IDENTIFICATION AND RANKING OF THE RISK FACTORS AFFECTING THE PROBABILITY OF OCCURRENCE OF FRAUD IN BANKS (A CASE STUDY: AN IRANIAN BANK)

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ABSTRACT

Banks and financial institutes are seriously seeking to expedite the identification of the effective risk factors influencing the probability of occurrence of fraud due to its direct impacts on these institutes' provision of customer services, reduction in the operational costs, as well as its survival in the market as a credible and reliable provider of financial services. Thus 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 is comprised of 70 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 instability ", "liquidity", "the managers not following the internal controls and mandatory standards " and **"**Internal security threats" have been effective in fraud; also, the results showed, in ranking the factors, that the main reason for fraud is **"**Internal security threats" and " Financial instability " were ranked as the last priority.

Keyword: 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 and Unfortunately , there is no study providing an estimate of the fraud costs and its examples in Iran despite the public acknowledgement of the institutionalization of corruption. In addition, it is generally preferred not to research this topic. Therefore, despite the detection of major fraud and corruption cases, there is no official and nonofficial statistics on this issue. It is also sometimes even announced that the fraud and corruption index is at its lowest level in Iran (Davani and Amani, 2010). However, there is evidence of the importance of this issue in Iran. For instance, according to the international financial corruption index, Iran had the 130th rank among 168 countries that were assessed by the Transparency International in 2015 (the Transparency International report, 2015). In other words, Iran has the 130th rank among 168 countries regarding one of the examples of fraud, which is financial corruption. The three-trillion embezzlement by Aria Group (ISNA, 2011) is an excellent example of fraud. The occurrence of these frauds gave rise to some questions in the minds of every individual in the society, including "why some observers report fraud cases, while others overlook it? Answering this question especially in accounting profession which is trying to restore the lost trust of the society is of crucial importance. In terms of what mentioned above, the aim of this study is to find an answer to this questions: what factors are involved in fraudulent cases? How can these effective factors be presented in a model? Which factors are most important in fraud occurring, in order of importance? 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 instability, managers' failure to abide by the internal controls and binding standards, and internal security threats are considered the fraud risk factors. Therefore, in this study, for the first time in Iran, we investigated risk factors affecting the occurrence of bank fraud, presented a model in this field and prioritize these factors.

THEORETICAL FUNDAMENTALS
Definition of Fraud
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, 2012).

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, 2012).

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).

Fraud Theories (Fraud Triangle and Fraud Diamond)
The term the "fraud triangle" was coined by Cressey (1953). Cressey believed three factors, namely "pressure", "opportunity", and "rationalization", are among the determinants of fraud. Accordingly, fraud generally results from the following three situations.

1) The management or other employees commit fraud due to a motivation under pressure.
2) The current situation sets the scene for commitment of fraud. Examples are the lack of control, inappropriate existing controls or the management's ability to avoid the controls.
3) People who commit fraud can rationalize their action and some of them have an approach, a trait, or a set of moral principles that allow them to intentionally and deliberately commit violations.

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 Detection and Prevention Methods
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).

Fraud, theft, and embezzlement are often committed in the course of a process, in which the committer seeks to meet financial needs except that fraud is generally committed through collusion or the involvement of multiple individuals (Davani and Amani, 2010). In the annual report by the Association of Certified Fraud Examiners (2014) it is stated that the disclosure of information, especially by the employees, is still the most effective fraud detection method because 42.2% of frauds detected in the early stages are detected using this method. Since disclosure of information by the employees plays an important role in fraud detection and prevention, it is important to improve our understanding of the fraud reporting process and the factors influencing disclosure of information by the employees (Birnberg,, 2009). Fraud commitment mainly involves multiple people that cooperate inside the organization (Committee of Sponsoring Organizations of the Treadway Commission, 2002). Particularly, 42% the cases of fraud investigated by the Association of Certified Fraud Examiners involved several criminals (Annual report of the Association of Certified Fraud Examiners, 2012). Moreover, evidence suggests that the employees who were not involved in a fraud were often aware of its commitment (the Association of Certified Fraud Examiners, 2012). The examination carried out by Ernst & Young indicated that 20% of the American respondents were personally aware of the commitment of fraud in their workplace. According to the disclosure report by the National Business Ethics Organization, the reason provided by the employees for their failure to report immoral behavior was that they believed "other people could have also reported that behavior." Meanwhile, the shared motivation for reporting immoral behavior was that "no other person could have done it" (National Business Ethics Organization, 2012).

The Sarbanes-Oxley Act is one of the major evolutions in the professional history of accounting. Although this act was passed to influence the internal auditors and managers of organizations,

it provided new opportunities to accountants. Following the enforcement of this act, the demand for the accounting profession increased drastically. In addition, the Sarbanes-Oxley Act required the organizations to conduct more investigations to detect fraud. This act made it extremely difficult for organizations to investigate fraud. Organizations need independent external services to investigate fraud. Hence, accountants are the best option for organizations in this situation (Levine, 2008).

In 2011, the U.S. Securities and Exchange Commission passed the Dodd–Frank Act. This act highly motivated the public as informants exposing corruption. If a person offers information, which leads to the detection of financial offenses and court punishments that are more than one million dollars, he/she receives a cash reward. This reward can be equal to 10 to 30% of the worth of the financial corruption reported by the informant. This motivates people to abide by moral rules and do not overlook the fraudulent activities in their organizations (Levine, 2008).

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 instability, 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
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".

Khajavi et al (2017), investigated the modeling of variables affecting the fraud discovery in financial statements using the data mining techniques. The findings of their study indicated the desired performance of the proposed models concerning the fraud prediction in financial statements.

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.

Moradi 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 instability.

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 the Delphi-based questionnaire was used to gather data.

In Delphi method, basically there is not an exact mechanism to identify some individuals or members to include in the study. Hsu and Sandford (2007) claimed that Delphi group should be specialized in specialty areas related to the subject of interest and be open to new ideas and horizons (Hsu and Sandford, 2007). Hogarth (1978) argued that the ideal number of members for the Delphi method is somewhere between six and twelve member and according to Clayton (1997), as long as a combination of experts having various specialties is employed, 5-10 individuals are enough (Somerville and Jerry, 2008). One of the pivotal steps in Delphi method is selecting qualified members for the Delphi's group. In the previous studies no specific sampling method has been recommended. Snowball sampling can be utilized. This method is recommended when the members of the group cannot easily be identified. Since 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 in branches of Resalat Bank in Isfahan Province, snowball sampling approach was employed. In this method, each respondent introduces another person to answer.

Then, by doing a comparative study on the guidelines of *Basel Committee on Banking Supervision*, reports of the US *Association of Certified Fraud Examiners*, and Iran Auditing and Accounting Manifests No.24 and 99, leading to the extraction of the fraud risk factors affecting the probability of the occurrence of frauds. Subsequently, the extracted risk factors were classified into four categories, including *liquidity*, *financial instability*, managers' disobedient to domestic controls and obligatory standards, and intra-organizational security threat. The next stage was allocated to data collection, for which a questionnaire consisting of 24 questions was designed. In this way, initially, experts of this field, both agreeing and disagreeing, were asked about each of these factors and then, in case of agreement, the intensity of agreement was evaluated in a 1-5 range. Finally, using the abovementioned questionnaire along with the Delphi method, an opinion poll was conducted among the active experts of the financial/banking field.

RESEARCH HYPOTHESES
The following hypotheses are proposed to study the effect of the fraud risk factors on the commitment of fraud.

Hypothesis I: The risk factors associated with financial instability have a significant effect on the occurrence of fraud.
Hypothesis II: The risk factors associated with liquidity have a significant effect on the occurrence of fraud.
Hypothesis III: The risk factors associated with the managers' disobedience to the domestic controls and obligatory standards have a significant effect on the occurrence of fraud.
Hypothesis IV: The risk factor associated with intra-organizational security threats have a significant effect on the occurrence of fraud.

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 70 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 FINDINGS
Internal Model Analysis (Reliability and validity in the partial least square method)
Reliability and validity in the Partial Least Square (PCL) method are studied in two sections: a) the measurement model section, and b) the structural model section (Myers, 1997). The following three parameters are used to study the fit of the first section, i.e. the fit of the measurement models: index reliability, convergent validity, and divergent validity.

A) Index reliability

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 Three criteria: 1) Cronbach's alpha, and 2) Composite Reliability (CR) and 3) Measuring factor loadings.

Cronbach's alpha and Composite Reliability
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 (Fornell and Larcker, 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 (1) indicate the acceptability of the criteria for this study.

Measuring factor loadings
The factor loadings are calculated using the correlation between the indices of a construct and the construct. If the factor loading is greater than or equal to 0.4, it indicates the variance between the construct and its indices exceeds the variance of the measurement error of that construct and thus the model reliability is confirmed. However, some authors such as Rivard and Huff (1998) introduced 0.5 as the criterion for the factor loadings. According to tables (3), (4), (5), and (6), the factor

loading values of all statements exceeds 0.5 Therefore, the model reliability is fully confirmed.

B) Convergent validity
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). Fornell and Larcker (1981) introduced the average variance extracted (AVE) as a measure of convergent validity. Table (1) 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 (Fornell and Larcker, 1981). The measure for accepting AVE is 0.4 (Magner et al, 1996). As seen in Table (1), 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 (1): The reliability and validity criteria for the research variables

	Cronbach's alpha	Composite reliability (CR)	Convergent validity (AVE)
Financial instability	0/613	0/768	0/531
Liquidity	0/891	0/918	0/693
Bank managers' failure to abide by the internal controls and binding standards	0/692	0/815	0/528
Internal security threats	0/867	0/895	0/523
Incidence of fraud	0/815	0/883	0/659

Source: Software output PLS

C) Divergent validity
One of the techniques employed for measuring divergent validity is cross-loadings approach. In this method, if the correlation between the indices of a construct and another construct other than its respective construct is higher than the correlation between that index and its respective construct, divergent validity is questioned (Hensler et al, 2009). According to the output of the software summarized in table 2, the correlation

between the indices and their respective constructs is higher than the correlation between them and other constructs, implying the divergent validity of the model. In other word, square root of the average variance extracted (AVE) of latent variables arranged in the houses below the original diameter in the current study is greater than the correlation between those arranged in the houses of the original diameter. The test results above indicate the appropriate fitting of the model.

Table (2): Divergent validity measurement matrix by cross-loadings approach

Internal security threats	Bank managers' failure to abide by the internal controls and binding standards	Liquidity	Financial instability	Incidence of fraud	
0/391	0/360	0/041	0/417	0/576	Q1
0/500	0/448	0/248	0/197	0/839	Q2
0/449	0/459	0/242	0/309	0/882	Q3
0/525	0/498	0/189	0/328	0/906	Q4
-0/102	0/008	-0/101	0/552	0/074	Q22
0/165	0/195	-0/057	0/817	0/338	Q23
0/111	0/140	-0/112	0/788	0/306	Q24
0/204	-0/017	0/863	-0/115	0/265	Q5
0/091	-0/042	0/879	-0/103	0/165	Q6
0/145	-0/016	0/779	-0/062	0144	Q7
0/223	-0/061	0/795	-0/097	0/157	Q8
0/143	0/350	Q18	-0/064	0/171	Q9
0/354	0/274	Q19	0/169	0/371	Q10
0/282	0/333	Q20	0/119	0/411	Q11
0/292	0/287	Q21	0/110	0/410	Q12
0/237	0/566	0/013	0/173	0/391	Q13

0/820	0/365	0/075	0/105	0/543	Q14
0/870	0/425	0/185	0/118	0/458	Q15
0/873	0/401	0/118	0/147	0/477	Q16
0/701	0/247	0/317	0/208	0/503	Q17
0/702	0/236	-0/048	0/093		
0/565	0/028	0/103	0/087		
0/563	0/331	0/198	-0/047		
0/610	0/162	0/183	0/087		

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 Smart PLS. First, the research hypotheses were examined using the Bootstrapping command in Smart PLS. 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 0.629, 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	Factor loading
Q 22	0/234	2/353	0/552
Q 23	0/106	7/710	0/817
Q 24	0/109	7/201	0/788

Source: research findings

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

Question	Standard coefficient	t statistic	Factor loading
Q 5	0/185	4/651	0/863
Q 6	0/164	5/370	0/879
Q 7	0/173	4/513	0/779
Q 8	0/199	3/990	0/795
Q 9	0/165	5/101	0/842

Source: research findings

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

Question	Standard coefficient	t statistic	Factor loading
Q 10	0/089	8/412	0/749
Q 11	0/099	7/662	0/762
Q 12	0/080	10/116	0/807
Q 13	0/110	5/133	0/566

Source: Research findings

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

Question	Standard coefficient	t statistic	Factor loading
Q 14	0/050	16/245	0/820
Q 15	0/039	22/113	0/870
Q 16	0/039	22/170	0/873
Q 17	0/086	8/120	0/701
Q 18	0/093	7/533	0/702

Q 19	0/103	5/460	0/565
Q 20	0/113	4/983	0/563
Q 21	0/115	5/294	0/610
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 (0.363), internal security threats (0.351), Financial instability (0.282), and liquidity (0.207) are the variables with the greatest effects on the construction of the fraud likelihood variable in the order mentioned.
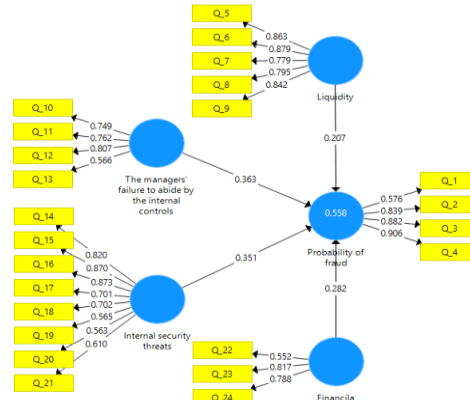

Figure (1): Variance, factor load, and path coefficient

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 **Communalities** criterion is obtained by averaging the latent variables (AVE). The GOF calculated for the present study via the following relation is 0.572 , which shows the strong model fit. Therefore, the results of the previous steps are reliable.

$$GOF = \sqrt{Communalities} \times \sqrt{R^2} = \sqrt{0/586} \times \sqrt{0/558} = 0/572 \quad (1)$$

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 instability, and fraud incidence is larger than +1.96 (3.299). This value indicates the significant relationship between the risk factors that are associated with Financial instability 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 "internal security threats", and the incidence of fraud are (1.971), (3.182) and (3.352) These values mirror the significant relationship between the aforesaid factors. Hence, the second, third and fourth research hypotheses are also approved. Table (7) also presents a summary of these results.
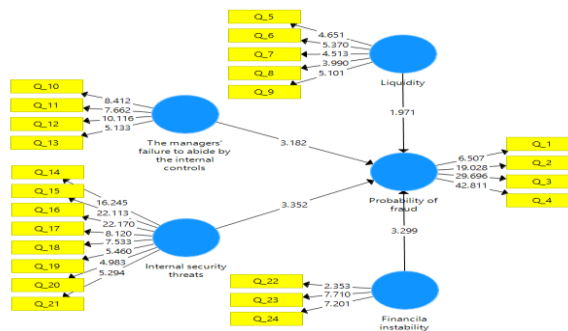

Figure (2): t statistic

The results of testing the research hypotheses are presented below based on the results listed in the tables, including Table (1), which confirms the approval of the proposed models.

Table (7): The results of testing the research hypotheses

Row	Hypothesis	Path coefficient	t statistic	Result
1	**The risk factors associated with financial instability have a significant effect on the occurrence of fraud**	**0/282**	**3/299**	Approved
2	**The risk factors associated with liquidity have a significant effect on the occurrence of fraud**	**0/207**	**1/971**	Approved
3	**The risk factors associated with the managers' disobedience to the domestic controls and obligatory standards have a significant effect on the occurrence of fraud**	**0/363**	**3/182**	Approved
4	**The risk factor associated with intra-organizational security threats have a significant effect on the occurrence of fraud**	**0/351**	**3/352**	Approved
Source: Research findings				

Ranking the Fraud Risk Factors

In terms of broad consensus regarding fraud risk factors in Resalat banks of Isfahan province, now this question is posed that which factors are considered as the most important ones from the respondents' point of view, in other words, how risk factors are ranked? How much are they important in occurring fraud? And what factors involved in fraud are more significant? Hence, to investigate the significance of difference among average responses given to each factor, we employed Friedman .

test. This test is used to investigate ranks for several independent variables. Friedman test results have been represented in chart (8). As displayed, all statistics of chi-square, are significant at the 5% level, implying that according to experts the importance of these factor are not the same and the average of respective rates related to the factors engaged in managers' non-compliance with internal audit, financial instability, liquidity and internal security threats are not similar

Table (8): Friedman test result

Significance level	Degree of freedom	Chi-squared statistic	Average rank	Rank status	Variable
0/000	3	110/227	3/50	First	Internal security threats
			2/96	second	the managers' failure to abide by the internal controls and binding standards
			2/16	third	liquidity
			1/38	fourth	Financial instability

Ultimately, the relative importance of the factors was examined from the experts' point of view, which results have been shown in table (9).

Table (9): Expert ranking of all four categories of fraud risk factors

Significance level	Chi-squared statistic	Average rank	Questions	Factor
0/000	181/163	5/64	**Staff unauthorized access to information**	**Internal security threats**
		5/59	**Improper performance of computers**	
		5/51	**Entering false information unintentionally by bank personnel**	
		5/41	**Frequent correction of the system in order to prevent false data output**	
		4/27	**Intentional presentation of printed documents to unauthorized persons by employees**	
		3/37	**Undeliberate activities by staff members resulting in the penetration of viruses into the system**	
		3/28	**Customers' unauthorized viewing of documents on a display or a printed page**	
		2/91	**Doing personal tasks over working hours by bank employees**	
0/002	15/140	2/73	**Complete control of a person and a small group over bank management**	the managers' failure to abide by
		2/66	**Managers' negligence towards legal authorities**	

		2/48	Lack of sufficient supervision over internal controls by managers	**the internal controls**
		2/14	Managers' negligence in timely rectification of critical weaknesses in internal control system	**and binding standards**
0/000	57/583	3/55	Unusual rapid growth especially compared to other active banks	**liquidity**
		3/40	The inability of banks to create cash flow from operation despite its presence of profits	
		3/04	High dependence on the loans and low ability in debt repayment	
		3/03	Poor bank financial situation in cases where management has guaranteed major debts	
		1/98	Bank's commercial composition due to reporting poor financial results	
0/000	17/156	2/28	Choosing ambitious and unreachable profitability programs by bank	**Financial instability**
		2/02	High pressure in the bank to generate extra capital	
		1/70	High bank vulnerability to borrowing rates changes	

CONCLUSIONS

The first hypothesis regarding the effect of the fraud risk factors that are associated with Financial instability 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 instability. 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 instability 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 instability, and managers' adherence to the internal controls and binding standards as the factors influencing the incidence of fraud.

The fourth hypothesis regarding the effect of fraud risk factors related to inner organizational security threats in the occurrence of cheating was presented and tested. The results of this test show that the mentioned risk factors could affect the occurrence of fraud. These factors can be caused by: Inaccurate data entry, unauthorized observations, incorrect operation of devices (institutions) and other items that were identified by experts. Therefore, bank managers must be familiar with a variety of threats and ways of creating inner organizational security to succeed in establishing security in their organizations. Of course, threats cannot be completely eradicated, but they can be limited to some extent. The result of this hypothesis is consistent with the findings of Loch et al (1992) and Haugen and selin (1999).

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

SUGGESTIONS
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- Considering the identification of the fraud risk factors on four levels and the ranking conducted, investors and financiers of financial institutes and banks are recommended to invest in banks in which there are fewer important fraud-compliant clauses and the research results are taken into account in making decisions. Fraud control and prevention using the fraud risk factors

2- Ranking expert assessments by the probability of fraud can be an effective guide for auditors in estimating the audit risks. Since ranking is performed in the present study, auditors are recommended to pay adequate attention to the ranking carried out in their audit processes.

3- Assessing the fraud risk factors in the financial statements and wealth abuse and comparing their efficiencies in fraud estimation

Research Constraints
The present study faced with some limitations as follows:

1- One of the drawbacks of the questionnaire is the possibility of not understanding the meaning and content of the questionnaire questions and ambiguous question that according to the novelty of some phrases, in the present study, the probability of this occurrence was high. Therefore, we tried to remove the ambiguities as far as possible by providing helpful explanations in the questionnaire, making phone calls to decipher the questions in more details and providing additional explanations in emails sent to experts.

2- The majority of selected experts for implementation of delphi method were authorities from different parts and mostly were faced with time constraints to complete the questionnaire and this consequently cause the data collection process to last longer.

3- Some experts in this field, despite the pursuit of the researcher, unfortunately refused to cooperate in this research and this was another limitation of this study.

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