Explaining the Relationship Pattern between Risk Management and Financial Performance of Banks

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Abstract
In recent years there were companies such as banks which have used the value of quantitative analysis concerning operational information to evaluate the amount of risk as well as the risk involved in operating in some areas such as lending. Although risk management implementation may not specifically change the level of organizational risk, it is likely to affect the actual measurement and monitoring of risk across the company. As a result of targeting specific levels of risk, companies are likely to reduce performance-related volatility fluctuations while reducing the level of realization of their business goals and objectives, which include generating profits and increasing shareholder wealth. The purpose of this research is to explain the relationship between risk management and financial performance in banks. Risk management in banks has been used in this study using four methods of qualitative (artificial) evaluation, rating assessment, maturity level attitude and quantitative attitude. The first three cases were field research and expert opinion polls and the last was the financial information of 21 banks listed on the Tehran Stock Exchange during the period 2013 to 2019. The purpose of this research is applied research and correlation analysis and regression are used in the analysis of relationships. The results of estimating the relationship between quantitative risk management with banks' financial performance showed a direct relationship between risk management and adjusted return on assets.
Keywords: Risk, Risk Management, Survey Approach, Poison Approach, Quantitative Approach.

1. Introduction

Organizations today are exposed to a variety of risks from a variety of sources, including globalization, legal reform, environmental change, technological change, complex financial patterns, and changes in corporate governance. In such a dynamic environment, improving organizational performance in terms of profitability and value of the company is one of the major challenges of organizations. Improving organizational performance is highly dependent on the organization's control system and management. In fact, organizations with strong control systems and risk management are able to adapt to today's complexities.

For this reason, various studies have introduced organizational risk management as a new method of organizational control system that allows organizations to integrate a wide range of risks and risks (including strategic, operational and financial risks) in a coordinated system. And integrated organizational, pay attention.

Enterprise Risk Management (ERM) is a system that helps organizations to improve the performance inside and outside the organization by controlling, managing and organizing risk management activities in comparison with traditional methods of risk management. It is noteworthy that corporate risk management in developed countries such as the United States, Canada, Australia and European countries is more successful than developing countries. In other words, developed countries have a higher growth rate of risk management design and implementation than developing countries.

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As a result, previous research related to corporate risk management is more limited to developed countries [12].

On the other hand, little research has been done in developing countries. Therefore, according to the suggestions of various researchers and authors in the field of company risk management who recommend doing more research in developing countries [2], this study is an attempt to develop research literature in Iran as a country. It is considered to be developing in the Middle East.

The importance of the present study is that so far the relationship between company risk management and company performance in terms of profitability and company value has not been considered comparatively based on different models of company risk management in the financial industry. The reasons for choosing Iran and its financial institutions are as an example of a study related to the nature and importance of the financial sector. Financial companies are among the first companies to adopt and implement the company's risk management system and consider employing a senior risk manager. Financial industry organizations are exposed to a wide variety of risks, because they deal with different types of customers, complex transactions and a wide range of financial assets, so risk management is more important in the financial industry than other industries [10] . In addition, the financial industry has a vital impact on the health and success of these companies due to the intermediary role of this industry in providing or guaranteeing finance and also its efficient role in allocating resources in today's modern economy. According to the 20-year vision plan, Iran is targeted by 2025 as the first power in the Middle East region in terms of economy, science and technology. In this regard, due to the important impact of this industry on Iran's economy and the vital role of the success of institutions and companies operating in this industry on Iran's economic growth in order to achieve first place in the Middle East by 2025, the study of factors affecting the performance of this industry is of special importance. The existence of any problem and crisis in this industry can have a great negative impact on the entire economy. In addition, due to problems such as international sanctions, sharp exchange rate fluctuations and the creation of financial institutions and unauthorized investments, it seems necessary to improve risk management in the Iranian financial industry. Therefore, there is sufficient ground for such studies in Iran, which is mainly outside the scope of international research and has not been used as a selected example in the field of company risk management. Choosing an industry helps the researcher to control the differences that may arise from regulatory and market changes between industries. In addition, analysis in a particular industry has better internal validity than analysis in several different industries. According to the resource-based theory of the organization, the existence of intangible assets is rare, unique, valuable and irreplaceable, which as a strategic asset can create a competitive advantage and improve the performance of the company. Adopting an integrated approach to corporate risk management and using it as a tool in the internal control system enables organizations to improve resource allocation and utilization by increasing equity returns and higher capital returns. Improve company performance effectively. However, a review of the research literature shows that despite conventional studies that have examined the relationship between management control system and firm performance, they have paid less attention to corporate risk management as the newest and most comprehensive control system. [9].

In terms of practical importance, this study can help the leaders of the organization, risk managers and managers of institutions and companies active in the financial industry to help the organization based on the company's risk management and its impact on performance, success and sustainability of the company. Improve yourself.

Theoretical foundations and research background

It is not long before companies such as banks, financial institutions and insurance companies have used the value of quantitative analysis of operational information in estimating the amount of facilities and risk of operations in various fields such as granting facilities and estimating premiums.

Companies in the financial, investment, and insurance industries have historically invested in risk identification and assessment processes and technologies. These processes use data analysis to assist management in monitoring risk-based value and maximizing the benefits of risk-based economic decisions. Despite these investments, a review of the theoretical foundations of the research shows that the banking industry, as a leader in risk assessment and management practices, has specifically experienced experiences of failure in risk assessment. The credibility of banking risk strategies was also criticized as one of the main causes of the recent recession between December 2007 and June 2009. In

recent years, other significant examples of risk assessment operations have had a significant impact on the performance of banks [13].

Hoffman [6], for example, allowed just about every employee to make a risky transaction. Although Morgan Chase was able to withstand a loss of $ 5.8 billion, initial estimates put the bank at a loss of $ 9 billion. Barings Bank was unable to continue the risky trades created by Nick Lesson and was sold. In cases where there was not even a global downturn, several other large companies faced a lack of risk management strategy or a failure in risk management and customer information security strategies.

In order to identify the lack of a systematic risk management plan in the organization, in The Committee of Sponsoring Organization of the treadway Commission (COSO) affiliated to the Trade Commission developed a corporate risk management framework. The Committee's Support Committee defines corporate risk management as a process of assessing and managing risk at the company level in order to "provide reasonable assurance that the organization's goals will be achieved."

Although implementing risk management may not specifically change the level of organizational risk, it is likely to affect the actual measurement and monitoring of risk across the firm. As a result of targeting certain levels of risk, firms are likely to reduce performance fluctuations while reducing the level of achievement of their normal business goals and objectives, which include generating profits and increasing shareholder wealth. In addition, the Organizational Support Committee's definition of corporate risk management indicates that firms that implement corporate risk management processes are more likely to succeed in achieving higher operational, financial, and market performance, but for the relationship between Company risk and performance management have not yet provided sufficient empirical evidence. [17].

In recent years, Munda and Georgino [9], based on their research findings, have stated that past research has provided little empirical evidence of the impact of firm risk management on firm value. In addition to the empirical limitations mentioned, these researchers state that "despite the theoretical support, although to some extent the impact of firm risk management on the company's value added can be concluded, but in this regard, empirical evidence has not yet been provided."

On the other hand, McShane, Nair and Rostam Bekoi [5], Baxter, Badrad, Haitash and Yizgol [21] have emphasized the benefits of risk management in the financial services industry. In addition, Monda and Georgino [16] have stated: There are limitations to such studies in the field of financial institutions, and these institutions are significantly different from industrial companies in terms of type of organization and operations, and therefore need to be considered separately.

In general, there are three main types of financial institutions, which are: 1) financial institutions and institutions such as banks and financial and credit institutions that are responsible for attracting cash deposits and granting credit facilities, 2) insurance institutions and institutions And social security such as insurance companies and pension funds and finally 3) investment institutions such as investment banks, insurance agencies or brokerages and brokerage firms.

Previous economic and financial research shows that financial institutions and companies differ from non-financial companies in terms of financial structure, investment opportunities, and foreign government regulations. These differences are the consequences of differences in profitability, risk assessment, and stock price behavior [1,14,23]. Financial systems that offer services, financing, deposits, lending, and investment opportunities are a growing body of financial institutions, securities markets, securities and financing laws, information intermediaries, They form financial regulations and relationships between financial and financial institutions [10].

In addition to the general differences between financial institutions and companies that operate in the business or manufacturing sector, a review of financial institutions and institutions shows that they have a broader industry perspective to assess the benefits of the company's risk management process. In this research, also the criteria of company performance in the company including return on investment and return on investment on the one hand and the value of the company as a measure of the company's performance in the capital market on the other hand has been emphasized. Given that the company's performance metrics are closely related to the company's profit and operating performance.

There are several key differences between financial institutions and manufacturing and trading companies that can show differences in estimates and differences in evaluation and profitability or operational metrics in research studies using financial institutions compared to non-financial corporations. Give. These differences are summarized in the study of ranchers [18]. The first point of contention is that financial services companies operate under heavy regulations with various capital

constraints that affect their operating strategy. The second difference between financial institutions and institutions and other companies is related to the contradictory accounting principles and procedures between financial services and non-financial companies in the field of asset valuation and profit reporting. The third difference is the difference in the concept of debt in the financial services industry compared to the non-financial services industry. In the financial services industry, debt is more like an operating source of input, which can be considered a raw material compared to a production system (for example). As a result, the calculation and analysis of financial structure and leverage in financial institutions and institutions are different from other companies and therefore have significant differences in leverage ratios compared to the source of financing with other industries.

In summary, all of these, which highlight some of the fundamental differences between financial institutions and other firms, suggest that the results of applying corporate risk management to financial institutions and institutions comparable to non-financial firms may be is not. It is expected that the diverse areas of financial institutions, including insurance, banks, funds and investment companies that will be examined in this study, the ability to explain the relationship between company risk management and company operating performance as well as performance. Participate in the capital market.

Although risk management studies show that there are more general cases in this area, one of the important limitations is that many previous studies have used the Chief Risk Officers (CRO) as a measure of corporate risk management. Research such as Beasley, Pagach and War [6], Pagach and War [23], Pagach and War [21] and Hyatt and Liebenberg [11] have been used in this field.

Although the use of a risk manager may confirm the existence of company risk management, the absence of a risk manager does not necessarily indicate that the company risk management has not been implemented. In addition, the appointment of a risk manager does not guarantee a comprehensive and integrated risk management process across the company. The position of the risk manager may focus heavily on incidental risk or resource risk rather than on the overall risks of the company.

A review of other research shows that Gordon, Laib, and Tseng [17] can be cited as important exceptions to the use of a risk manager as a measure of corporate risk management. [20] emphasize the effective measurement of corporate risk management through the identification of -10 and -10 based on 2005. During the mentioned year, these standards are based on identifying the conditions related to the establishment of the company's risk management system in dimensions such as: organizational risk management, strategic risk management, company risk management, and risk management committee, risk committee and risk manager. Establishing such a situation to reduce the level of the main criticism in the field of mere emphasis on the responsible manager removes the risk.

In addition, Gordon et al. [20], in a study based on their empirical evidence, provided a broader picture of the relationship between firm performance and firm risk management using the analysis of several intermediate variables, based on firm characteristics and capital markets. In particular, Gordon et al. [16] based their findings on using market surplus returns as a measure of performance and emphasizing firm risk management metrics based on the 2005 Statement, in a subset of 112 high-performance sample firms. , Have emphasized the relationship between firm performance in the capital market and firm risk management. In addition to performance and risk management as dependent and explanatory variables, these researchers have used various factors such as: intensity of competition in the industry, company complexity, company size and board monitoring level and have shown that these factors also have a significant impact on effectiveness. The company has risk management. However, more than 50% of their samples were taken from strictly regulated industries including financial services (34.8%), financial trade (11.6%) and insurance (up to 8%).

Although Gordon et al. [16] have made a significant contribution to the development of theoretical research foundations in the field of assessing the impact of risk management on performance, and in particular explaining the appropriate measure for measuring risk management, it should not be overlooked. The meta-analytic research of Munda and Giurgino [19] shows that many previous studies in the field of risk management measure risk management error based on the use of a binary or artificial variable of zero and one as a measure of size. The company's risk management, suffer. The main emphasis in this research is on measuring the level of risk management maturity on the one hand and changes in the operational performance and performance of the company in the capital market on the other hand.

The issue of comprehensive risk management of the firm is one of the branches of risk management that has not received much attention in Iran. The study of the theoretical foundations of the researches

shows that little research has been done in this field.

Izad Panahi [12] during a research in this field has investigated the relationship between the use of firm risk management techniques with value creation in Iranian insurance companies. The results of this study show that the existence of a mechanism in the country's insurance industry that monitors the risk management of insurance companies and provides appropriate disclosure of risks in these companies, can be useful. In fact, in this study, the researcher, considering the components of risk in the insurance industry, has tried to show the relationship between the implementation of risk management techniques with added value created in insurance companies. The results of this study indicate the acceptance of all research hypotheses at 95% confidence level and based on this research findings have shown that there is a positive relationship between firm risk management techniques with value creation and optimal performance of the company based on value added. In this study, the risks measured for insurance companies were not related to the risks in the Iranian insurance industry and this was one of the important shortcomings of the study.

Hosseini, Hosseini and Seyed Motahari [14] based on performance data in the pharmaceutical and food industries as the most risky industry among manufacturing industries, has examined the relationship between company risk management and company performance. In this research, risk management is measured based on changes in performance measures compared to before and capital return and return on investment measures have been used as criteria for measuring firm performance. The results of the research based on composite linear regression analysis showed that at the level of 95 percent confidence assurance there was a positive and significant relationship between the implementation of risk management in the food and pharmaceutical industry with performance measures. In this study, the model presented in Kozo's book has been used to investigate the relationship between the implementation of risk management techniques and firm performance in companies operating in the food industry. For this basis, company risks were classified into 4 categories: 1) strategic risks 2) operational risks 3) reporting and 4) non-compliance with rules and regulations. Equity return (ROE) has also been used to measure firm performance.

Mesbahi and Jafari [17] have studied the effect of bank credit risk and financial performance in banks listed on the Mazandaran Stock Exchange. This study was conducted using data from seven banks in the period from 2009 to 2014. The results of this study show that there is no significant relationship between credit loss savings and operating cash flow ratio criterion. There is a negative and significant relationship between institutional ownership and operating cash flow ratio criterion. Between executive information and cash flow ratio. There is a positive and significant operational cash flow.

Pezeshki and Pahlavan [13] have studied the relationship between credit risks and liquidity with the ability to predict the profit of banks listed on the Tehran Stock Exchange. The time domain of this research is from 2011 to 2015 and the statistical sample of this research is 11 financial institutions and banks. The results of this study show that there is no significant relationship between credit risk and the ability to predict short-term and long-term profits of banks listed on the Tehran Stock Exchange. Also, there is a significant relationship between liquidity risk and the ability to predict short-term and long-term profits of banks listed on the Tehran Stock Exchange.

Asgarnejad Nouri and Emkani [15] conducted a study entitled The effect of effective risk management on the financial performance of companies listed on the Tehran Stock Exchange (the mediating role of intellectual capital and financial leverage). This study tries to investigate the effect of effective risk management on the financial performance of companies and to identify the mediating role of intellectual capital and financial leverage in the relationship between these variables. For this purpose, some of the companies listed on the Tehran Stock Exchange in the period 2008 to 2013 were studied. The results show that effective risk management has a positive effect on the rate of return on assets and market value growth. . Financial leverage only mediated the relationship between effective risk management and the rate of return on assets, and the mediating role of intellectual capital was only confirmed in the relationship between effective risk management and market value growth.

Gordon et al. [16] in a study entitled Comprehensive risk management and organizational performance with a contingency approach examined the relationship between comprehensive risk management and organizational performance. The results of this study showed that there is a direct relationship between corporate risk management and financial performance and an organization can improve its performance by using the firm's comprehensive risk management techniques. Also, based on this research, additional analyzes showed that the performance of the organization depends on factors such as: 1) environmental

uncertainty, 2) competition in industry, 3) company size, 4) complexity of the organization and 5) attitude of the board of directors. Accordingly, management, if properly planned and controlled, can provide good opportunities instead of threats, and ultimately affect the proper performance of the organization. It is worth mentioning that based on the research principles of this research in the field of enterprise risk management, it is very original and innovative and has been the basis of many other researches in the field of risk.

Another study by Hyatt and Leinberg [2], based on data from the insurance industry, used the Q-Tobin measure or company value to evaluate performance. The study, based on the analysis of performance data, showed that there is a positive relationship between company risk management and organizational performance based on the value of the company or Q-Tobin ratio and the use of this management system has led to improved company performance in the capital market. . In this study, a qualitative variable or binary algebraic conversion was used to measure the company's risk management and its use was defined as 1 or zero. It is concluded that the use of ERM in organizations will improve performance.

Florio and Leoni [6] have examined the relationship between the level of corporate risk management system performance and the performance of listed Italian companies. The companies used to identify the outcome of the company's risk management implementation and developed a variety of features to measure the complexity of the risk management system. The results indicate that companies that use advanced levels of corporate risk management also perform better. They have both financial and market valuation. Further research confirms the expectation that an effective corporate risk management system leads to higher performance by reducing risk, and that in the short term there is no inverse causal relationship between corporate risk management and performance. Provides the effects of corporate risk management. First, it provides a complete and new scale for the implementation of corporate risk management, which is related not only to the set of corporate governance specific to risk management but also to the characteristics of the risk assessment process. In addition, it provides evidence of a positive relationship between the implementation of firm risk management and firm performance in study environments such as Italy.

Seifol [2] conducted a study on contingency factors, risk management and bank performance in Indonesia. The purpose of this study is to investigate the impact of corporate risk management (ERM) and credit risk management (CMR) on the performance of Indonesian banks. This study examines the mediating role of contingency factors by banks on these effects. By purposive sampling method, 24 Indonesian state-owned banks were selected as a sample in this study based on four-year observations. This study shows that corporate risk management and credit risk management have a positive impact on the performance of banks.

Georges et al. [7] conducted a study entitled Value Creation through Corporate Risk Management in the Insurance Industry. This study comprehensively examines the issues related to firm risk management in the insurance industry and claims that insurance companies will be able to create value by following the model of this research. The conceptual model of this research consists of three parts: developing strategies, implementing strategies and controlling the performance of strategies. Pay.

Research method
On the one hand, this research has been done in order to develop the literature related to risk and performance in the financial industry based on providing appropriate models in determining the relationship between variables and to innovate in model presentation and development of research literature in terms of theoretical purpose. . On the other hand, the researcher has used the model explained in the financial industry, which includes sections: banks and credit institutions, investment companies, and finally insurance companies and agencies, with the aim of providing guidelines to improve performance in the field of research. In terms of this research can be called applied research. In this study, on the other hand, in explaining the relationship between risk and performance on econometric model and correlation analysis and regression techniques.

The statistical population of the study consists of all banks operating in the Tehran Stock Exchange. The research period is seven years during the years 2013 to 2019. For sampling, elimination sampling method was used, which was as follows:
- Due to the fact that to calculate some variables, data from previous years are needed, so the company needs to be listed on the stock exchange before 2009 and be active in the stock exchange until the end of 2019.

- The fiscal year should end on March 20 and there should be no change in the fiscal year during the research period.
- The company should not have a trading interval of more than 6 months in its transactions during the research period.
- Financial information of the relevant bank is available.

In order to collect information about the theoretical foundations and research background, the library method has been used. In this regard, Persian books, dissertations related to Latin and Persian topics and articles, reputable financial journals, databases of domestic journals, noormags.ir, Science Direct, Praquest and SSRN sites and. . . Used. In this research, databases approved by the stock exchange, including the comprehensive data processing software of Rahavard Novin, and the Cadal site belonging to the Tehran Stock Exchange were used to collect research data. Excel software is also used to prepare the variables. In this way, the information collected in the Excel software environment was collected and then the necessary calculations for the final variables were performed using software formulas. After calculating the final variables and sorting them in a specific sheet, the data is entered into Eviews software to get statistical outputs.

- **Risk management**

Based on his findings, Barton et al. [3] state that risk management cannot be defined as static and declining in order to be effective, but must be defined as "organic and living". In this regard, during the present study, the measurement of internal risk management was measured with two judgments and performance. Functional, utilized. In other cases, performance data has been used and in total, the time period of performance data for the 7-year period from 2013.03.21 to 2020.03.02 has been defined.

Based on studies such as McShane et al. [16], Hosseini et al. [19] and finally Callahan and Seville (2018), it is assumed that risk management and its maturity level have a positive effect on financial performance (return on assets).

Since 2010, and due to the standard "Requirement of public disclosure of rare cases of maturity of the risk management process", it is necessary for economic units to discuss the encirclement of risk on the board within the organization. However, in the context of this disclosure, some firms may have stated that risk management has been implemented or that no disclosure has been made. In other words, there is no specific requirement in this area and there is no indication of the time of implementation or ranking of the level of maturity of risk management processes in the organization [16].

Prior to the qualitative and credit ranking of risk management level in companies by SNP researchers in 2006, researchers in measuring the level of risk management maturity in companies mainly from the appointment of managers in charge of core risk in the company as a measure of size. The establishment of risk management and the existence of risk management evaluation processes in companies belonging to the financial industry in the bank, benefited. As a result, previous studies are potentially limited to inconsistent measures and therefore generalizable.

In recent years, studies such as Shin et al. [7] and finally Callahan and Seville [22] have attempted to use internal audit system surveys to judge the internal audit management's judgment as to whether the company In particular, has it established the company's risk management and tracking its maturity level? Evaluates and thus tries to reduce potential noise in the measurement. In this regard, two approaches and procedures have been used to measure the risk management of the company, the first is to use a judgmental approach based on a survey of internal audit managers and the second is to use a quantitative approach based on performance data of the companies under review.

A) Qualitative evaluation (artificial):

One of the models used in evaluating company risk management is the use of quality model. In this model, measures are defined as risk management criteria in the company based on standards such as ISO 31000 or Kozo, and if these criteria are in a company, it is considered as risk management and otherwise. If positive, it artificially assigns 1 or zero to this variable. One of them is the model used in Oliva [20] research.

In explaining a conceptual model in relation to organizational risk, it should be noted that organizational risks and risk are obtained from the internal relations of the company on the one hand and the relations of the company with the business environment on the other hand. However, a separate analysis of each dimension of organizational risk or hazards, ie regardless of the relationship between them, is

incomplete and somewhat misleading. For example, a company may consider ethical risks to be negligible as a supplier or supplier, ignore labor and environmental laws while not being financially or commercially risky. Therefore, organizational risks should be systematically analyzed, given the type of company and its values in the face of a business environment with threats and opportunities. According to the research literature, the main risks and hazards arising from the business environment and external factors such as: economic, political, social, technological and environmental events are obtained. Organizational risks affecting the value of the company are the risks: financial, operational, company image, environmental sustainability, ethics, innovation and strategy based on Oliva (2016) model. The components of company risk are summarized as Table 1:

Table 1: Components of risk management

Row	Agent Description	Row	Agent Description
1	Level of control in the organization	5	Existence of risk assessment culture in the management of the organization
2	Rational process planning, coherence, organization and rational execution	6	Sufficiently free exchange of views in the discussion of risk management in the organization
3	Adequacy of repetition of risk assessment processes	7	Decentralization of risk management in the organization
4	Quantity of risk assessment (risks) in the company	8	Level of external support (counseling, participation of the university or other institutions)

In this research, the above measures, if established in a company, take the relevant variable 1 and otherwise it is assumed to be zero. A similar valuation method can be seen in the study of Chen et al. [6] in assessing the relationship between risk and firm value.

B) Scoring:

In this method, standards such as Kozo or ISO 31000 have been used to identify the company's risk management metrics and the level of these metrics in the company has been measured based on the Likert scoring range or slightly from 1 to 5. In this regard, we can refer to studies such as Saeedi et al. [13]. In this research, COSO standard (2004) and scoring checklist have been used to measure the company's risk management (ERM) in 8 dimensions. It was used to explain the measurement scale of this variable. Based on the COSO (2004) corporate risk management (ERM) standard, it is defined in eight dimensions, which are summarized in Table 2:

Table 2: Dimensions of ERM risk management based on COSO standard

Dimensions of risk management	Description
Internal environment	Organizational understanding of risk, the existence of risk management policies and methods, consideration of risk tolerance and organizational enthusiasm
Goal setting	Level of coordination of goals with the organizational mission, level of risk when formulating goals
The evaluation took place	Level of identification of internal and external factors that trigger events and opportunities
Risk assessment	Level of estimation of probability and impacts of accidents using qualitative or quantitative analysis, risk classification and residual risk assessment.
Response to risk	Risk reduction strategies through cost-benefit analysis, resource analysis, residual risk analysis, and consideration of risk tolerance and risk appetite.
Control activities	Level of control over the effectiveness of risk response, control over compliance with risk response forms

	Information and communication	Level of information adequacy, schedule, access, internal and external communications and information flow
	Monitoring	Check the level of monitoring activities, continuous and separate monitoring activities and the level of internal control

To explain the metrics of each dimension of risk management based on the research of Saeedi et al. [15], Bergerona et al. [8], Skaran [21]; Hear et al. [17]; Cooper and Schindler [22] were used and university professors were used to validate the content. Criteria were defined on a scale of 1 to 5 and were measured based on the opinions of managers in the company or institutions under study in the financial industry and averaged for each organization. Table 3 summarizes the measurements of each of the risk dimensions:

Table 3: ERM risk management measurement metrics based on COSO standard

Row	Risk Aspects	Measurement of measurement
1.	Internal environment	Existence of a common understanding of risk management in all organizations
2.		Existence of effective risk management policy in the organization
3.		Predicting risk management activities in formulating the organization's strategy
4.		Explicit and transparent definition and understanding of risk management throughout the organization
5.		Embedding risk in organizational culture
6.	Goal setting	Methodical and systematic determination of business objectives (strategic, operational, reporting, compliance) by management
7.		Alignment of organizational goals with the mission of the organization and coordination between the two
8.		Attention and identification of organizational risks and hazards in formulating organizational strategy
9.		Attention and identification of organizational risks and hazards in compiling organizational budgets
10.		Attention and identification of organizational risks and hazards in the development of organizational operational plans
11.		Attention and identification of organizational risks and hazards in the development of organizational plans and projects
12.		Attention and identification of organizational risks and hazards in the approval of the organization's investment plans
13.	Event evaluation	Consideration of external factors (economic, natural, political, social and technological) motivating organizational events
14.		Consideration of internal factors (structures, employees, processes and technology) affecting the achievement of organizational goals
15.		Considering positive events and effective opportunities to achieve organizational goals
16.	Risk assessment	Investigate the positive and negative effects of potential accidents throughout the organization
17.		Organizational risk assessment using qualitative analysis methods (low, medium and high)
18.		Organizational risk assessment using quantitative analysis methods (charts, software, ratios, etc.)
19.		Prioritize effective risks and determine residual risk
20.	Response to risk	Select a set of measures to coordinate risk with the company's risk tolerance and risk-taking
21.		Consider potential opportunities beyond specific risk in achieving the organization's goals in response to risk
22.		Attention, assessment and determination of the remaining risk in

		achieving the goals of the organization to respond to the risk
23.		Prioritize risk-taking behaviors commensurate with resource constraints to respond to risk
24.	Control activities	The organization's risk management procedures include: Reliable policies and processes for appropriate risk response
25.		Timely implementation of control activities of the organization to ensure compliance with risk
26.		Adequacy and appropriateness of activities in the organization for risk control
27.		Extensive variety of control activities in the organization and different organizational levels
28.	Information and communication	Systematic and timely identification, processing and publication of information required to fulfill the responsibilities of employees
29.		Appropriateness and compatibility of information infrastructure with the needs of the organization in identifying, evaluating and responding to risk and the relationship with risk tolerance
30.		Existence of formal methods for reporting risks and risks
31.		Continuous assessment and reporting of changes in risk and hazards
32.		Having proper communication with external stakeholders (customers, suppliers, legal entities, etc.)
33.	Monitoring and tracking	Existence of a combination of continuous monitoring and separate evaluations to ensure the effectiveness of the company's risk management
34.		Existence of monitoring the effectiveness of risk management as an integral part of continuous management reporting
35.		The organization enjoys frequent reviews and continuous feedback on risk management strategies and performance
36.		Regular and continuous review of the system and internal control mechanisms in the organization

C) Maturity level scoring attitude:
In this approach in order to solve the above problem and based on a survey plan and survey of internal audit managers of each company, and in the framework of company risk management (ERM) provided by the Organization for the Support of Organizations (COSO-ERM 2004), the level of maturity Risk management in a company is measured in relation to four objectives: 1) strategy, 2) operations, 3) reporting, and 4) compliance with rules and regulations or compliance.

Implementing corporate risk management processes has taken several years, and it is expected that each year, some corporate risk management processes will remain as normal or improve as in the past. In this study, measuring the variable level of company risk management maturity or ERMIi, t as the level of risk management maturity in the company during the year t, in the framework of four goals of strategy, operations, reporting and compliance with rules and regulations according to the model provided by the institution. Organizational support (COSO-ERM, 2004), defined.

To measure the variable level of risk management maturity of the company in each of the four dimensions or objectives: 1) strategy, 2) operations, 3) reporting and 4) compliance with rules and regulations or compliance, according to the COBIT-4 (2005) statement from 6 scales are used. Therefore, the assessment of the level of maturity of the company's risk management is determined according to the survey based on Table 1.

In this view, the level of maturity of risk management in the company for each of the four goals of strategy, operations, reporting and compliance with rules and regulations at one of the ranking levels: no management, risk management is at the basic level, Risk management is applied only in relation to repetitive but objective matters, risk management is applied only in managed and measurable matters, and finally risk management is measured at the desired level and to reduce them in order of points of 0, 1, 2, 3, 4 and 5 are used. Finally, the level of risk management and in other words, the level of maturity

of risk management in each company for a given performance year is defined based on the sum of scores obtained in relation to the four objectives as described in Table 3:

Table 3: Assessing the level of risk management maturity

Target risk	Assessment level					
Operational	Does not exist	Primary	In objective repetitive matters	In defined processes	In managed and measurable matters	At the desired level
Strategic	0	1	2	3	4	5
Reporting	0	1	2	3	4	5
Observe the rules and principles	0	1	2	3	4	5

D) Quantitative approach based on performance data:
In this approach, in order to solve the problem of quantitative assessment of company risk management and based on a regression plan and the use of performance data, each of the four objectives of strategy, operations, reporting and compliance with rules and regulations has been evaluated. Discussions about ERM have often avoided providing a standard indicator of how to quantify the concept [18].
In this study, Gordon et al. [7] model is used to quantify and define a quantitative indicator to measure corporate risk management, then define an index to measure how much the organization uses corporate risk management techniques and This index is named ERMI. This index is based on the model within the framework of the Organizational Support Committee, which defines 4 objectives: strategic risk management, operational risk management, reporting risk management and non-compliance risk management for corporate risk management. Has been exploited [17]. Accordingly, the ERMI variable is in fact an indicator to quantify the company's risk management, and in other words, ERMI is the same as the risk management level variable in the company and is defined as relationship number 1 and as follows:
Equation No. (1) Risk Management Level Index:

$$ERMI = \sum_{K=1}^{n} strategy_k + \sum_{K=1}^{n} operation_k + \sum_{K=1}^{n} reporting_k + \sum_{K=1}^{n} compliance_k \quad (1)$$

According to this formula, to calculate ERM, the subset quantities must first be determined. The following is how to calculate each of these four items;
Strategic risk management: Strategy refers to the way in which an organization defines its position vis-.-Vis its competitors. When implementing a strategy, the organization tries to improve its competitive advantage over competitors [13]. This competitive advantage should reduce the risk of bankruptcy and improve the performance and value of the organization. Firm risk management creates a valuable change in the type of attitude of the organization towards risks. Risk is not just a threat that should be avoided and can also be a source of opportunity [13].
Firm risk management divides potential events affected by external or external organizational factors into two categories of risk and opportunity. Incidents that have a negative impact are the risks that hinder the creation of value or destroy the existing value of the organization. Opportunities, in contrast, are the probability of an event occurring that has a positive impact on achieving goals, creating value, and maintaining current value (Kosovo 2004). In the field of strategic risks, risks should be divided into two forms within the organization (sales strategy and customer orientation and external organization (strategy against economic and industry factors).
In the financial industry, the methods of operations and financing are almost the same. In this case, the only strategy that can help the company to create a competitive advantage is sales strategy and customer orientation. Therefore, the more sales and customer orientation in an organization than competitors in the same industry, means that the organization will have better strategic performance than its competitors. Therefore, one of the two strategy factors is the ratio of sales (operating income) adjusted from customer satisfaction to the average sales (operating income) of the industry and is considered as

relationship number 2. In this regard, the operational strategy risk is calculated from the ratio of the difference between the operating income (net sales) of i company and the average operating income of the industry on the standard deviation of the operating income of the industry. It should be noted that for manufacturing and trading companies, net sales and in service companies such as the financial industry, the total operating income has been used;

Relationship 2) Operational strategy risk:

$$strategy_1 = \frac{sales_i - \mu_{sales}}{\sigma_{sales}} \qquad (2)$$

The second part of strategic risk management consists of systematic industry risks and in other words, external risks. The ability of the institution to reduce systematic risks is particularly in the process of implementing company risk management techniques. In the process of implementing firm risk management techniques, the study of external threats has a special place and the comprehensive risk management philosophy of the firm seeks to reduce systematic risks, ie the same external risks that are not under the control of the organization and imposed on it from outside the organization[6]. These risks include industry risks, economic risks, and risk of changing laws. The firm's risk management process seeks to use techniques to reduce the impact of such external risks. The main advantage of implementing a company risk management fund is diversification and thus systematic reduction of portfolio risk [14]. Systematic risks are measured by beta (β), so to measure the risk in this section, we use the adjusted beta ratio of the company to the industry average beta; The companies' beta is one of the stock exchange data that can be obtained through the Tehran Stock Exchange and Securities Organization. Calculated as follows:

Equation (3), capital market strategy risk:

$$strategy_2 = \frac{\Delta\beta_i - \mu_{\Delta\beta}}{\sigma_{\Delta\beta}} \qquad (3)$$

Similar to other variables, this risk is adjusted based on the industry and is obtained from the difference between the changes in the level of systematic risk of the company compared to the past with the average change in systematic risk in the industry on the standard deviation of systematic risk change in the industry.

Operational risk management: In the comprehensive risk management process of the firm, techniques are used to manage operational risks, the steps of which are; Identify operational risks, rank the identified risks and make appropriate decisions in dealing with these risks. However, the firm's comprehensive risk management process seeks to implement techniques to reduce operational risks that ultimately improve the efficiency and effectiveness of the organization [3].

Better performance is one of the results of better use of company risk management techniques and should reduce the overall risks that lead to organizational failure and thus increase the efficiency and value of the organization. Hence, it defined assets turnover, which is defined as sales (operating income) over total assets, as a measure of performance efficiency [11]. In the financial industry, operating income is used instead of sales. Therefore, during Equation (4), operational risk is defined in terms of operations:

Equation (4), operational risk in the operational dimension:

$$Operation_1 = \frac{sales}{total\ assets} \qquad (4)$$

On the other hand, it is assumed that firm risk management techniques also increase employee efficiency, so the second criterion for using appropriate techniques for managing operational risks of the organization is the data-output rate, which is divided by sales (operating income) on the number of employees Is achieved [8]. Accordingly, the second dimension of the company's operational risk management is measured as relation (5).

Equation (5), operational risk in terms of employee productivity:

$$Operation_2 = log(\frac{sales}{number\ of\ employees}) \qquad (5)$$

Reporting Risk Management: Accurate and accurate reporting is critical to the success of the organization in all its dimensions. The goal of accurate and precise reporting should be the main driver of all company risk management activities. However, a proper internal control system seems necessary for accurate reporting [10]. According to the research literature, the dimensions of the internal control process include the following:

- Control environment: general internal framework based on control policies and procedures
- Accounting system: archives and procedures used for it, process and reporting of transactions.
- Control procedures: Identify the steps to take to reduce risk in controlling specific threats [10].

Comprehensive risk management of the firm using the techniques and tools of the internal control process seeks to reduce reporting risks and seeks to minimize illegal profits and financial fraud in the organization and the accuracy of financial and non-financial information. Maximize [7].

Poor financial reporting increases the overall risk of an institution going bankrupt and thus reduces the performance and value of the organization [16]. A measure of the low reliability of financial reporting is the combination of three variables related to internal reporting, including: 1) significant weaknesses in internal controls, 2) conditional audit reporting, and 3) restatement of financial statements and relationship descriptions (6).) Is:

Equation (6), financial reporting risk:

$$\textbf{Reporting}_1 = (\textbf{material weakness}) + (\textbf{auditor opinion}) + (\textbf{restatement}) \qquad (\textbf{6})$$

In order to quantify the variable of internal control weakness, the standard criterion of performance auditing, which is performed by audit consultants and internal auditors, has been used, which is obligatorily examined in listed companies, and if in any of the relevant sections. If there is a weakness to the internal control, it will be equal to one. Also in the case of the auditor's conditional report variable, if the auditor's report has conditional conditions, it will be number one, otherwise it will be zero. The financial statement restatement variable is measured in the same way as the auditor's conditional reporting variable.

Managing the risks of non-compliance with rules and regulations: With the entry of the organization into a complex environment and increasing the organization's interactions with the external environment, the organization has no choice but to comply with the rules and regulations governing these relationships with the external environment. As a result, organizations are exposed to a wide range of risks of non-compliance[12].

Firm risk management techniques suggest the study of risks related to non-compliance with rules and regulations in each component of the framework of the firm's risk management process, such as internal contexts, targeting, and risk control and also throughout the organization[12].

One of the effective tools in this field is accepted auditing standards. Therefore, the first criterion for measuring the rules and regulations used in this research is defined as relation (7) and based on the ratio of the auditor's fee to the total assets;

Equation (7), risk of non-compliance with rules and regulations:

$$\textbf{Compliance}_1 = \frac{\textbf{Auditor Fees}}{\textbf{Total Assets}} \qquad (\textbf{7})$$

The second criterion for measuring compliance with the rules and regulations is the profit and loss arising from lawsuits. If the company makes a lot of efforts to comply with the rules and regulations, it is natural to expect less litigation losses and more litigation gains. Therefore, the second measure of financial reporting risk is calculated from Equation (8) as follows:

Equation (8), the risk of the benefits of compliance with the rules and regulations:

$$\textbf{Compliance}_2 = \frac{\textbf{settlement net gain (loss)}}{\textbf{Total Assets}} \qquad (\textbf{8})$$

In this calculation, the criterion of profit or loss resulting from legal claims is used. In this way, the weighted average of profit (loss) of legal claims during the company's activity is calculated and the calculated amount is divided by the average age of assets.

- Company performance

In this regard, following Brown and Keller [14] and finally Callahan and Seville [13], the company's performance in the operational dimension with the same return on assets (ROA) has been used. To calculate the return on assets (ROA), the company's net profit will be divided by the company's total assets. The calculated values for the company are minus the middle of this measure in the industry. Therefore, AROAi, t are defined as the adjusted return on assets minus the industry average in i company during the t year.

Data analysis

In this part of the article, risk management in 21 banks listed on the Tehran Stock Exchange is estimated with the four approaches introduced in the previous section. Finally, the relationship between risk management and the performance of banks has been evaluated only with the fourth approach, ie quantitative attitude. A total of 240 managers of different branches of the bank were selected to conduct the survey part of the research and the relevant score questionnaire was distributed among them.

A) Qualitative evaluation (artificial):

After conducting a survey of experts, the results related to the score of risk management components based on Oliva (2016) research are presented in Table 4. As mentioned before, in each bank, if there is any of the components, the number one is assigned, otherwise, the number is zero. According to this table, it is inferred that the existence of risk assessment culture in bank management has the highest score among the components of risk management. The lowest score was related to the component of external support level.

Table 4: Score of risk management components

Description of the agent	point	Description of the agent	point
Level of control in the bank	0.802	Existence of risk assessment culture in bank management	0.850
Rational process planning, coherence, organization and rational execution	0.728	Sufficiently free exchange of views in the discussion of risk management in the bank	0.713
Adequacy of repetition of risk assessment processes	0.642	Decentralization of risk management in the bank	0.739
Quantity of risk assessment (risks) in the bank	0.779	Level of external support (counseling, participation of the university or other institutions)	0.583

B) Scoring:

In the second part, after a survey of experts, the results of the bank's risk management dimension score based on the Kosovo standard are presented. As mentioned before, in this method, standards such as Kozo or ISO 31000 have been used to identify the company's risk management metrics and the level of these metrics in the company has been measured based on a Likert or quantitative score range of 1 to 5. The average score obtained for the eight dimensions based on the results of a survey of experts is presented in Table 5. According to the results of this table, the internal environment has gained the highest score among the dimensions of risk management.

Table 5: Score of risk management dimensions based on coso standard

Aspect	Point	Aspect	Point
Internal environment	4.15	Response to risk	3.68
Goal setting	3.99	Control activities	3.42
Event evaluation	3.58	Information and communication	3.25
Risk assessment	3.64	Monitoring and tracking	3.51

C) Maturity level scoring attitude:

According to the previous section, to measure the level of maturity of the company's risk management in each of the four dimensions or objectives: 1) strategy, 2) operations, 3) reporting and 4) compliance with rules and regulations or compliance, according to the COBIT- 4 (2005) uses 6 scales. The result of estimating the maturity level of risk management in banks based on the scoring attitude is presented in Table 6. According to the results of the table, in general, the average level of risk management maturity in the country's banks in the reporting dimension has been considered more than the other three dimensions.

Table 6: Level of maturity of bank risk management

Target risk	Assessment level

	Does not exist	Primary	In objective repetitive matters	In defined processes	In managed and measurable matters	At the desired level
Operational					*	
Strategic					*	
Reporting						*
Observe the rules and principles					*	

D) Quantitative attitude:

In the quantitative part, the performance data of 21 banks operating in the stock exchange during the period 2013 to 2018 were examined. Descriptive statistics of calculated risks for these banks are presented in Table 7. The average rate of return on assets is 0.01 percent and shows that the sample banks have earned an average return of about 0.01 percent for each rial of investment in assets. Return on assets at its highest level has reached 4.15 percent among banks. The four dimensions of risk management are normalized to the highest value among other banks.

Table 7: Descriptive statistics

Variable	Observations	average	Middle	Maximum	Minimum	Standard deviation	skewness	Drawing
Strategy1	147	000/0	435 / 0-	672/2	995 / 0-	000/1	1.144	3.283
Strategy2	147	928 / 0-	988 / 0-	337/3	034 / 3-	984/0	0.868	4.809
Operation 1	147	094/0	096/0	172/0	017/0	032/0	-0.146	2.584
Operation 2	147	899/3	966/3	568/4	855/2	408/0	-0.541	2.309
Reporting 1	147	960/0	000/1	000/3	000/0	958/0	0.846	2.836
Compliance1	147	001/0	001/0	001/0	001/0	001/0	4.656	25.240
Compliance2	147	001 / 0-	001/0	010/0	073 / 0-	009/0	-5.276	35.975
ROA	147	001 / 0-	004/0	042/0	316 / 0-	043/0	-8.426	36.902

After normalizing the risk components and their algebraic sum for each component, the dimensions of strategic risk management, operational, reporting and compliance with the rules have been met. Finally, risk management (ERMI) is obtained from the algebraic sum of four dimensions of risk management. In the following, the correlation of each dimension of risk management with the adjusted return on assets is examined using Pearson correlation analysis. The matrix of correlation coefficients is presented in Table 8. The calculated correlation coefficients measure the linear interactions of the factors on each other based on their binary comparison. According to the result of the correlation test, among the four dimensions of risk management, the observance of the rules has the highest correlation with the adjusted return on assets. On the other hand, the operational risk dimension showed the lowest correlation. However, there is a weak correlation between the dimensions of risk management and the adjusted return on assets.

Table 8: Descriptive statistics

	Adjusted	Risk	Strategic	Operational	Reporting	Risk

	return on assets	management	risk	risk	risk	compliance with the rules
Adjusted return on assets	1					
Risk management	-0.159	1				
Strategic risk	0.018	0.428	1			
Operational risk	0.001	0.311	-0.016	1		
Reporting risk	0.115	0.719	-0.180	0.081	1	
Risk compliance with the rules	-0.148	0.216	-0.028	0.038	-0.108	1

To investigate the effect of risk management on the financial performance of banks in this study, it is sufficient to evaluate the regression relationship between risk management (total of four dimensions) and adjusted return on assets. Of course, this relationship can be examined for each of the dimensions of risk management with different performance indicators. It is even possible to use the three previous approaches used in risk management estimation and estimate the regression relationship. Of course, these cases are beyond this article and have been omitted. In this regard, in addition to risk management as an independent variable, from the delay variable of returns on assets and control variables of growth opportunities (natural logarithm of daily value to book value per share), bank size (natural logarithm of assets), operating income growth (Percentage change in tax revenue compared to the previous period) and ownership ratio (ratio of equity to total assets) have been used. The results of model estimation are presented in Table 9:

Table 9. Results of linear regression test

$AROA_{i,t} = \alpha + \beta_1 ERMI_{i,t} + \beta_2 ROA_{i,t-1} + \beta_3 ROE_{i,t-1} + \beta_4 LnBM_{i,t} + \beta_5 SIZE_{i,t} + \beta_6 Growth_{i,t} + \beta_7 QRAT_{i,t} + \varepsilon_{i,t}$					
Variable name	**Variable symbol**	**Coefficient**	**Statics t**	**Significance level**	**Collinearity**
Constant	A	0.219	5.568	0.000	(VIF)
Risk management	ERMI	0.005	2.305	0.023	-
Delayed structure of asset returns	ROA	0.619	5.862	0.000	1.115
Growth opportunities	LnBM	-0.004	-2.396	0.018	1.284
Size	SIZE	-0.011	-5.817	0.000	1.185
Growth	Growth	0.008	2.210	0.029	1.229
Ownership ratio	QRAT	-0.132	-2.086	0.039	1.765
Self-correlation first order	AR(1)				1.665

F-Leimer (Chao) test The significance level	1.827 (0.027)	Hussmann H test Significance level	55.306 (0.000)
F statics The significance level	13.518 (0.000)	Watson camera statistics	2.340
Jarkio-Bra test	1.399	Analysis of variance	36.458

Significance level	(0.485)	Significance level	(0.000)
The coefficient of determination	0.7802	Adjusted coefficient of determination	0.7225

In order to determine how to estimate the models, Chow or F-Limer test should be used. In the hypothesis test model, the significance level of F-Limer (Chao) statistic is equal to (0.027) which is less than the acceptable error level of 0.05. And panel (composite) is the method of panel (composite). On the other hand, the significance level of Chi-Sq statistic of Hausman test is less than 5% for the model. Therefore, the research model should be estimated in the panel-fixed effects method.

The significance level of F statistic (0.000) is less than the accepted error level (5%) and whole regression model is significant. Watson's camera statistics are also in the acceptable range (1.5 and 2.5), indicating that there is no correlation between the error components of the model. Due to the fact that in the alignment study between the variables entered in the model, all values are below 10, so no alignment is observed in the model.

The rate (R^2) indicates the percentage change in the dependent variable due to the change in the model independent variables. The pattern determination coefficient is equal to 0.7802. This means that the variables entered in the models explain 78.02% of the changes in the dependent variable, respectively. The adjusted coefficient of determination of the pattern is equal to 72.25 percent. The reported differences between these coefficients are due to variables that do not have a significant effect on the dependent variable.

One of the most important assumptions of using the linear regression model is to have a normal distribution for the remainder of the model and the dependent variable of the research. In estimation models, it is assumed that the residuals and consequently the dependent variable are random variables. Therefore, the dependent variable distribution follows the distribution of the residuals. In this study, normality is examined through Jark-Bra stats.

If the significance level of the Jark statistic is more than 5% in relation to the normality test of the residuals of a regression model, the presumption of normality of the residuals is confirmed. However, in a situation where the number of data in the analysis is large, the normality of the data will not cause a problem in the process of data analysis and the findings of estimating the regression model will be reliable [12]. According to the table, the Jack-for-significance level for the model is higher than 0.05, and the normality of the residuals is confirmed.

According to the results in Table (5), it is clear that the assumption that the variance of the remaining sentences is the same cannot be verified. Because the significance level of Bartlett test F in relation to the rest of the research models is zero, which is less than 5%. In order to eliminate the heterogeneity of variance of the residuals of a regression model, the generalized least squares method is used to estimate the model [12]. Therefore, in the present study, the regression model is fitted to the generalized least squares method.

Discussion and Conclusion

The present study was conducted to explain the relationship between risk management and financial performance in banks listed on the Tehran Stock Exchange. In this regard, the statistical population was sampled by elimination method and based on this, active banks in the period 2013 to 2019, whose performance data were available, were selected as a statistical sample. Research method to explain the theoretical model and to expect practical achievements to improve the risk management of applied banks, due to reliance on statistical sample in explaining descriptive observations and in generalized findings inductively and in explaining the deductive model, according to the type of data And methods in measuring risk management scores and in other cases to rely on performance data backward and finally due to the use of quantitative data and quantitative econometric methods have been non-judgmental and quantitative. In this research, the proposed research model is explained by knowledge analysis, content analysis and deductive inference, and then based on the model used in the standards of Kozo, ISO 31000 and researches such as Saeedi et al. [14], Bergerona et al. [7], Scaran[16]; Hear et al. [10]; Cooper and Schindler [15], Saeedi et al. [19], in a scoring manner on the one hand and based on the model of Gordon et al. [16] and in a quantitative manner based on performance data on the other hand risk management in banks under size. After measuring financial performance based on return on assets as a dependent variable and other explanatory variables based on performance data, performing diagnostic tests, from an econometric model based on panel data anaslysis to estimate the relationship

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between risk management and financial performance. Financial performance has been followed by Brown and Keller [4] and finally Callahan and Seville [13] in the operational dimension with the same return on assets (ROA). The results of the research based on regression estimates based on the combination of four dimensions of risk management as an independent variable (quantitative estimation) showed that the risk management coefficient was 0.005 and positive, indicating a direct relationship between the level of risk management and financial performance of banks. Has been investigated. Student Statistics is equal to 2.305 and the corresponding level of significance is 0.023 and less than 5%, and therefore the ability to generalize a direct estimate of the relationship between risk management and financial performance of banks has been accepted. Fisher statistic is 13.518 and its significant level is zero and therefore a significant estimated linear relationship between risk management, characteristics and performance of the bank is accepted at the level of 95% confidence. Coefficient-based validation showed that the estimated relationship between 72.25 to 78.02% of the changes in financial performance in the normal and standard conditions in terms of risk management and bank characteristics and had a high explanatory power.

Florio and Leoni [12], Bushman [3], Gordon et al. [16] and many other researchers believe that effective risk management should lead to improved corporate performance. Despite this theoretical belief, a review of the research literature shows that despite these explicit predictions, only two studies include the research of McShane et al. (2011), Baxter et al. (2013) and in Iran Hosseini et al. (2015). , Have explicitly evaluated the effects of company risk management processes on operational performance.

This involves spreading investments into a broader range of financial services or loans; business, personal, credit cards, mortgage, auto and educational loans. Diversification reduces both upside and down side potential and allows for more consistent performance under a wide range of economic conditions. Diversification can be performed across products, industries and countries. Diversification strategy probably takes place, when accompany or business organizations introduce a new product in the market. In early 1960's & 1970's there is rapid growth in diversification of businesses. But with the passage of time it became difficult to manage much diversified activities of business organization. Even in recent years, it is quite hard for any business organization to operate in diversification mode because there are a lot of different requirements that must be taken into account by the business organization. Loan portfolio risk can be reduced with an effective credit review of applicants and selective asset backing. This paper aims at investigating the effect of diversification on financial performance of the Bank. This paper also attempts to use primary data in credit risk management which is a significant contribution in the area of finance.

The managerial analysis of the relationships between the variables shows that the improvement in the level of risk management of banks in strategic, operational, reporting and compliance with the rules to improve the financial performance of the banks under review is based on the return on investment. Therefore, standard formators, policy makers and supervisors in the banks under review are advised to communicate quantitative and qualitative standards based on standards such as Kozo and ISO in the form of an integrated standard in order to improve risk management in banks. Monitoring mechanisms to monitor its observance and continuous implementation. On the other hand, supervisory bodies and senior management in banks can use the level of risk management of the relevant bank in performance appraisals and implementation of incentive policies. Other researchers are advised to use approaches such as entropy or data envelopment analysis to more comprehensively evaluate financial performance and combine its various dimensions in the areas of liquidity, profitability, market, financing, productivity and survival, or the relationship between Risk management estimates bank-level characteristics and financial performance in methods such as spatial regression, Fama-Macbeth regression, or nonlinear patterns, to limitations such as classical assumptions in estimating relationships between variables, the ability to analyze relationships between variables. Conducting research in different industries or based on different metrics of financial performance and comparing them in the framework of a comparative study model can also increase the generalizability of the proposed model.

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