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Identification and Ranking of Risk Factors Affecting the Probability of Bank Fraud (Case Study, Isfahan Province Resalat Bank)

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Abstract: *The purpose of the present study is to identify and rank the risk factors affecting fraud at Resalat Banks of Isfahan Province. This is an applied study in terms of purpose and it is a descriptive-survey study in method. The required data were collected using Delphi questionnaire in the period 2016-2017. The statistical population of the study consists of all experts working at Resalat Banks of Isfahan Province. The data of the study were analyzed through structural equations modeling using Smart PLS 2. The technical characteristics of the questionnaire including reliability and validity were examined in the measurement model, and the required modifications were made, and the structural coefficients of model were employed to examine the research hypotheses. Also, Friedman test was employed to rank the fraud risk factors. The findings of the research show that the factors of "financial stability", "liquidity", and the managers not following the internal controls and mandatory standards have been effective in fraud; also, the results showed, in ranking the factors, that the main reason for fraud is the managers not following the internal controls and mandatory standards where the intra-organizational security threats were ranked as the last priority.*

Keywords: *financial fraud, Delphi method, fraud risk factors, ranking.*

INTRODUCTION

Fraud is one of the most important threats to the financial institutes and banks in this day and age. The fraudulent scandals arising from greed and greedy financial activities in these organizations betray the public trust, especially the trust the investors put in the financial and investment reports (Rezaee and Crumbley, 2007). Despite the previous attempts such as the passage of the US Foreign Corrupt Practices Act 1977 and the Sarbanes–Oxley Act and the subsequent approval of pre-treatment prevention by virtue of similar acts in some countries, the managers' responsibility for fraud risk management has increased. Furthermore, an environment has been created wherein the managers of companies and organizations are seeking to develop and implement strategies to prevent and detect fraud and financial abuse and enforce the rules and regulations (Pedneault, 2010). Therefore, organizations should constantly try to prevent and detect fraud. An organization that stops fighting fraud or overlooks the risk of fraud is definitely exposed to a higher risk of fraud (Bishop and Hydoski, 2009). The emergence of multiple financial crises since the 1930s, the bankruptcy

of companies such as Enron and Worldcom, and the massive frauds in other companies in the 2000s, made everyone take actions on all levels to fight fraud through prevention, control, and monitoring (Pedneault, 2010). Iran has not been immune to the growth and damage caused by this economic phenomenon. In the past two decades, fraud has been the main topic of discussions in the financial markets and local socioeconomic institutions. The three-trillion embezzlement by Aria Group (ISNA, 2011) is an excellent example of fraud. Fraud has a considerably negative effect on different economic, cultural, and social dimensions. It is considered a serious threat to the reinforcement of the labor culture and the competitiveness of the constructive activities and foils the attempts made to reduce poverty and social discrimination as it impairs the society's ethics and culture, hinders the state policies on public interests, and eliminates the resources used to fight fraud. One of the main reasons for this problem is the organizations' unawareness of the fraud risk factors. The present research is an attempt to identify and prioritize the risk factors influencing the likelihood of fraud using a questionnaire and the Delphi method. In this study, four factors, namely liquidity, financial stability, managers' failure to abide by the internal controls and binding standards, and internal security threats are considered the fraud risk factors. The primary question this study seeks to answer is "what role does every risk factor play in the occurrence of fraud and what are the relatively importance levels and priorities of these factors?"

Theoretical Fundamentals

Definition of Fraud

According to indent 4 of section 240 of the Iranian Auditing Standards, fraud is "any fraudulent deliberate action taken by one or several managers, employees, or third parties to gin an unfair or illegal advantage" (The Technical Committee of the Audit Organization, 2009). In indent 9 of the same standard, a fraud and a mistake are distinguished from each other. It is stated that the only distinction between a fraud and a mistake is the intention. Besides, mistakes are the consequences of unintentional actions (The Technical Committee of the Audit Organization, 2009).

The Association of Certified Fraud Examiners (ACFE) approves of a universal definition of fraud and states: "Any illegal action characterized by deceit, secrecy, and breach of trust is a fraud. These actions do not require violence and physical coercion. Frauds are committed by people and organizations with the aim of acquiring money, assets, or services, avoiding payments or loss of services, or obtaining commercial or personal benefits" (Association of Certified Fraud Examiners, 2009).

Types of Fraud

Based on the report by the Association of Certified Fraud Examiners, the different types of fraud in financial areas include financial corruption, wealth abuse, and frauds in financial statements (Association of Certified Fraud Examiners, 2008).

Financial corruption: It is a form of fraud whereby the employees of a unit abuse their influence to obtain direct or indirect benefits. Examples are charging commissions and receiving bribes.

Wealth abuse or embezzlement: This is generally known as the personnel's fraud and it involves the theft or abuse of the organization's assets or balance using fake or misleading records/documents.

Frauds in financial statements: It refers to inaccurate presentation, removal of items, and failure to disclose adequate information with the aim of deceiving the users of financial statements, especially the investors and creditors. It is usually accompanied via the overestimation of the assets and revenues and the underestimation of the liabilities and expenses, vice versa.

Moreover, frauds can be classified into the following two groups based on the organization in which it happens: internal fraud and external fraud.

Internal fraud can also be classified into the groups of the personnel's fraud and management's fraud.

The main types of internal fraud on the personnel level are as follows: 1) embezzlement, 2) Accounts Payable (AP) Fraud, 3) Kickback Schemes, 4) Check Fraud and Tampering, 5) Wage and salary fraud, and 6) stealing the company's technical knowledge and classified information (Goldman and Kaufman, 2009).
The main types of internal fraud on the management level are as follows: 1) Travel and Entertainment (T&E) Fraud, 2) giving and receiving bribes, 3) embezzlement/theft, 4) conflict of interests, 5) fraudulent financial reports, and 6) failure to disclose important information (Goldman and Kaufman, 2009).
A fraud may be committed by people outside the organization against the organization such as the vendors, suppliers, contractors, counselors, and clients by increasing the bill price, resending the bill and low-quality material (as opposed to the contract), and presenting inaccurate information on the quality and value of the purchased good. This external group may resort to measures such as bribing the organizational members (Teymouri, 2007).

The Fraud Triangle and Methods of Fraud Detection and Prevention

The fraud triangle is a set of factors shared by the internal forgers on all organizational levels. The theory of the fraud triangle was put forward in the 1940s by a pioneering criminologist named Cressey. He conducted an extensive study on convicted embezzlers to determine the factor that motivates the seemingly righteous people to commit embezzlement (Goldman and Kaufman, 2009). The findings from Cressey's research framed a concept that is currently known as the fraud triangle. The ternary edges of the fraud triangle are pressure (motivation), opportunity, and justification. The pressure or motivation factor persuades the management or other employees to commit a fraud. The opportunity is a factor that is focused on the organizational structure and factors such as the lack of controls or the management's ability to overlook the controls set the scene for frauds. Justification is the psychological core of all frauds. To wit, it is the forger's ability to persuade himself/herself (to believe their action is right) or to convince others (to take ignorant measures). We should admit that forgers commit a fraud without intending to hurt others. Hence, they can convince themselves that their action is not wrong (Mahdavi and Kazeminezhad, 2010).
Wolfe and Hermanson (2004) argued that other qualities can be added to the fraud triangle. After adding "capability" to this triangle, they called it the "fraud diamond". They believe most frauds are committed when a person believes he/she has the capability to commit a fraud without having the right to.
Fraud prevention and detection are interconnected concepts with different meanings. Fraud prevention includes the policies, approaches, teachings, and communications that prevent frauds. However, fraud detection stresses the activities and methods that detect a fraud immediately with time sensitivity or detect the onset of a fraud (Rahimian, 2011).
According to the annual report by the Association of Certified Fraud Examiners, tipping, management's examination, internal audit, vouching, external audit, notices by legal authorities, supervision, confession, and IT controls are among the most important fraud detection methods. Of these methods, tipping has the highest likelihood of fraud detection. For instance, according to the biennial report by ACFE (Association of Certified Fraud Examiners), which was titled "reporting to nations on occupational fraud and abuse", disclosure serves as the first fraud detection method in companies and organizations around the globe.

Fraud Risk Factors

In the Iranian Audit Standard no. 24 and the Statement of Audit Standards (SAS) no. 99 (Association of Certified Fraud Examiners, 2002), a set of conditions and situations that signal the commitment of a fraud is introduced as the set of the "fraud risk factors". Multiple comprehensive examples of the fraud risk factors mentioned in the research hypotheses are listed below based on the appendix to the Iranian Audit Standard no. 24, the Statement of Audit Standards no. 99, the questionnaires, and the interviews held with the statistical population of the study.
The risk factors associated with the operating qualities, financial stability, and liquidity: These fraud risk factors are associated with the nature, complexity, transactions, financial conditions, and profitability of the unit. Examples are exertion of heavy pressure on the unit for the attraction of additional capital, the inability

to create liquidity during operations despite the earning reports, major complicated transactions with non-ordinary and related persons, instability of the borrowing rates, and ambitious and unattainable plans.
These risk factors include the risk factors associated with the bank managers' failure to abide by the local controls and binding standards, which are linked to the creation of an environment with the right internal controls in which all the management and the employees abide by the controls and standards. Examples are one or several employees' failure to concentrate on the key affairs or the lack of adequate supervision over the key controls.
The risk factors associated with the security threats are classified into the following three categories (Arab Maraz Yazdi, 2010).

A. Internal threats versus the external threats (according to the threat source): The organization's employees are the most important source of internal threats, while hackers are the main source of external threats.
B. Human threats versus non-human threats (according to the threat factor): The humans security treats originate from the human actions such as negligence, ignorance, and incapability. Furthermore, the non-human threats generally include the technical threats such as technical problems in the system.
C. Accidental threats versus deliberate threats (according to the committer's intention): The accidental threats do not originate from vengeful intentions whereas the deliberate threats originate from malicious intentions (e.g. computer frauds).

Research Background

Various studies have been conducted to study and rank the risk factors determining the likelihood of bank frauds. Some of these studies are listed hereunder.

Foreign Studies

Yan Huang et al. (2017) carried out a study to identify the fraud factors in financial statements and rank these factors using the fuzzy AHP technique. Through a review of the research literature and different expert opinions, they studied the different fraud factors. Their findings revealed that the most important fraud factor is pressure or motivation, while the least important factor is the attitude or rationality. Moreover, the five other fraud factors are poor performance, need for external financing, financial crisis, inadequate supervision by the board of directors, and competition or market glut.
In a study titled "the fraud threat to the banking industry: an empirical study in India".
Bhasin (2015) stated "with the growth of the banking industry in India, fraud increases in banks and forgers behave more cleverly. Hence, preventive steps such as fraud risk assessment can help reduce the possible loss and damage resulting from frauds. Hence, it is time to prioritize the security of banks. This research is a questionnaire-based study carried out on 345 bank employees. In this study, the employees' understanding of bank frauds and their factors are analyzed. The results of this study suggest that a lack of personnel training, weakness of the internal control system, and poor coordination among the managers, offices, and employees influence the commitment of fraud.
Olatunji and Adekola (2014) assessed the nature, causes, effects, diagnosis, and prevention of fraud in Nigerian banks in a study titled "an analysis of fraud in banks: the experience of Nigeria". Data was collected using questionnaires and the annual reports of the Nigeria Deposit Insurance Corporation (NDIC), and the information on all frauds in 10 banks with the highest number of frauds was used. This paper explored the behavior of the personnel who committed fraud. It concluded that in the battle against fraud, banks must adopt an effective internal control mechanism to establish balance between the punishment of the criminals and the rewards provided to properly treat the disappointed employees.
Chiezey and Agbo (2013) carried out a study titled "the effect of fraud and fraudulent actions on the performance of the Nigerian banks". In their study, they used the multiple regression analysis and correlation analysis methods and concluded that fraud is a substantial problem in the Nigerian banking system.

Therefore, the Nigerian banking system should improve the supervision, control, and reinforcement of banking actions and frequently use novel tools and specialized experts.

Local Studies

Barzegari Khanghah et al. (2015) assessed the importance of the fraud risk factors and the prevalence of these factors in Yazd Province. The results of ranking the fraud factors using the fuzzy TOPSIS technique revealed that the "inadequate supervision over the important local controls" and the "management's benefit in underestimating profit for reducing taxes using the wrong methods" have the first rank in the industries in Yazd Province as regards importance and prevalence.

Mardai et al. (2014) identified the risk factors determining the fraud likelihood in financial reports from the viewpoint of auditors and analyzed their effects on the financial performance of companies using the correlation and regression analysis methods. They concluded that fraud likelihood has a significant relationship with the management' qualities, the management's adherence to the local controls and binding standards, the risk factors associated with the market and industry conditions, the operating qualities, liquidity, and financial stability.

Hasheminezhad et al. (2012) conducted a field study to identify the parameters influencing embezzlement in in Iran with an emphasis on the massive 2011 embezzlement. They used the data collected from 117 questionnaires to prioritize these parameters. Finally, they proposed solutions and suggestions to prevent such incidents based on the results.

Amiri and Bokanizad (2008) authored an article to analyze the different types of bank fraud and smart fraud detection methods in the banking systems using the smart data mining methods. Their results revealed that banks are among the organizations that directly interact with the customers. Therefore, the behavioral analysis of the customers is vital for increasing their loyalty. In recent years, different activities have been performed to analyze customer behavior with the increased access to the customer data and the improvements made in the data analysis capabilities using the smart methods. One of the applications of the smart systems is in bank fraud detection. Bank frauds currently have a wide range and inflict enormous material and nonmaterial damage on the banks and their clients.

Research Method

The present research is an applied study with regard to its goal because its results can be used in practice. As regards the research methodology, this study is a descriptive survey because it describes the society's status quo without bias and it uses a questionnaire to gather data. The statistical population for this research included the experts at computer accounting information systems, the experts in the administration, and the financial experts at internal audit and examination in the administration and branches of Resalat Bank in Isfahan Province. According to the statistics, there are 13 branches of Resalat Bank in Isfahan Province. The data was gathered, the research hypotheses were analyzed, and the research objectives were attained during the period between 2016 and 2017. The desk and field methods were used to collect data in this study. The desk research method was used to collect information on the research literature and background. The field (survey) research method was also used to gather information to confirm or reject the research hypotheses. To this end, the Delphi-based questionnaire presented in Table (1) was used.

In the Delphi method, after making the decision, the experts are selected and the problem is explained to them. Some of the main requirements for the selection of the experts are as follows: being involved with the topic of discussion; having adequate information on the problem; being motivated for taking part in the Delphi process; and feeling the information that results from a group agreement will also benefit them (Landeta, 2006). In the Delphi method, homogenous samples are used to acquire a wide range of opinions, high-quality responses, and acceptable solutions. Some researchers including Pawell (2003) stated that generally 30 respondents are enough for the acquisition of information. By increasing the number of the respondents, duplicate responses are obtained and no new information is added. Moreover, purposive

sampling was used in most cases (Asgharpour, 2003). Finally, a total of 91 questionnaires were distributed in the statistical population. Following the elimination of the falsified questionnaires, 63 completed questionnaires were collected.

Table 1: The research scales and variables

	Variables	Variable notation	Data gathering tool	Number of questions	Source
Fraud likelihood	Liquidity	*L*	Delphi-based questionnaire	3	Questionnaire
	Financial stability	*F*	Delphi-based questionnaire	4	
	The managers' failure to abide by the internal controls	*O*	Delphi-based questionnaire	5	
	Internal security threats	*T*	Delphi-based questionnaire	7	

In the data analysis section, the Structural Equation Modeling (SEM) method was used with the Partial Least Squares (PLS) method in SmartPLS2 to fully analyze the research conceptual model. Since the statistical population completing the questionnaire was composed of 63 experts, this method is the best means of analyzing studies wherein the sample size is small (Diamantopoulos et al., 2012). Structural equation modeling consists of three parts namely the measurement model, the structural model, and the analysis of the general research model. The model variables are also grouped into the categories of latent variables and observed variables. The measurement model consists of questions about each dimension (the indices) and the corresponding dimension as well as the relationships between the questions and the dimensions. The measurement model is analyzed in this section. The structural model consists of all the constructs constituting the general research model (Kline, 2010). After identifying the proposed model and entering data onto the software, the researcher carries out the structural equation modeling (SEM) to assess the fit between the model and the data gathered from the study population. The structural equation modeling is a general and highly robust multivariable analysis technique that enables the researcher to simultaneously analyze the relationships among the different variables (Hoyle, 2012). In addition, the research variables are ranked using the Friedman nonparametric test and data is analyzed in SPSS 18.

Research Hypotheses

Considering the appendix to the Iranian Auditing Standard no. 24, the Statement of Audit Standards no. 99, the questionnaires, and the interviews held with the statistical population of this research, the research hypotheses were formulated as follows.

Hypothesis I: The existence of fraud risk factors associated with financial stability influences the incidence of fraud.

Hypothesis II: The existence of fraud risk factors associated with liquidity influences the incidence of fraud.

Hypothesis III: The existence of fraud risk factors associated with the managers' failure to abide by the internal controls and the binding standards influences the incidence of fraud.

Hypothesis IV: The existence of fraud risk factors associated with the internal security threats influences the incidence of fraud.

Research Findings

Internal Model Analysis

Internal model analysis: Reliability is a degree of equality of the results obtained using a similar method within a specific period of time under the similar conditions. It is measured through repeatability and multiplicity of the results (Drost, 2011). The partial least squares (PLS) method is used to measure the

reliability of the questionnaire. In this method, reliability is measured using two criteria: 1) Cronbach's alpha, and 2) Composite Reliability (CR). The Cronbach's alpha coefficient reflects the ability of the questions to properly explain the related dimensions. The composite reliability also measures the correlations between the questions about one dimension to examine the adequacy of the model fit. In other words, the CR of a construct is obtained from a ratio, in which the numerator shows the variance of the construct and its indices while the denominator shows the variance of the construct and its indices plus the error value (Fornel and Lareker, 1981). A Cronbach's alpha coefficient and a composite reliability index larger than 0.6 show the acceptable reliability (Moss et al., 1998). The reliability results of the two criteria in Table (2) indicate the acceptability of the criteria for this study.

The questionnaire validity was examined using the convergent validity criterion, which is specifically used in the structural equation modeling. The convergent validity refers to the ability of the indices of a given dimension to explain that dimension (Hulland, 1999). Fornel and Lareker (1981) introduced the average variance extracted (AVE) as a measure of convergent validity. Table (2) presents the results of this criterion for the research variables.

The average variance extracted (AVE) measures the total variance attributed to a construct in relation to the measurement error variance. In other words, it shows how much a construct explains the variance of its indicators (Fornel and Lareker, 1981). The measure for accepting AVE is 0.4 (Magner et al., 1996). As seen in Table (2), all the AVE values of the construct are larger than 0.4, reflecting the acceptable AVE for the convergent validity of the research questionnaire.

Table 2: The reliability and validity criteria for the research variables

	Cronbach's alpha	Composite reliability (CR)	Convergent validity (AVE)
Financial stability	0/779	0/801	0/675
Liquidity	0/620	0/800	0/629
Bank managers' failure to abide by the internal controls and binding standards	0/803	0/834	0/715
Internal security threats	0/685	0/840	0/517
Incidence of fraud	0/702	0/817	0/527
Source: research findings			

Assessing the Structural Model

The structural model is assessed using the following factors.

A. The t significance values: The causal relationship between the fraud risk factors and the likelihood of fraud in the structural model was measured in SmartPLS. First, the research hypotheses were examined using the Bootstrapping command in SmartPLS. The output of this software showed the t coefficients (Fig. 1). If the t values are larger than +1.96, they show the significance of the related variable and the subsequent approval of the research hypotheses (Vinzi et al., 2010).

B. The R Square (R^2): The R square shows the effect of an exogenous variable on an endogenous dependent variable and it is only calculated for a dependent variable. Chin (1988) considered the values that were near 0.67 to be acceptable, while considered the values near 0.33 and 0.190 to be normal and weak, respectively. In Figure (1), the number inside the circle for the endogenous variable, i.e. the likelihood of fraud, represents R^2. Since the resulting value is 0.657, it is considered to be strong. In other words, the independent variables significantly affect the likelihood of fraud.

Table 3: Analyzing the coefficients and the t values for the first hypothesis indices

Question	Standard coefficient	t statistic	Coefficient of determination	Factor loading
Q 1	0/31	4/26	0/12	0/894
Q 2	0/67	5/83	0/10	0/733
Q 3	0/54	4/50	0/42	0/780
Q 4	0/66	2/19	0/30	0/721
Source: research findings				

Table 4: Analyzing the coefficients and the t values for the second hypothesis indices

Factor loading	Coefficient of determination	t statistic	Standard coefficient	Question
0/710	0/13	5/88	0/44	*Q 5*
0/845	0/31	5/59	0/32	*Q 6*
0/702	0/09	7/21	0/89	*Q 7*
Source: research findings				

Table 5: Analyzing the coefficients and t values for the third hypothesis indices

Question	Standard coefficient	t statistic	Coefficient of determination	Factor loading
Q 8	0/86	8/18	0/34	0/822
Q 9	0/82	6/40	0/29	0/712
Q 10	0/60	4/31	0/37	0/725
Q 11	0/65	4/97	0/20	0/749
Q 12	0/53	5/88	0/42	0/788
Source: Research findings				

Table 6: Analyzing the coefficients and the t values for the fourth hypothesis indices

Question	Standard coefficient	t statistic	Coefficient of determination	Factor loading
Q 13	0/45	6/71	0/45	0/697
Q 14	0/49	5/58	0/28	0/768
Q 15	0/31	4/34	0/36	0/755
Q 16	0/42	4/39	0/34	0/812
Q 17	0/39	5/51	0/43	0/734
Q 18	0/68	4/27	0/45	0/794
Q 19	0/54	5/89	0/10	0/779
Source: Research findings				

Figure (1) depicts the general model in the standard estimation mode because only this mode allows a comparison between the observed variables that explain the latent variable. Moreover, based on the standard coefficients it is concluded that the managers' failure to abide by the internal controls and the binding standards (0.78), financial stability (0.65), liquidity (0.61), and internal security threats (0.24) are the variables with the greatest effects on the construction of the fraud likelihood variable in the order mentioned.

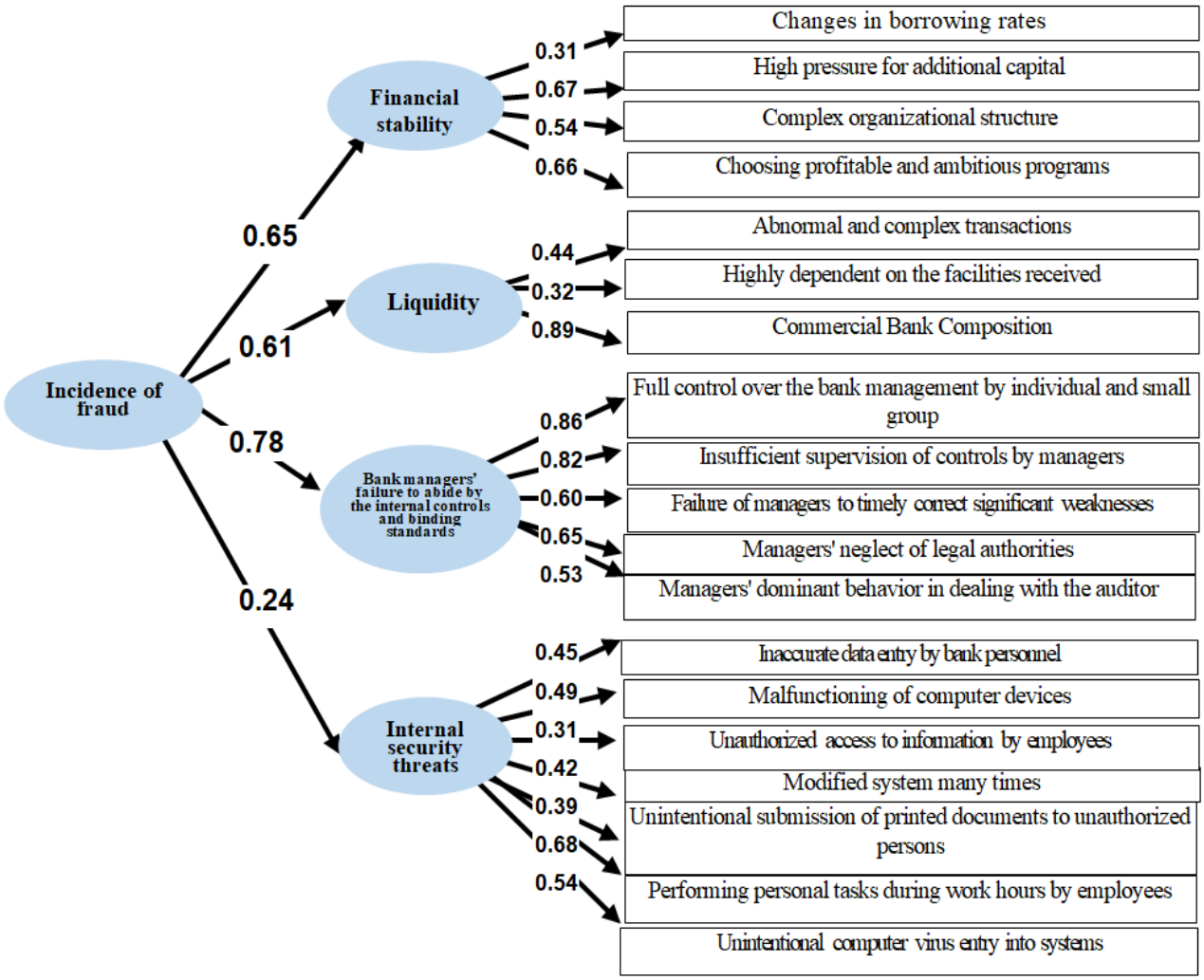

Figure 1: The impact factors and R^2 values for the structural equation model

Model Approval

The overall model fit: The goodness of fit (GOF) criterion is used in the general analysis of the structural equation models. This criterion enables the researcher to assess the overall fit of the general component after assessing the fit of the measurement model and the structural model. Wetzels et al. introduced 0.01, 0.25, and 0.36 as the values representing the poor, moderate, and strong goodness of fit (GOF), respectively (Davari and Reza Zadeh, 2013). The overall fit of the model is calculated via the following formula. The $\overline{\textbf{Communalities}}$ criterion is obtained by averaging the latent variables (AVE). The GOF calculated for the present study via the following relation is 0.634, which shows the strong model fit. Therefore, the results of the previous steps are reliable.

$$\textbf{GOF} = \sqrt{\overline{\textbf{Communalities}} * \overline{\textbf{R}^2}} = \sqrt{0/612 \times 0/657} = 0/634 \qquad (1)$$

Testing the Research Hypotheses

After examining the fit of the measurement sample, the structural sample, and the general sample, the researcher is authorized to test and examine the research hypotheses according to the data analysis algorithm in the PLS method.

Considering the explanations provided in the previous sections and Figure (2), the coefficient of the path between the fraud risk factors, which are associated with financial stability, and fraud incidence is larger than +1.96 (5.70). This value indicates the significant relationship between the risk factors that are associated with financial stability and incidence of fraud in banks. Therefore, the first research hypothesis is approved. Moreover, the results suggest that the respective significance levels for the fraud risk factors that are associated with liquidity, the managers' failure to abide by the internal controls and binding standards, and the incidence of fraud are 4.83 and 5.91. These values mirror the significant relationship between the aforesaid factors. Hence, the second and third research hypotheses are also approved. However, the fourth hypothesis is rejected because the coefficient of the path between the fraud risk factors associated with that factors and the fraud incidence is smaller than +1.96, reflecting the lack of a significant relationship. Table (7) also presents a summary of these results.

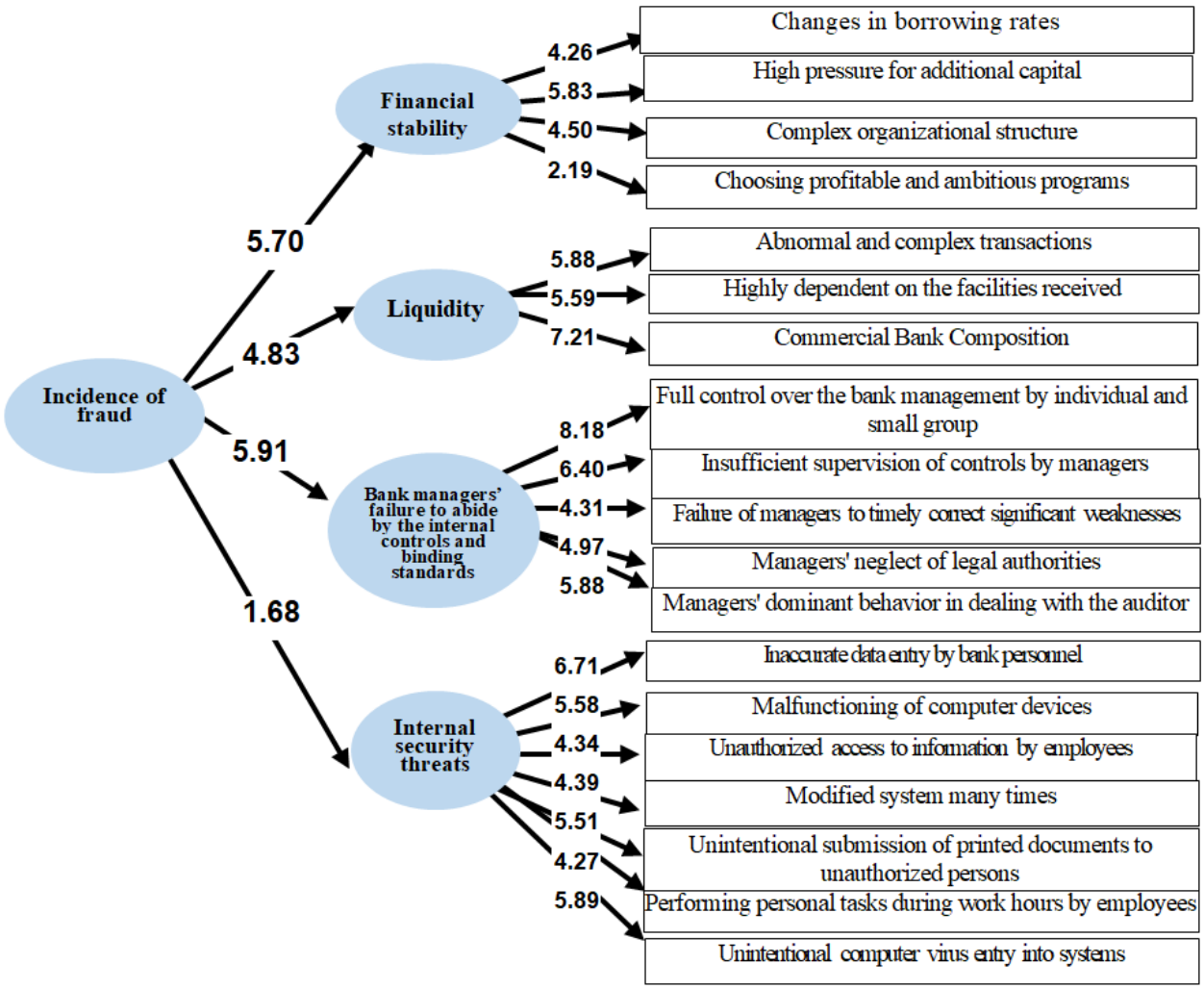

Figure 2: The t statistic values for the structural equation model

Table 7: The results of testing the research hypotheses

Hypothesis	Coefficient	t statistic	Result
1	0/65	5/70	Approved
2	0/61	4/83	Approved

3	0/78	5/91	Approved
4	0/24	1/68	Rejected
Source: Research findings			

Ranking the Fraud Risk Factors

The null hypothesis is rejected based on Table (8), the results of the Friedman test and the chi-squared test (26.492), and the significance level, which is smaller than 0.05. Besides, it could be stated that there is a significant difference between the average importance ranks of the fraud risk factors. The results listed in the table of the mean dimension ranks also indicate that the managers' failure to abide by the internal controls and the binding standards has the highest rank while the internal security threats have the lowest rank according to the statistical population.

Table 8: The results of the Friedman test on the fraud risk factors

Variable	Questions	Average rank	The dimensions condition in relation to each other
The managers' failure to abide by the internal controls	1. The complete domination of a small group or a person on the bank management	4/49	First rank
	2. Lack of adequate supervision over the controls by the managers		
	3. The managers failure to timely correct the important flaws in the internal control system		
	4. The managers' negligence of the legal authorities		
	5. The authoritarian treatment of the auditor by the management		
Financial stability	1. The high vulnerability of the bank to the variations of the borrowing rates	3/68	Second rank
	2. Placement of heavy pressure for the attraction of additional capitals		
	3. A complicated organizational structure consisting of multiple legal persons		
	4. Selection of ambitious and unattainable profitability plans by the bank		
Liquidity	1. The existence of unordinary complicated transactions in the bank	3/32	Third rank
	2. Considerable dependence on the facilities received and low ability to pay debts		
	3. The business combination of the bank due to the reports of poor financial performance		
Internal security threats	1. The unintentional provision of inaccurate information by the bank personnel	2/92	Fourth rank
	2. Computer systems malfunction		
	3. Unauthorized access of the personnel to the information		
	4. Repeated troubleshooting for preventing the outflow of false information		
	5. The unintentional disclosure of printed documents to unauthorized persons by the personnel		

	6. Accomplishment of personal tasks during the work hours by the employees		
	7. Unintentional transfer of computer viruses to the systems by the personnel		
	Indices of Friedman ranking test		
Quantity	Chi-squared statistic	Degree of freedom	Significance level
71	26/492	3	0/004
Source: research findings			

Conclusions and Suggestions

The first hypothesis regarding the effect of the fraud risk factors that are associated with financial stability on the incidence of fraud was tested. The results of testing this hypothesis indicated that the aforementioned risk factors can influence the incidence of fraud. To wit, the number of frauds committed increases with an increase in the fraud risk factors associated with financial stability. These factors originate from the great vulnerability of the banks to the borrowing rates, the pressure placed for the attraction of additional capital, the selection of ambitious plans, etc. Evidently, the bank managers can significantly overcome and control this obstacle through more proper planning and more accurate selection of the employees at the time of recruiting.

The results of testing the aforesaid hypothesis are in line with the findings reported by Maham et al. (2011). In their study, these researchers classified the risk factors associated with the operating qualities and financial stability as the fraud risk factors.

The second hypothesis regarding the effect of the fraud risk factors that are associated with liquidity on the incidence of fraud was also tested. The results of testing this hypothesis revealed the effect of the aforementioned factors on the incidence of fraud. In other words, the commitment of fraud increases with an increase in the fraud risk factors. These factors originate from the unordinary and complicated transactions in banks, poor financial performance, low ability to pay debts, etc. Hence, it seems a more accurate understanding of the personnel and the workplace, the proper management of labor, and the exertion of the right internal controls effectively influence these risk factors. The results of testing this hypothesis comply with the findings reported by Moradi et al. (2014). These researchers classified the liquidity-related risk factors as the risk factors influencing the incidence of fraud.

The third hypothesis regarding the effect of the risk factors associated with the managers' failure to abide by the internal controls and the binding standards on the incidence of fraud was tested. The results of testing this hypothesis revealed the effect of the aforementioned factors on the incidence of fraud. In other words, the fraud commitment rate increases with an increase in the fraud risk factors. These factors originate from the inadequacy of supervision over the controls, the failure to duly correct the internal control system, etc. Hence, the establishment of a proper internal control system and concern for the legal authorities can mitigate these risk factors. The results of testing this hypothesis are in line with the findings reported by Chiezey and Agbo (2013), Olatunji and Adekola (2014), and Bhasin (2015). The aforementioned researchers referred to the positive and significant effect of flaws in the internal control system and the failure to train the personnel on the incidence of fraud. The findings from the study by Maham et al. (2012) and Moradi e al. (2014) also confirm the findings from the present study. In their study, these researchers classified the risk factors associated with the operating qualities, liquidity, financial stability, and managers' adherence to the internal controls and binding standards as the factors influencing the incidence of fraud.

It is worth stating that the fourth hypothesis was rejected because the coefficient of the path between the fraud risk factors associated with those factors and incidence of fraud was smaller than +1.96, which indicated the lack of a significant relationship.

As regards the factor ranks, the managers' failure to abide by the internal controls and binding standards and financial stability have the highest levels of importance among the risk factors influencing the occurrence of fraud. Moreover, liquidity has the third rank and comes before the internal security threats.

Practical Suggestions

According to the discussion above, the most important steps in the prevention of fraud are as follows: "improving the effectiveness of bank governance, especially through the establishment of an internal control system and an effective and independent board of directors" for reducing the opportunities; "reviving the culture of righteousness, trustworthiness and honesty among the personnel and managers" for reducing and even eliminating the immoral tendencies and justifications of fraud by forgers. By improving these two edges of the fraud triangle the third edge is improved because "power, authorities, easy paths to fraud, feeling superior, greed, anger, revenge, etc." result in greed and motivation for the commitment of fraud. Therefore, the elimination of these factors reduces the motivation for fraud. The authorities of banks are recommended to hold training workshops to set the scene for raising the overall awareness of the personnel about the aforementioned risk factors. Hence, the banks and financial institutes are recommended to set up an audit committee, establish internal controls, and develop a code of ethics.

Suggestions for Future Research

The following suggestions are presented for the future research.

1- The degree of incorporation of the fraud risk factors in audit plans
2- Fraud control and prevention using the fraud risk factors
3- Comparing the fraud risk factors with legal cases of past financial frauds
4- Assessing the fraud risk factors in the financial statements and wealth abuse and comparing their efficiencies in fraud estimation

Research Constraints

Similar to the other questionnaire-based studies, there were constraints on this study due to the research scales. Furthermore, the bank responses may not be highly reliable given the intrinsic limitations of the questionnaire, which are considered confidential and difficult to access despite the existence of concrete solutions for them. The present study should also be solely associated with the personnel in the administration and branches of Resalat Bank in Isfahan Province. Hence, the results of this study should be generalized with caution to the other organizations.

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