3.767	0.333	0.444	3.448	Performance
1.667	2.223	0.000	3.767	1.778	0.333	3.767	4.039	Financial
0.444	0.000	1.778	0.333	1.778	1.778	0.444	3.603	Independent auditor
0.000	1.778	1.667	1.667	1.667	0.333	1.667	0.326	Auditor's personality

After calculating the normalizer number according to the formula 7 matrix, the direct effects of the measured factors will be obtained. In this research, we show the matrix of direct relationships between factors with the symbol TD.

Formula 7. Direct effects matrix

$$TD = s.A = [d_{ij}]_{8 \times 8}$$

Table 2 is the matrix calculated using Formula 7, which shows the direct effects of the measured components on each other. The results of Table 2 state:

- Auditor criteria have the most direct impact on the auditor's professional judgment. The least impact of management criteria on the professional judgment of the auditor is that these results are derived from the TOPSIS method, the development of which is evident in this method.
- The greatest impact of management criteria is on financial criteria.
- The greatest impact of the audit committee is on internal audit.
- The greatest impact of internal audit is on professional judgment.
- The greatest direct impact of performance criteria is on financial criteria, the independent auditor and the internal auditor.
- The greatest direct impact of financial criterion has been on the auditor's professional judgment.
- The greatest direct impact of the independent auditor criterion is on the auditor's professional judgment.
- The greatest direct effect of the auditor personality criterion is on the independent auditor.

Table 2: TD direct effects matrix

Auditor's personality	Independent auditor	Financial	Performance	Internal Auditor	Audit Committee	Managerial	Professional judgment of the auditor	Criteria affecting the professional judgment of the auditor
0	0	0	0	0	0	0	0	Professional judgment of the auditor
0.087	0.082	0.196	0.185	0.016	0.157	0	0.161	Managerial
0.016	0.016	0.087	0.082	0.185	0	0.016	0.134	Audit Committee
0.016	0.016	0.082	0.022	0	0.082	0.016	0.141	Internal Auditor
0.087	0.185	0.185	0	0.185	0.016	0.022	0.169	Performance
0.082	0.109	0	0.185	0.087	0.016	0.185	0.198	Financial
0.022	0	0.087	0.016	0.087	0.087	0.022	0.177	Independent auditor
0	0.087	0.082	0.082	0.082	0.016	0.082	0.016	Auditor's personality

After calculating the direct effects matrix, according to the process of calculating the demetel method, the matrix of total equations is obtained according to Formula 8. In this research, we show the matrix of direct relationships between factors with the symbol TT.

Formula 8. Overall effects matrix (Relationships)

$$TT = TD.(I - TD)^{-1} = [t_{ij}]_{8*8}$$

Table 3 is the matrix calculated using Formula 8, which shows the effects of all the measured criteria on each other. The results of Table 3 can be summarized as follows:

- Financial metrics have the greatest overall impact on the auditor's professional judgment and the auditor's personality has the least overall impact on the auditor's professional judgment.
- The greatest overall impact of the management criteria is on the auditor's professional judgment and then has the greatest overall impact on the financial criteria.
- The greatest impact of the criteria of the audit committee is on the auditor's professional judgment and then has the greatest overall impact on the internal audit criteria.
- Internal auditor criteria have the greatest overall impact on the auditor's professional judgment and then have the greatest overall impact on financial criteria.
- Performance criteria have the greatest overall impact on the auditor's professional judgment and then have the greatest overall impact on the internal audit criteria.
- Financial criteria have the greatest overall impact on the auditor's professional judgment and then have the greatest overall impact on management criterion.

- Independent auditor criteria have the greatest overall impact on the auditor's professional judgment and then have the greatest overall impact on the internal audit criteria.
- The personality of the auditor has the greatest overall impact on the management criteria and then on the internal auditor criteria.

Table 3: Matrix of overall impacts (relationships) of the TT

Auditor's personality	Independent auditor	Financial	Performance	Internal Auditor	Audit Committee	Managerial	Professional judgment of the auditor	Criteria affecting the professional judgment of the auditor
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Professional judgment of the auditor
0.159	0.202	0.333	0.301	0.173	0.216	0.092	0.387	Managerial
0.052	0.072	0.158	0.136	0.243	0.041	0.059	0.251	Audit Committee
0.040	0.052	0.125	0.067	0.051	0.102	0.047	0.215	Internal Auditor
0.140	0.261	0.288	0.101	0.280	0.086	0.101	0.359	Performance
0.151	0.217	0.158	0.288	0.207	0.100	0.243	0.400	Financial
0.050	0.042	0.141	0.070	0.142	0.116	0.059	0.270	Independent auditor
0.045	0.152	0.171	0.152	0.157	0.068	0.128	0.155	Auditor's personality

In general, factors have a direct or indirect effect or relationship on each other. Matrices 5 and 9 showed general relationships and direct relationships. In this research, we show the matrix of indirect relationships between factors with the symbol TID.

Formula 9. Indirect effects matrix

$$TID = TD^2.(I - TD)^{-1}$$

Table 4 is the matrix calculated using Formula 9, which shows the indirect effects of the measured factors on each other. The results of Table 4 state:

Management criteria have the most indirect impact on the auditor's professional judgment and the internal auditor has the least indirect impact on the auditor's professional judgment.

After fully calculating the effectiveness of the criteria on the auditor's professional judgment and the criteria on each other, the effectiveness / influencing of the factors on each other and on the auditor's professional judgment should be measured. Formulas 10 and 12 have been used to measure the effectiveness /influencing of the criteria.

Table 4: Matrix of TID indirect effects

Auditor's personality	Independent auditor	Financial	Performance	Internal Auditor	Audit Committee	Managerial	Professional judgment of the auditor	Criteria affecting the professional judgment of the auditor
0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Professional judgment of the auditor
0.072	0.120	0.137	0.116	0.157	0.059	0.092	0.223	Managerial
0.036	0.056	0.071	0.054	0.058	0.041	0.043	0.117	Audit Committee
0.024	0.036	0.043	0.045	0.051	0.020	0.031	0.074	Internal Auditor
0.053	0.079	0.0103	0.101	0.095	0.070	0.079	0.190	Performance
0.069	0.108	0.158	0.103	0.120	0.087	0.058	0.202	Financial
0.028	0.042	0.054	0.054	0.055	0.029	0.037	0.093	Independent auditor
0.045	0.065	0.089	0.070	0.075	0.052	0.046	0.139	Auditor's personality

Formula 10. Effective matrix

$$R = [r_i]_{8 \times 1} = \left(\sum_{i=1}^8 t_{ij} \right)_{8 \times 1}$$

Formula 11. Influencing matrix

$$C = [c_j]'_{1 \times 8} = \left(\sum_{i=1}^8 t_{ij} \right)'_{1 \times 8}$$

Formula 12: effectiveness and influencing matrix

$$R + C = [r_i]_{8 \times 1} + [c_j]'_{1 \times 8}$$

$$R - C = [r_i]_{8 \times 1} - [c_j]'_{1 \times 8}$$

According to Formula 10, the values obtained for the vector R are shown in Table 5; which shows that the managerial component (21% effects) then financial criteria (20%) and performance (18%) each had the greatest effect on other criteria; and almost 60% of the effects are created by these three criteria.

According to Formula 11, the values obtained for the vector C are shown in Table 6; Which shows that the professional judgment of the auditor (23% of the effects), then the financial criterion (15%), the internal audit criterion (14%) and the performance criterion (12%) had the most effect from other factors.

Table 5: Matrix R

R%	R	Order of criteria
0.000%	0.000	Professional judgment of the auditor
20.99%	1.861	Managerial
11.41%	1.012	Audit Committee
7.88%	0.699	Internal Auditor
18.22%	1.616	Performance
19.89%	1.763	Financial
10.03%	0.890	Independent auditor
11.59%	1.028	Auditor's personality

Table 6: Matrix C

C%	C	Order of criteria
22.95%	2.035	Professional judgment of the auditor
8.20%	0.727	Managerial
8.21%	0.728	Audit Committee
14.13%	1.253	Internal Auditor
12.59%	1.116	Performance
15.049%	1.373	Financial
11.25%	0.998	Independent auditor
7.18%	0.637	Auditor's personality

Also, according to Formula 12, we examine the effectiveness and influencing of each factor, the values obtained for the $R + C$ and $R - C$ vectors are shown in Table 7; According to the $R + C$ values, it can be said that 18% of the total effects of the studied relationships are created by the financial criterion, i.e, in general, 18% of the interactions between the criteria are created by this criterion, and after this criterion, the criterion of performance and managerial criteria had the most interactions with other criteria. Also, if the RC values are positive, it is an effective factor, and if it is negative, it is an influencing factor. According to the results of Table 7, management, performance, auditor personality and financial criteria are the most effective respectively, and on the other hand, auditor's professional judgment, internal audit criteria and independent auditor are the most influential factors, respectively.

According to the multiplicity of causal relations, a threshold value should be selected to determine the significant relations in the TT matrix. By this value, the threshold of small and negligible relations is ignored and considered equal to zero. In this research, geometric mean has been used to obtain the threshold value. Formula 13 shows the method and formula for obtaining the threshold; according to Formula 13, the threshold value is equal to 0.3869.

Table 7: R-C and R + C matrices

rank R-C	R-C%	R-C	Criteria	Ran k R+C	R+C%	R+C	Criteria
8	37.71-%	0.035-	Professional judgment of the auditor	4	11.7%	2.035	Professional judgment of the auditor
1	21.01%	1.133	Managerial	3	14.60%	2.588	Managerial
5	5.26%	0.284	Audit Committee	7	9.81%	1.739	Audit Committee
7	10.28-%	0.555-	Internal Auditor	5	11.01%	1.952	Internal Auditor
2	9.26%	0.499	Performance	2	15.40%	2.732	Performance
4	7.23%	0.390	Financial	1	17.69%	3.136	Financial
6	2.01-%	0.108-	Independent auditor	6	10.64%	1.887	Independent auditor
3	7.24%	0.391	Auditor's personality	8	9.38%	1.664	Auditor's personality

It is worth noting that the reason for using the geometric mean to obtain the threshold value is that among all the central indices, almost the geometric mean is smaller than the other means, and it results in a small and negligible relationship.

Table 8 shows the general acceptable and permissible relationships according to threshold formula 8, and according to this table, Figure 3 shows the final causal relationship between the criteria affecting the auditor's professional judgment.

Formula 13. Threshold

$$\underline{t} = \sqrt[64]{\prod_{i=1}^{64} [t_{ij}]_{8 \times 8}} = 0.1301$$

8. Conclusion and Recommendations

Professional skepticism is a behavioral issue based on psychology and theoretically, it explains the underlying principle in the basic principles of auditing and assurance, and it is rooted culturally and motivational factors that originate from sociology and psychology. According to the impact of personal characteristics and psychology on skepticism and professional judgment of auditors, the need for scientific research in this area to examine various aspects of behavior and psychology on skepticism and subsequently improve professional judgment in auditors to do high-quality auditing is felt more than ever [23]. Knowledge and experience within the framework of accounting standards, auditing and professional conduct is to decide on the choice of one of the various options. Reliability in auditing as well as the credibility and usefulness of financial reporting depends on good judgments by professionals [30]. Achieving the quality of auditing professional judgment requires recognizing the factors affecting professional judging. The results showed that financial criteria have the greatest impact on auditing professional judgment. Then there are the criteria of management, financial performance, independent auditor, audit committee, internal auditor and finally the criteria of auditor

Table 8: Acceptable relationships greater than the threshold in the total TT effect matrix

Auditor's personality	Independent auditor	Financial	Performance	Internal Auditor	Audit Committee	Managerial	Professional judgment of the auditor	Criteria affecting the professional judgment of the auditor
								Professional judgment of the auditor
0.159	0.202	0.333	0.301	0.173	0.216		0.384	Managerial
		0.158	0.136	0.243			0.251	Audit Committee
							0.215	Internal Auditor
0.140	0.261	0.288		0.280			0.359	Performance
0.151	0.217	0.158	0.288	0.207		0.243	0.400	Financial
		0.141		0.142			0.270	Independent auditor
	0.152	0.171	0.152	0.157			0.155	Auditor's personality

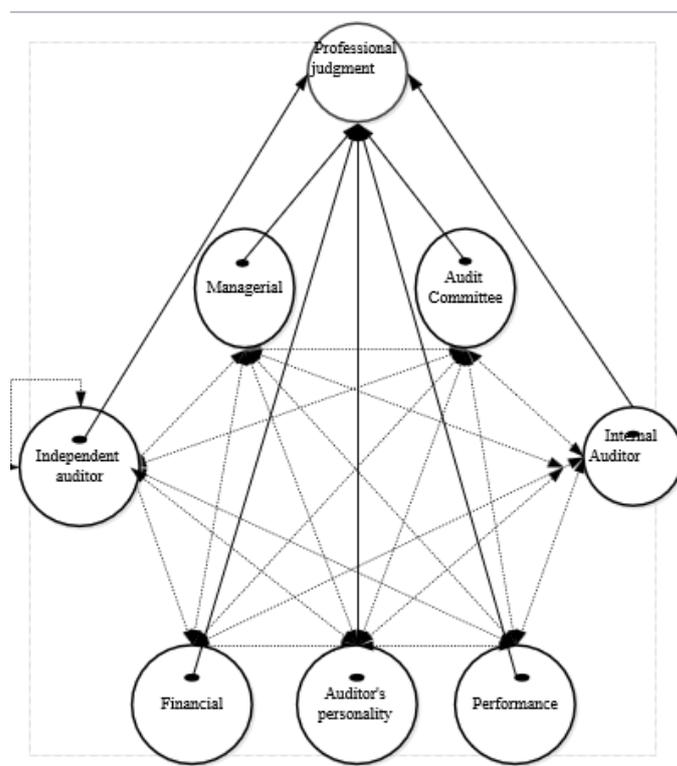


Figure 4: Causal diagram between criteria

personality, which has the least effectiveness on the judgment of the audit profession. The results of this study with the research of Malekipour et al. [19] stated that the theme of adherence to the principles of professional ethics as the basic theme of professional thinking was selected as the most

effective feature of wise tact. Bakhtiari et al. [8] stated that the skills, knowledge of the auditor, the sense of belonging to the profession and decision-making power are related to decision-making and supervisory institutions and the outcome is related to professional judgments. Rohi Shash Ali Begloo [23] showed that positivism is intended to reinforce logical and complementary skepticism for the trade-oriented and professional judgment of auditors. Sharifi et al. [30] stated that the code of professional conduct and personal characteristics play a mediating role in the relationship between halo effect and audit judgment. Hasas Yegane and Amuzad [6] showed that the size of the institution and the auditor's experience are inversely related to the pressures on auditors and have a direct and significant relationship with their professional judgment. Hosseini and Rasouli [14] stated that work variables and environmental variables and personality variables in all three areas are integral components of the auditor's judgment. Hirani et al. showed that professionalism affects the professional judgment of the auditor. Findings of Badpa et al. [7] showed that there is a negative and significant relationship between employer transformational leadership and objectivity in auditor's judgment and the effect of employer transformative leadership on auditor's judgment is partly taken place through the auditor's familiarity (identification) with the employer. Clements [29] examined the effect of gender on moral judgment, perceived moral intensity, and the intention to report a profit management approach, and there was no significant difference between professional judgment between men and women. Kent et al. [17] showed that fourteen psychological characteristics including (accountability, reliability, acceptance of changes, expertise, stress management, creativity, etc.) in the entire audit process affect the auditor's judgment. Saadullah, Shahriar M. and Bailey [24] showed that conscience and flexibility have a positive and significant effect on the ethical judgment of auditors. Nezami et al. [20] in examining the effect of personality traits (conscience and agreement), emotions-thinking and risk-taking on the auditor's judgment showed that auditors have a more professional judgment with the thinking personality type emotionally.

According to the research results, the following suggestions are presented: In terms of practical applications, this study provides views into important factors that influence the professional judgment of auditors. In addition, the management of auditing firms can emphasize the training of its staff, especially for less experienced employees, and improve the professional judgment of auditors in the early stages of their work when faced with the complexities of the task.

Auditing firms are recommended:

Developing internal mechanisms for transferring experience and training staff;

Team and participatory execution in the implementation of audit projects;

Focusing more on stakeholder expectations;

Proper adherence and practical belief in the code of professional conduct;

It is recommended to the Institute of Certified Public Accountants:

Establishment of a continuous education system;

Effort to implement accounting and auditing standards;

Effort to introduce the services of the auditing profession to the community;

Developing a pricing model for independent auditors;

It is recommended to policymakers and the government:

Integrating the supervisory body of auditors;

Adoption of mandatory laws for the establishment of large auditing firms;

Effort to increase the culture of accountability in society;

Emphasizing the services of independent auditors as an oversight body for economic transparency in upstream documents;

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