Journal of System Management (JSM)
Online ISSN: 2538-1571, Print ISSN: 2322-2301
Doi: 10.30495/JSM.2022.1968673.1693
9(1), 2023, pp. 119-132

Received: 02/10/2022
Accepted: 15/12/2022

RESEARCH ARTICLE **Open Access**

Comprehensive Systematic Model of Fraud and Decisions in Financial Management: A Structural Equation Modeling Approach

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Abstract
This scientific research aims to investigate the role of reinforcing or limiting the factors affecting fraud-based behavior in companies with opportunistic tendencies on companies' financial decisions. Opportunistic tendencies provide the context for directing many financial decisions to protect the interests of particular groups. On the other hand, the intervention of some internal and external factors limits the possibility of taking advantage of such opportunities or provides the conditions for their use. Studying the subject of fraud and its effects on financial management is crucial, notably with a systematic approach, implying this study's applied objective. Based on the provided comprehensive model, According to the comprehensive model, the present study is intended to explain the current situation in relation to the role and importance of three categories of trust factors, audit quality and political communication on the process of influencing fraudulent behavior on financial decisions such as profit management, risk management, capital structure and The ownership structure of companies has been discussed with the aim of controlling the effective factors in this field. This research is applied in terms of objective. It draws upon a descriptive and survey methodology. The statistical population contains managers, financial experts, and professionals from companies listed on Tehran Stock Exchange. A sample of 348 individuals was selected, and the collected data was analyzed using Structural Equation Modelling (SEM) and the PLS-Smart software package. Findings suggest that fraud significantly affects financial decisions, demonstrating the significant role of trust in mediating between fraud and financial decisions. The Sobel test confirms this role. The research also confirms that the mediating role of political relations and auditing quality in the relationship between fraud and financial decisions is significant in this model.
Keywords: *Financial Decisions, Fraud, Auditing Quality, Political Relationship, Trust*

Introduction

The effective and prompt decisions of financial market actors are an essential characteristic of a financial system, which is dependent on the utilization of some fundamental factors in financial decision-making. There are various definitions of fraud. It is an extensive, illegal concept; however, fraud is distinguished from misrepresentation based on whether the error was deliberate or inadvertent. A solid, explicit definition of fraud cannot be proposed since fraud is committed in surprising, deceptive, and unfair manners. Moreover, the only fraud definition boundaries are those limiting ignobility (Namazi and Hosseininia, 2019). The increased rate of financial statement fraud

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(FSF) has induced concerns and raised the supervision of financial statement users. Many rules and standards have been implemented to detect and prevent fraud upon the extensive growth of the fraud rate and the negative consequences. The Iran Auditing Standard 24 (IAS 24) and Statement on Audit Standards No. 99 (American Institute of Certified Public Accountants, 2002) introduced a set of conditions or situations that could be at risk of fraud as the fraud risk factors or fraud red flags. The fraud risk factors represent an increased risk factor and serve as a red flag for auditors. These factors are a warning to the auditor for risk management and the necessity of further accurate investigation. Risk management is a set of measures in an economic institution to obtain satisfactory returns and reduce return volatility. In some cases, even an efficient internal control system could not effectively control such risks; however, techniques designed to control opportunistic behaviors may reduce the likelihood of fraud (Association of Certified Fraud Examiners, 2020). The separation of the responsibilities of authorized auditors and inspectors is the main internal control index. The responsibility separation of the CEO and board chairman is the main factor among ownership structure factors. Considering an effective board in the good corporate governance model, the development of a protocol consisting of tasks, responsibilities, responsibility instructions, and performance evaluation for the board is under the authority of institutional ownership (Salami et al., 2021). The control of such risks may be influenced by factors such as auditing quality, reconsideration of political actions, and management approaches. Although the use of internal control measures, such as internal auditors, could reduce the likelihood of fraud and optimize financial decisions, auditing quality allows for detecting opportunistic and ambiguous behaviors in the accounting operation since auditing institutions that perform high-quality auditing investigations have higher knowledge and motivation of detecting financial statement misrepresentations and fraud. Considering limited financial resources and economic recession due to the COVID-19 pandemic, the rate of opportunistic behaviors and conflict of interest between corporate managers and owners continues to increase, and fraud is committed extensively with negative consequences. Therefore, financial statement fraud (FSF) has become a crucial social concern. For example, 355 business banks and 57 economic institutions were shut down by federal authorities during 2008-2011. These bankruptcies would impose a loss of up to 90 million USD on the US economy. Moreover, internal damages of the financial industry have been demonstrated in many cases. A total of 361 embezzlements in business banks, insurance companies, and securities exchange have been detected in South Korea in the past five years. The embezzlements in the UK have imposed a total loss of 103 million GBP, with fraudulent trading activities leading to the collapse of Barings Bank with a loss of 850 million GBP (Chen et al., 2020). The financial industry is a fraud-prone sector, suggesting a significant intrinsic risk in such institutions. The present study sought to empirically investigate the model of the behavioral impacts of FSF on financial decisions, including income management, risk management, capital structure, and ownership structure, at companies listed on the Tehran Securities Exchange, with the moderating roles of political relations and auditing quality and the mediating role of trust.

2. Theoretical Foundations

Fraud is a general term referring to deliberate innovations, behaviors, and skills used to gain a benefit through misrepresentation. Hence, it is important to discuss behavior codes, organizational behavior, and specific measures implemented to achieve goals, and the theoretical foundations of decision-making, particularly in the financial sector, should be evaluated. In individualistic cultures, people often make decisions based on their individual benefit. In collectivistic cultures, however, collective benefits are preferred over individual ones. In such societies, collective rights are emphasized, whereas individual rights are less often considered. Finally, fraud is an international challenge that poses adverse impacts on businesses, companies, and shareholders. The financial consequence of fraud is estimated to be up to 5.127 trillion USD in the past two decades, with the fraud losses increasing by 56% in the past decade (Gee and Button, 2019). The actual costs of potential fraud are even greater, particularly when considering indirect costs, e.g., damage to the credibility of investors, debtors, and employees and the reduction of trade due to scandals. Fraudulent activities may lead to bankruptcy. However, smaller organizations (with fewer than 100 employees) and non-profit organizations with weaker internal control systems and lower resources to restore from fraud losses can be more vulnerable to fraud (Craja et al., 2020). Furthermore, financing through debts in the capital structure of a company increases the debt and capital costs (Abdoli et al., 2021).

The financial distress risk of a company rises when the combination of debts is inefficient, leading to fraudulent opportunities. The increased rate of FSF has induced concerns and increased the expectations of financials statement users. In some cases, even an efficient internal control system could not effectively control such risks; however, techniques are designed to control opportunistic behaviors could reduce the fraud likelihood (Association of Certified Fraud Examiners, 2020). To reduce the fraud likelihood, organizations should renew office structures and adopt a customer-oriented approach to meet the demands of their customers. Organizational irresponsibility, over-control, poor management, and a sick structure result in internal and external distrust. Thus, it is primarily required to cope with distrust and bring a climate of collaboration (Karavand et al., 2020) in order to achieve financial reporting objectives, i.e., useful information to managers, investors, creditors, and other actual and potential users to make efficient decisions and enable transparency concerning income management and earnings volatility (risk) (Atarasadi et al., 2022). The control of such risks may be dependent on auditing quality, reconsideration of political actions and interactions, and trust-based approaches. However, research has shown that fraud has a variety of dimensions, e.g., information control, Responsibility Avoidance, Gain, Exploiting, Relationship and Lack of Oversight, In-Group / Out-Group, whereas auditing quality dimensions include report lag, firm size, and audit fees. Furthermore, political relationship can be explained by factors such as board dependency, political influence, and liquidity strength, while trust is explained by optimism, ambiguity aversion, and risk aversion.

3. Research Background

Alizadehgan et al. (2022) studied the impacts of personality type and professional ethics on the FSF detection capabilities of auditors through the theory of planned behavior, with the mediating role of professional skepticism. They found that personality types, professional ethics, and professional skepticism had positive, significant impacts on FSF detection capabilities. Moreover, the personality type and professional ethics had positive, significant indirect impacts on FSF detection through the mediating role of professional skepticism. Auditors showing higher professional skepticism have a higher tendency to search data for FSF and enjoy greater FSF detection capabilities.

Maleki-Kalkar et al. (2021) evaluated the performance of machine learning (ML) models in predicting fraudulent financial reporting. They studied fraud existence and continuance in financial statements and the impacts of fraud on the financial health of companies and the sustainable development of the capital market. It was observed that conventional methods were not effective in preventing and detecting FSF due to complicated fraud techniques, insufficient knowledge of data processing, and insufficient auditor experience. It was found that the CHAID, C5, and C&R algorithms could predict FSF with an accuracy of 92.61%. ML-based data mining algorithms and their combinations could be effectively exploited for FSF prediction and detection.

Azinfar et al. (2021) studied the effects of the CEO facial width-to-height ratio as a measure of CEO testosterone on fraudulent financial reporting. The testosterone level influences the behavioral characteristics of CEOs, e.g., honesty, deception tendency, abuse, and financial statement misrepresentation in the financial literature. These behaviors could lead to an increased difference between the utility function of the CEO and those of shareholders at the company. It was found that high testosterone levels increase fraudulent financial reporting.

Rezaei et al. (2020) studied the effects of self-efficacy, locus of control, and dark personality traits on fraudulent financial reporting. Statistical analysis revealed that dark personality traits (e.g., narcissism, Machiavellianism, antisocial personality, and sadism) had positive, significant impacts on fraudulent financial reporting, while cognitive traits (i.e., self-efficacy and locus of control) had no significant impact on fraudulent financial reporting. Also, self-efficacy and locus of control had negative, significant impacts on dark personality traits. The results emphasized the importance of psychological factors in identifying the causes of the immoral CEO behaviors that lead to financial reporting fraud.

Fong (2022) predicted four fraud models. They argued that the fraud rate was maximized in the past one and a half years upon digital business growth in 2021. Due to the increased fraud rate, phishing, blackmailing, identity theft, and their consequences had become more complicated. The emergence of digital passports in Metaverse, cryptocurrency exchange fraud in crypto exchange, the use of artificial intelligence (AI) in e-commerce, economic instability, and COVID-19 pandemic consequences were found to have raised digital fraud. Evidence indicated that people had economic stimuli due to the instable economy and unemployment, leading to self-interest opportunity and increased digital financial fraud.

Lim et al. (2022) evaluated the effects of opportunistic tendencies of CEOs (i.e., optimism and overconfidence) on the capital structure factors. They believed that the developed use of financial theories at new companies and the extension of behavior research under the theories used in financial economics led to novel analyses to reduce the existing challenges, particularly in the utilization of some concepts, such as rationality, in decision-making. They argued that overconfidence, optimism, gender, age, education, professional work experience, and behavioral maladjustment would impact the capital structures of economic institutions. The results demonstrated that the intrinsic behavioral characteristics of CEOs, particularly overconfidence and over-optimism, affected capital structure formation. Also, information asymmetry increased the opportunistic tendencies of CEOs. Although they are capital structure determinants, the gender, age, and professional work experience of CEOs do not play a mediating or moderating role in the relationships between the behavioral variables and capital structure.

Aghaie-Ghehie and Yazdani (2022) analyzed the factors influencing auditing quality. They identified the concept of auditing quality by developing a conceptual model of the factors affecting auditing quality, i.e., policymaking, monitoring, and operation (including the input data, process, and output operation of auditing) through a systematic approach. Their conceptual model of auditing quality consisted of different dimensions. It was found that auditing quality had a moderate, positive, and significant relationship with policy factors in the auditing profession and a strong, moderate, and positive, significant relationship with operation. Concerning operation factors, auditing quality was found to have a strong, positive, and significant relationship with input data and processes and a moderate, positive, and significant relationship with monitoring factors.

Luo and Wang (2022) measured the impacts of external experienced managers on fraud in the financial performance of Chinese companies. They used a bivariate probit model with partial observations and demonstrated that the efficiency of external managers in the improvement of information environments significantly reduced opportunistic situations and increased the fraud detection likelihood.

Mousavi Hanjani and Iranban (2019) he presents study investigates the relationship between diversification strategy, capital structure and profitability in companies listed in the stock exchange through a combination of data panel and VAR methods. The research findings showed that the diversification strategy, capital structure and profitability in the companies accepted in the stock exchange has have a significant relationship. Also, the results of this study showed that diversification strategy has a significant effect on profitability.

Theoretically, individual, group, and organizational fraud dimensions have strong impacts on financial decisions at companies, e.g., income management, risk management, capital structure, and ownership structure. The present study evaluated the impacts of fraud dimensions on financial decisions and the roles of auditing quality, political relations, and trust based on earlier empirical works (Costa-Lourenço et al., 2018; Hair et al., 2019) through an exploratory approach. Figure 1 depicts the proposed conceptual model.

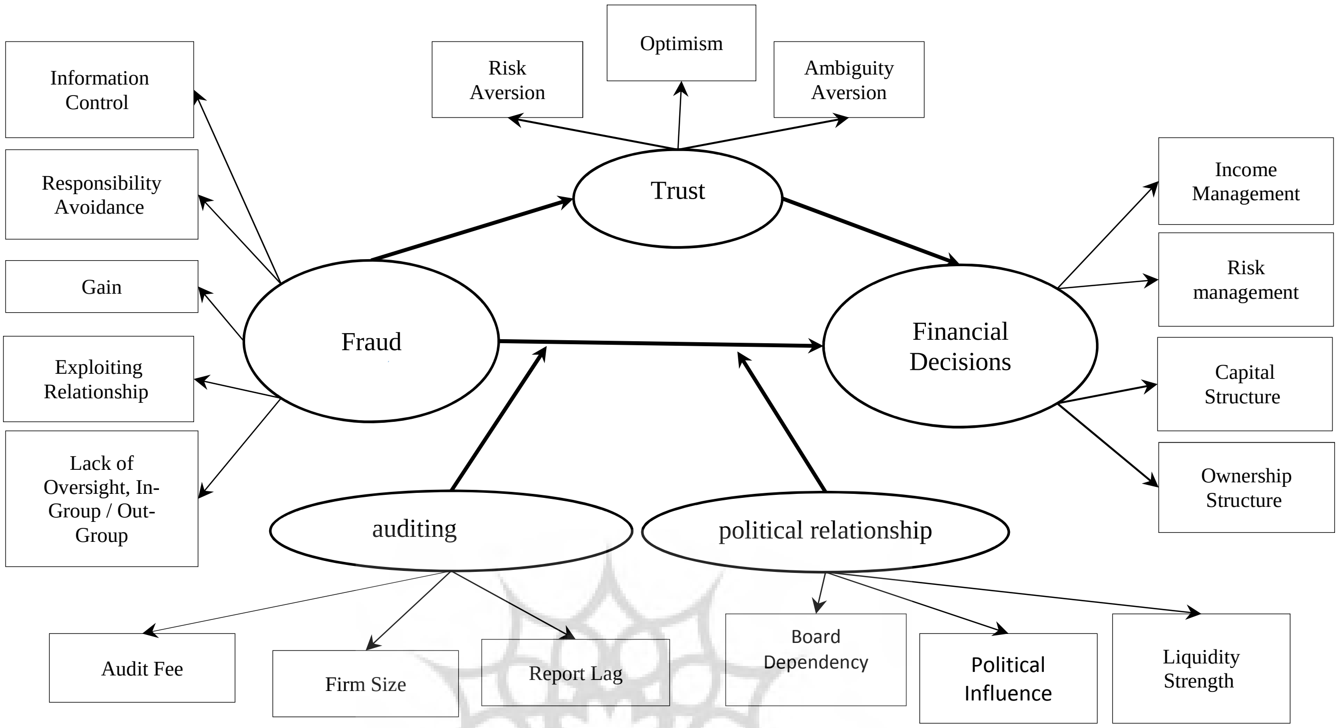

Fig 1. *Relationship of research variables based on structural equation model*

4. Methodology

The present study is applied research in terms of orientation, field research in terms of history, a survey in terms of data collection, and quantitative in terms of methodology. It is also correlational as the relationships between variables are measured and cross-sectional in terms of the data collection time. This study sought to represent a comprehensive model of the impacts of fraud on financial decisions at companies listed on the Tehran Securities Exchange.

The impacts of fraud determinants on financial decisions with moderating and mediating factors were explored through a survey approach. Data were collected via questionnaires. This study is descriptive research in terms of objectives since it describes the impacts of fraud on financial decisions in the capital market of Iran. A total of 384 respondents were selected from financial managers and experts using random sampling, and the sample size was calculated using Cochran's formula.

A literature review and theoretical foundations were employed to identify fraud factors in financial decisions at companies listed on the Tehran Securities Exchange. The hypotheses were tested using the questionnaire data and localized based on the financial structures and capacities of the companies under study. The questionnaire was developed based on earlier works (Brown, 2016) and expert views. Questionnaire validity and reliability were evaluated.

The factors and indices of the questionnaire were described. Then, data normality was measured in the inferential phase. Once data had been collected, data analysis was carried out in SPSS. To interpret the results, numerical and graphical representations were used. The model was executed in Smart PLS to test the hypotheses.

5. Research Findings

5.1. Demographics

The participants totally 395, consisted of 298 males (75.67%) and 97 (24.33%) female respondents.so men with (75.67%) are the most respondent. In addition, the degree of the respondent shows that 232 respondents had a bachelor's degree .so the most degree level with (59%) is dedicated to, bachelor's degree. Also, the data of Questionnaire shows that from 395 respondents 157 of the them were employees in governmental organizations (40%).

5.2. Descriptive Analysis

By comparing the standard deviation of the examined variables, we come to the conclusion that the standard deviation of the trust variable has the highest dispersion and the fraud variable has the lowest dispersion. In general, the low standard deviation in the components indicates the lower dispersion of responses. Also, the average value shows the range of each variable. The average value in the political communication variable is the highest average value, which shows the average range of responses. Also, the average value of fraud has the lowest average and it shows that the respondents answered this range. The position of skewness and kurtosis also shows that the skewness values for all variables are in the range (3-3) and the kurtosis values of all components are not in the range (3-3), so it can be said that the data distribution for all components is not normal, which is one of the Terms of use of Smart-PLS software.

Table 1
Descriptive Statistics

Variable	Mean	Quart.1	Median	Quart.3	Standard Deviation	Skewness
Fraud	3.468	4	3.420	5	0.379	-1.004
Financial decisions	3.731	4	3.710	5	0.446	-0.858
Trust	3.924	4	4.000	5	0.683	-1.212
Auditing quality	3.989	4	4.000	5	0.547	-1.304
Political relationship	4.067	4	4.000	4	0.668	-0.929

5.3. Measurement Model Survey

Since hypotheses are rejected or supported based on significance coefficients, so for making decision Figures 2 and 3 plot the significant coefficients. The factor loads are provided. For fraud, a lack of intra- and extra-group monitoring had the highest explanatory power, with self-interest, abuse of relationship, responsibility aversion, and information control having lower exploratory power and, therefore, priority. For financial decisions, earnings management, capital structure, and risk management had higher exploratory power, while the ownership structure had lower exploratory power. For Trust, optimism and ambiguity aversion had higher exploratory power, while risk aversion had lower explanatory power. For political relationship (moderator), i.e., board dependency, political influence, and liquidity strength had high exploratory power. For auditing quality, audit fees and firm size had higher exploratory power, while report lag had lower exploratory power.

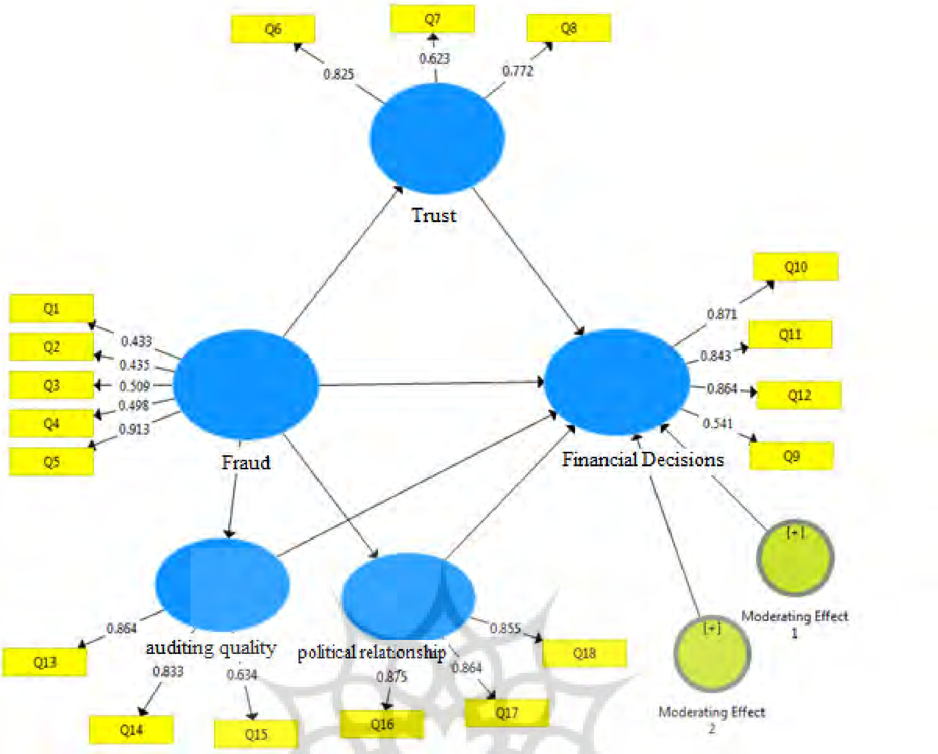

Fig. 2. *Checking the model based on measurement criteria*

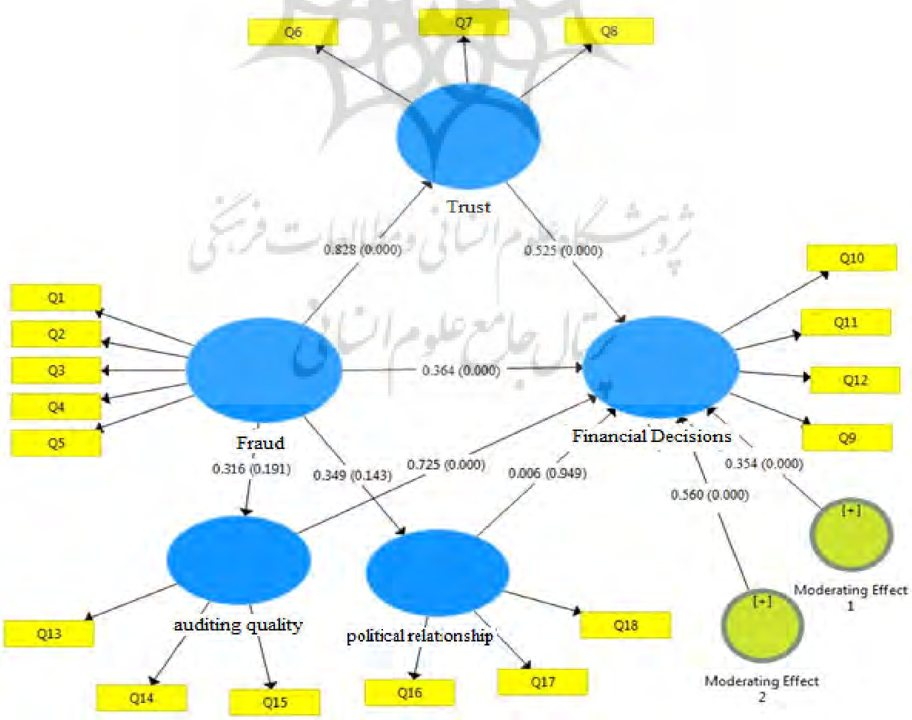

Fig. 3. *Diagram of the final model to check and test the hypotheses*

5.4. Model Survey based on measurement criteria

Table 2 reports the validity and reliability measures. As can be seen, the questionnaire had satisfactory reliability. The composite reliability of the variables was obtained to be greater than 0.7, suggesting good reliability. Furthermore, the convergent validity of the variables was found to be 0.5, representing satisfactory validity.

Table 2
Validity and reliability

Variable	Cronbach's Alpha	Composite Reliability	Convergent Validity
Fraud	0.807	0.854	0.524
Financial decisions	0.855	0.880	0.525
Trust	0.778	0.858	0.604
Auditing quality	0.763	0.834	0.504
Political relationship	0.863	0.901	0.645

Fornell-Larcker criterion

The average variance explained (AVE) square root was calculated, as shown in Table 3. According to the diagonal elements of the matrix, it can be said that the model had good divergent validity.

Table 3
Fornell-Larcker criterion after the insertion of the AVE square root

Variable	Fraud	Financial Decisions	Trust	Auditing Quality	Political Relationship
Fraud	0.760				
Financial decisions	0.540	0.765			
Trust	0.565	0.432	0.650		
Auditing quality	0.290	0.342		0.776	
Political relationship	0.341	0.287			0.580

5.5. Structural model fitness criteria

In contrast to measurement models, structural models measure interrelationships between latent variables (Davari and Rezazadeh, 2013). According to Table 4, the coefficient of determination (R^2) was obtained to be greater than 0.5 for the exogenous variables. This demonstrates the high fitness of the model. Models with satisfactory structural fitness can predict the indices of endogenous constructs. Henseler et al. (2009) held that R^2 values of 0.02, 0.15, and 0.35 represent weak, moderate, and high predictive power for endogenous constructs with reflective indices, respectively (Davari and Rezazadeh, 2013). The model was found to have strong fitness.

Table 4
Structural model evaluation

Construct	GOF	R^2	Q^2
Model	0.28	0.506	0.16

Hypotheses

H1: Fraud has a significant impact on financial decisions

Table 5 reports the path analysis of H1.

Table 5
Path analysis of H1

Path	Path Coefficient	P-value	Result
Fraud → Financial decisions	0.364	0.0001***	Supported

***Significance level 5%

According to Table 5, the path coefficient was obtained to be 0.364. Hence, H1 is supported at a significance level of 0.05.

H2: Trust significantly mediates the relationship between fraud and financial decisions

Table 6 provides the path analysis results of H2.

Table 6

Path analysis of H2

Path		Path Coefficient
Fraud → Financial	Direct	0.364
Fraud → Trust → Financial decisions	Through Mediator	0.825*0.525=0.434
Sobel statistic	**P-value**	**Result**
4.777	0.001***	Supported

***Significance level 5%

According to Table 6, the direct path coefficient was found to be 0.364, while the path coefficient through the mediator was 0.434. As the direct path coefficient was smaller than the moderator path coefficient, the mediator was found to be significant, supporting H2.

H3: Auditing quality significantly moderates the relationship between fraud and financial decisions

Table 7 provides the path analysis of H3.

Table 7

Path analysis of H3

Path	Path Coefficient	P-value	Result
Fraud → Financial decisions Auditing quality moderation	0.354	0.0001***	Supported

***Significance level 5%

According to Table 7, the path coefficient was found to be 0.354 at a significance level of 0.05. Therefore, H3 is supported.

H4: Political relationship significantly moderate the relationship between fraud and financial decisions

Table 8

Path analysis of H4

Path	Path Coefficient	P-value	Result
Fraud → Financial decisions Political relationship moderation	0.560	0.0001***	Supported

***Significance level 5%

According to Table 8, the path coefficient was found to be 0.560, suggesting a significant relationship at a significance level of 0.05. As a result, H4 is supported.

Figure 4 illustrates the final model.

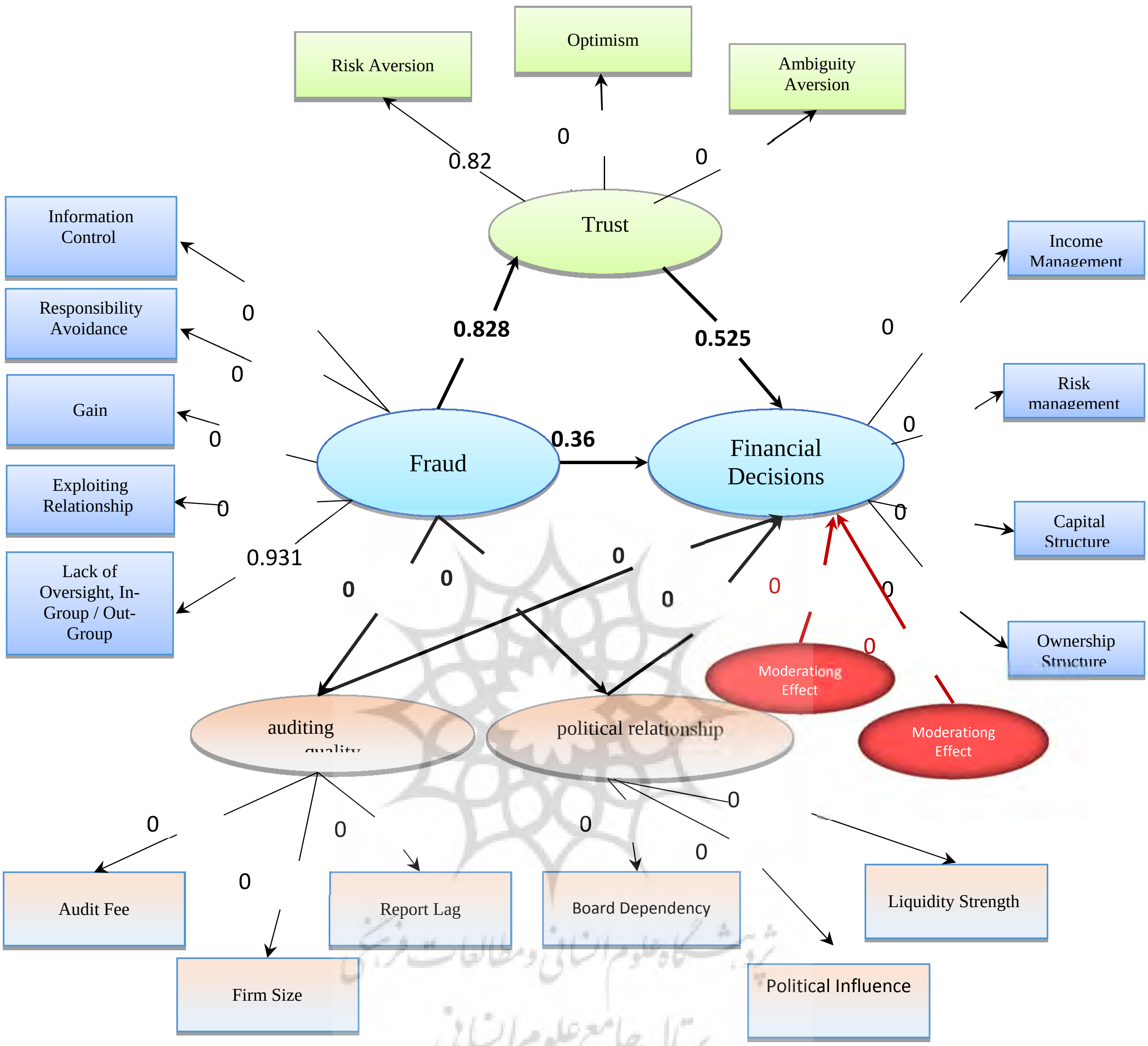

Fig. 4. *Diagram of the final model to check and test the hypotheses*

6. Conclusion and Suggestions

This study sought to develop a comprehensive systematic model of fraud dimensions and their impacts on financial decisions at companies listed on the Tehran Securities Exchange.

6.1. Statistical Analysis

Structural equation modeling (SEM) was adopted to model the relationship between fraud and financial decisions through an exploratory approach. Four hypotheses were proposed and examined. The path coefficient of H1 proposing the significant impact of fraud on financial decisions was calculated to be 0.364. The path coefficient for H2 suggesting the significant mediating role of trust was obtained to be 0.434. The path coefficient of the indirect relationship was larger than that of the direct relationship. Hence, H2 was supported. H3 proposed that auditing quality moderated the relationship between fraud and financial decisions. The path coefficient was measured to be 0.354, representing the significant moderating role of auditing quality. H4 proposed that political relations were a significant moderator of the relationship between fraud and financial decisions. The path coefficient was 0.560, confirming the significant moderating role of political relationship.

6.2. Scientific Analysis

To comprehensively explain the impacts of fraud on the economic status of companies, it is required to adopt an approach to factors impacting fraud, an approach to factors impacted by fraud, and an approach to moderators and mediators. An integrated framework could be developed by reviewing the literature. This study introduced a comprehensive model of factors through different approaches to analyze personal and structural fraud dimensions. Personal dimensions included self-interest and responsibility aversion, while the structural ones included abuse of relationships, information control, and a lack of intra- and extra-group monitoring. Furthermore, the impact of fraud on financial decision dimensions, e.g., income management, risk management, capital structure, and ownership structure, were analyzed. It was found that income management and capital structure had the highest exploratory power. Today, the capital structure is a backbone component in organizations. To offer products and/or services, organizations require financial resources to purchase assets and invest. The need for capital, financial resources, and different financial markets has risen with the enlargement of organizations and technological development. This, in turn, requires multiple non-opportunistic financing methods in organizations and requires CEOs to adopt an efficient strategy for financing and capital structure determination. The findings indicated that fraudulent behavior affects the selection of methods or the adoption of strategies to develop a capital structure. The ownership structure acceptably explained fraudulent behavior. The ownership structure constrains the opportunistic behavior of CEOs. These structures include managerial ownership, governmental ownership, external ownership, and institutional ownership. The owners have the power to control and make proper use of assets, and capital ownership moderates the relationship between free cash flows and asset utilization, allowing for controlling the opportunistic behavior of CEOs. It can be said that the fourth dimension is scientifically acceptable. It would be required to incorporate all factors with direct or indirect impacts on the relationship between fraud and financial decisions into a comprehensive framework. This study incorporated auditing quality, political relationship, and trust as moderating and mediating factors. The impacts of fraud on four dimensions of financial decisions, i.e., income management, risk management, capital structure, and ownership structure, were explored under mediating and moderating factors. trust was observed to mediate the relationship between fraud and financial decisions, while auditing quality and political relations moderated the relationship. It is recommended that accounting and auditing policymakers and regulatory and monitoring bodies consider the behavioral impacts of regulations and standards and the consequences of fraudulent behaviors. Furthermore, CEOs and boards are to enhance political relationship to improve monitoring/control effectiveness, protect investor interests, and fulfill social responsibilities, considering the adverse impacts of fraud on financial decisions. This would mitigate the impacts of opportunistic behaviors on the decisions of CEOs and income management and minimize risks. The reconsideration of the selection of managers through motivation and behavioral aspects reflected in overconfidence and the use of control and management mechanisms are recommended.

6.4. Future Directions

(1) Future works can explore the impacts of CEO overconfidence dimensions on CEO tendency to exert opportunistic behaviors and their mediating impacts on financial decisions.

(2) Future works may evaluate the impacts of inefficient and ineffective regulations, the comprehensive impacts of political relationship, and the impacts of monitoring/control indices at small and large scales to minimize fraud opportunities on the emergence of fraudulent behavior and financial decisions.

(3) It is suggested that novel approaches based on complex fraud methods, such as money laundering, be adopted. Frameworks newer than the proposed model could be developed. The analysis of complex behaviors in different dimensions based on theoretical foundations and completing fraud theories would enable a more efficient explanation of behaviors.

(4) Future works may explore the roles of other factors, e.g., organizational culture, institutional actors, ethics, and mechanized auditing, in the relationship between fraud and financial decisions.

(5) It is suggested that the proposed comprehensive model be examined in the financial markets of other developing countries so that the results could be compared.

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