

Risk Identification System in Indian Commercial Banks: An Empirical Study

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ABSTRACT

There has been tremendous transition in the role of bank as a financial intermediary. Banks' role in the new regime focuses not only as provider of finance but also as financial service provider. Size and functions of banks are now enormous, varied, and complex. The expanded role of banks has given rise to various risk exposures. Due to such exposure to various risk types, efficient risk management is required. Identifying the existence of current and potential risks is the first step towards risk management process. This paper is an attempt to identify the factors that contribute to risk identification in banks and to compare that risk identification system differ in public sector and private sector banks or not, the empirical study has been conducted and views of employees of various banks have been tested using statistical tools.

Keywords: Risk, Risk Identification, Risk management, Banks, Bank ownership

INTRODUCTION

Banking business is exposed to various types of risks. Globalizations and reforms in the banking sector have enabled banks to explore new business opportunities rather than remaining confined to generating revenues from conventional streams, which has created a variety of risk factors into the system. In order to manage risk efficiently these risk factors need to be identified and a proper assessment of such risk factors should be done (Arora and Jain, 2011). Identifying the existence of current and potential risks is the first step towards risk management process. Risk identification is the process that reveals and determines the possible organizational risk as well as conditions, arising risks (Tchankova, 2002).

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Any remaining errors or omissions rest solely with the author(s) of this paper.

By risk identification the organization is able to study the activities and places where its resources are placed to risk (Williams *et al.*, 1998). Correct risk identification ensures effective risk management. If risk managers do not succeed in identifying all possible losses or gains that challenge the organization, then these non-identified risks will become non manageable (Greene and Trieschmann, 1984). The first task of the risk management is to classify the corporate risks according to their different types (Pausenberger and Nassauer, 2000). The first step in organizing the implementation of the risk management function is to establish the crucial observation areas inside and outside the corporation (Kromschroder and Luck, 1998). Then, the departments and the employees must be assigned with responsibilities to identify specific risks.

According to Tchankova (2002), systematic risk identification involves four elements i.e. sources of risk, hazard factors, perils and exposure to risk. Sources of risk refer to elements of the organizational environment that can bring negative or positive outcomes. Hazard is a condition that increases the chance of losses or gains and their sensitivity. Peril is something that is close to risk and it has negative, non profitable results. A peculiarity of the peril is that it does not include a positive meaning, as the peril always causes losses (Hance *et al.*, 1991). Resources exposed to risk are objects facing possible losses or gains. They will be affected if the risk event occurs.

Pausenberger and Nassauer (2000) state that it is advisable for most corporations to implement early warning systems. An early warning system is special information system enabling the management board to identify risks in time by observing the development of defined indicators (Luck, 1998). Instruments that identify risks include checklists of possible disturbances or breakdowns, risk workshops, examination of corporate processes, internal inspections and interviews, loss balance and recommendations by external experts. There are certain other approaches for risk identification like scenario analysis or risk mapping (Rosman, 2009). Risk identification process includes risk-ranking components where these ranking are usually based on impact, severity or dollar effects (Barton *et al.*, 2002). According to him, the analysis helps to sort risk according to their importance and assists the management to develop risk management strategy to allocate resources efficiently.

Banking policies and strategies are formed depending upon type and structure of ownership of a bank. Organizational culture, attitude and behaviors also vary according to type of bank ownership i.e. private-owned banks and state owned banks. This difference leads to different levels of risk- taking behavior and banks performance (Arora and Jain, 2011) and in turn results into varying level of risk identification practices in different types of banks. Indian banks vary because of type of ownership i.e. private-owned banks and state owned banks. Present study

is an attempt to find out factors contributing to risk identification in banks and to identify whether staff of public and private sector banks clearly identify the potential risks relating to each of their declared aims and objectives.

OBJECTIVES

1. To compare whether public and private sector banks clearly identify the potential risks relating to each of their declared aims and objectives.
2. To explore the factors contributing to risk identification in banks.
3. To open up new vistas of research and develop a base for application of the findings in terms of implications of the study.

LITERATURE REVIEW

To formulate the problem a review of existing literature was made. Gist of these previous studies pertaining to bank ownership and risk identification is prescribed as follows:

Niinima.ki (2004) found that the magnitude of risk taking depends on the structure and size of the market in which competition takes place. He also concluded that if the bank is a monopoly or banks are competing only in the loan market, deposit insurance has no effect on risk taking. Banks in this situation tend to take risks, although extreme risk taking is avoided. In contrast, introducing deposit insurance increases risk taking if banks are competing for deposits. In this case, deposit rates become excessively high, thereby forcing banks to take extreme risks. McCauley *et al.* (2002) identified various shift over time, across reporting banks of various nationalities and across markets. They also outlined reasons for the shift. They further highlighted the change in the balance of risks that accompanies the revised strategy. Finally, they posed questions regarding future developments.

Koziol and Lawrenz (2008) provided a study in which they assessed the risk of bank failures. They said that assessing the risk related to bank failures is the paramount concern of bank regulations. They argued that in order to assess the default risk of a bank, it is important considering its financing decisions as an endogenous dynamic process. The research study provided a continuous-time model, where banks chose the deposit volume in order to trade off the benefits of earning deposit premiums against the costs that would occur at future capital structure adjustments. Major findings suggested that the dynamic endogenous financing decision introduced an important self-regulation mechanism. Bofondi and Giorgio (2006) found that default rates are positively related to branch presence and the number of banks lending in a particular market.

Relationship between capital, risk and efficiency varies for banks with different ownership structures. However, there is little empirical guidance to suggest whether there are systematic differences in the relationship between risk taking, capital strength and efficiency for banks with different ownership features. Much of the literature on banking in emerging markets focuses on either the broad relationship between ownership and financial performance (e.g., Sarkar *et al.*, 1998) or the agency aspect of ownership, i.e., the impact of separation between management and ownership on the performance of banks (e.g. Gorton and Schmid, 1999; Hirshey, 1999).

The seminal work by Jensen and Meckling (1976), Fama (1980) and Fama and Jensen (1983) suggested that a lack of capital market discipline for firms weakens owners' control over management, making management freer to pursue its own agenda, and thus providing it with fewer incentives to be efficient. Given that public banks have stated social or/and economic development objectives one may expect them to have different performance and risk-taking features to their private sector competitors. Significant reforms and liberalization has taken place since the early 1990s (Sarkar *et al.*, 1998; Shirai and Rajsekaran, 2001; Bhaumik and Mukherjee, 2002), thereby granting all banks effective operational autonomy. Arora and Jain (2011) indicated that review based strategy, efficient risk management practices and banks inherent strength are the factors that form efficient risk management practices in Indian banks. They also explored that there is a significant difference between public and private sector banks in risk management practices.

Pausenberger and Nassauer (2000) stated that the first task of the risk management is to classify the corporate risks according to their different types and it is advisable for most corporations to implement early warning systems. An early warning system is a special information system enabling the management board to identify risks in time by observing the development of defined indicators (Luck, 1998). Kromschroder and Luck (1998) stated that the first step in organizing the implementation of the risk management function is to establish the crucial observation areas inside and outside the corporation. Then, the departments and the employees must be assigned with responsibilities to identify specific risks.

On making review of the previously conducted studies, it is clear that bank ownership is likely to affect practices of bank. The present study is an attempt to address the above issue pertaining to risk identification practices of banks in India.

SCOPE AND DESIGN OF THE STUDY

The present investigation is based on exploratory research inquiry of bivariate experiments of 2×2 constitution and examines whether or not employees of public and private sector banks of Indore division clearly identify the potential risks relating

to each of their declared aims and objectives. The research was conducted on a sample of 200 employees of public and private sector banks of Indore division. 50 respondents were chosen from each bank viz SBI and associates; other nationalized banks; old private sector banks and new private sector banks. The respondents were selected through non-probability convenience (judgmental) sampling method. As this research has a quantitative base so questionnaire used in this research is closed questions. The research instrument used to collect data was based on questionnaire developed by Al-Tamimi and Al-Mazrooei (2007). It included five closed-ended questions based on an interval scale. Respondents were asked to indicate their degree of agreement with each of the questions on a five-point Likert scale. The data were analyzed using window based statistical package of the social science (SPSS). The statistical tools used to analyze the data were analysis of variance, Tukey (HSD) test, Kaiser- Meyer- Olkin (KMO), Bartlett's test, Factor Analysis and mean.

ITEM TOTAL CORRELATION AND RELIABILITY OF THE MEASURES

As the sample size was 200, item with correlation value less than 0.1948 should be dropped. All the items in the study had correlation values more than 0.1948 thus; no item was dropped from the questionnaire. Reliability of the measures was assessed with the use of Cronbach's alpha on all the items. Cronbach's alpha allows us to measure the reliability of different variables. It consists of estimates of how much variation in scores of different variables is attributable to chance or random errors (Selltiz *et al.*, 1976). As a general rule, a coefficient greater than or equal to 0.7 is considered acceptable and a good indication of construct reliability (Nunnally, 1978). The Cronbach's alpha for the questionnaire was 0.724. Hence, it was found reliable for further analysis.

HYPOTHESES

Bartlett's test is used to test if k samples are from populations with equal variances (Snedecor and Cochran, 1989). The Bartlett's test of sphericity tests the null hypothesis that the variables in the population correlation matrix are uncorrelated. Test of the strength of the relationship among variables was done using the Bartlett's test of sphericity and hypothesis was formulated.

H_{01} : *There is no correlation among five variables in the population under study.*

Past researchers (e.g. Jensen and Meckling, 1976; Fama, 1980; Fama and Jensen, 1983; Sarkar *et al.*, 1998; Shirai and Rajsekaran, 2001; Bhaumik and Mukherjee, 2002; Al-Tamimi and Al-Mazrooei, 2007; Arora and Jain, 2011) have found evidence that practices of banks are likely to vary in banks with different ownership features. Hence, this study hypothesizes that:

H_{02} : *There is no significant difference between SBI and associates, other public sector banks, new private sector banks and old private sector banks in practices of risk identification.*

H_{03} : *There is no significant difference between SBI and associates and other public sector banks in practices of risk identification.*

H_{04} : *There is no significant difference between SBI and associates and new private sector banks in practices of risk identification.*

H_{05} : *There is no significant difference between SBI and associates and old private sector banks in practices of risk identification.*

H_{06} : *There is no significant difference between other public sector banks and new private sector banks in practices of risk identification.*

H_{07} : *There is no significant difference between other public sector banks and old private sector banks in practices of risk identification.*

H_{08} : *There is no significant difference between old private sector banks and new private sector banks in practices of risk identification.*

RESULTS AND DISCUSSION

To test the correlation among all the variables in the population under study, Kaiser-Meyer- Olkin (KMO) measure of sampling adequacy and the Bartlett's test of sphericity were performed and to test the significance of variance and understand inter-level difference between and within group treatments, the data were treated with F-test analysis.

Results of KMO and Bartlett's Test of Sphericity

As indicated in Table-1, the generated score of KMO was 0.600, reasonably supporting the appropriateness of using factor analysis. The Bartlett's test of sphericity was highly significant ($p < 0.01$), rejecting the null hypothesis (H_{01}) that

the five variables are uncorrelated in the population. Using principal components with varimax rotation only attributes with factor loadings of 0.5 or greater on a factor were regarded as significant. The factor analysis generated two factors explaining 58.10% of the variability in the original data.

Table 1 Result of the KMO and Bartlett's test for risk identification

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.600
Bartlett's test of Sphericity	Approx. chi square	102.443
	Df	10
	Sig.	0.000

* The mean difference is significant at the 0.01 level.

Results of Factor Analysis

Systematic Identification

It reflects systematic identification of risk and investment opportunities by the banks so that risk can be managed effectively. It is measured by items 1 and 5 as identified in table 3. These items are "My bank has developed and applied procedures for the systematic identification of investment opportunities" and "The bank carries out a comprehensive and systematic identification of its risks relating to each of its declared aims and objectives". Table 2 display that variable 5 is the strongest and explains 32.74 per cent variance and has total factor load of 0.814.

Table 2 Rotated factor matrix for risk identification

Var. No.	F1	F2	Communalities
V1	0.769		0.600
V2		0.687	0.600
V3		0.537	0.523
V4		0.699	0.610
V5	0.814		0.671
Eigen value	1.84	1.06	
Cumulative variance	32.75	58.10	

Note: F1 and F2 are two derived factors.

Table 3 Factors of risk identification

Sl. No.	Factor	Item	Item	Item
1	Systematic identification	Systematic Identification of Investment opportunities (4.0)	Systematic Identification of Risk (3.6)	
2	Risk Ranking	Analyzing other banks (3.8)	Prioritizing risk (2.6)	Monitoring fluctuations in risk (3.7)

The figures in parenthesis represent the average scores for the variables under each Factor that determine Risk Identification.

Risk Ranking

It represents identifying risk while keeping in view internal and external factors and then ranking them according to priority. It is measured by items 4, 2 and 3 as identified in table 3. These items are “My bank is aware of the strengths and weaknesses of the risk management systems of other banks”, “The bank finds it difficult to prioritize its main risks” and “Changes in risk are recognized and identified with the bank’s roles and responsibilities”. Table 2 display that variable 4 is the strongest and explains 58.10 per cent variance and has total factor load of 0.699.

Results of One Way ANOVA

Table 4 depicts that Risk Identification in SBI and associates, other public sector banks, old private sector banks and new private sector banks significantly differ in their mean values ($F= 9.276$ and $p< 0.01$) therefore null hypotheses H_{02} is rejected at 1% level of significance. New private sector banks has highest mean value of 187.5, hence have better risk identification. Old private sector banks, SBI and associates and other nationalized banks have mean values of 181, 175 and 162.5 respectively which represents that risk identification is comparatively less effective in these banks.

Table 4 Result of one way ANOVA

	Sum of squares	Df	Mean square	F	Sig.
Between groups	6.703	3	2.234	9.276	.000
Within groups	47.2088	196	0.241		
Total	53.9118	199			

* The mean difference is significant at the 0.01 level.

In order to find out significant difference between four set of banks i.e. SBI and associates and other public sector banks; SBI and associates and new private sector banks; SBI and associates and old private sector banks; other public sector banks and new private sector banks; other public sector banks and old private sector banks; and old private sector banks and new private Sector banks; Tukey test was applied as indicated in Table 5. It represents that p value in groups 4 and 5 is 0.000 and 0.001; this means null hypothesis H_{06} and H_{07} are rejected at 5% significance level and it can be inferred that there is significant difference between risk identification of other public sector banks and new private sector banks and other public sector banks and old private sector banks. While p values in group 1, 2, 3 and 6 is 0.065, 0.053, 0.587 and 0.561; this means that null hypothesis H_{03} , H_{04} , H_{05} and H_{08} are accepted at 5% significance level and it can be inferred that there is no significant difference between risk identification of SBI and associates and other public sector banks; SBI and associates and new private sector banks; SBI and associates and old private sector banks; and old private sector banks and new private sector banks.

Table 5 Post Hoc test

	(I)	(J)	Mean difference (I-J)	Std. error	Sig.	95% Confidence interval	
						Lower bound	Upper bound
Tukey HSD	SBI	NEW PVT	-0.252	0.09816	.053	-0.506	0.002
		PUB	0.244	0.09816	.065	-0.010	0.498
		OLD PVT	-0.24	0.09816	.587	-0.378	0.130
	NEW PVT	SBI	0.252	0.09816	.053	-0.002	0.506
		PUB	0.496	0.09816	.000	0.242	0.750
		OLD PVT	0.128	0.09816	.561	-0.126	0.382
	PUB	SBI	-0.244	0.09816	.065	-0.498	0.010
		NEW PVT	-0.496	0.09816	.000	-0.750	-0.242
		OLD PVT	-0.368	0.09816	.001	-0.622	-0.114
	OLD PVT	SBI	0.124	0.09816	.587	-0.130	0.378
		NEW PVT	-0.128	0.09816	.561	-0.382	0.126
		PUB	0.368	0.09816	.001	0.114	0.622

* The mean difference is significant at the .05 level.

There are few conceptual studies on risk identification of financial institutions (e.g. Kromschroder and Luck, 1998; Luck, 1998; Pausenberger and Nassauer, 2000; Tchankova, 2002; Barton *et al.*, 2002) and few empirical studies that include risk identification of banks (e.g. Al-Tamimi, 2002; Al-Tamimi and Al-Mazrooei, 2007). Risk identification is the first stage of risk management (Tchankova, 2002) and a very important step in risk management (Al-Tamimi and Al-Mazrooei, 2007). The first task of the risk management is to classify the corporate risks according to their different types (Pausenberger and Nassauer, 2000). The first step in organizing the implementation of the risk management function is to establish the crucial observation areas inside and outside the corporation (Kromschroder and Luck, 1998). Then, the departments and the employees must be assigned with responsibilities to identify specific risks. Pausenberger and Nassauer (2000) also state that it is advisable for most corporations to implement early warning systems.

An early warning system is a special information system enabling the management board to identify risks in time by observing the development of defined indicators (Luck, 1998). Risk identification is the process that reveals and determines the possible organizational risk as well as conditions arising risk (Tchankova, 2002). By risk identification the organization is able to study the activities and places where its resources are placed to risk (Williams *et al.*, 1998). Correct Risk Identification ensures effective risk management. If risk managers do not succeed in identifying all possible losses or gains that challenge the organization, then these non-identified risks will become non manageable (Greene and Trieschmann, 1984). Risk identification process includes risk-ranking components where these ranking are usually based on impact, severity or dollar effects (Barton *et al.*, 2002). Pablo (1999) identified that decision-making studies incorporating risk have typically used risk measures that are generic across industries.

Al-Tamimi and Al-Mazrooei (2007) examined the degree to which the UAE banks use risk management practices and techniques in dealing with different types of risk. They also compared risk management practices between the two sets of banks they found that the three most important types of risk facing the UAE commercial banks are foreign exchange risk, followed by credit risk, then operating risk. They also found that the UAE banks are somewhat efficient in managing risk and risk identification, risk assessment and analysis are the most influencing variables in risk management practices. Finally, they indicated that there is a significant difference between the UAE national and foreign banks in the practice of risk assessment and analysis, and in risk monitoring and controlling.

CONCLUSION

This paper examined risk identification system in public and private sector banks of India. This type of orientation is necessary in the present scenario because technological developments, global economic trends and market volatility have increased risk exposures in banks and in order to efficiently manage various types of risks, they need to be identified properly. The present study has indicated that systematic identification and risk ranking are the two factors for risk identification. From the descriptive and analytical results, it can be concluded that banks clearly identify the potential risks relating to each of their declared aims and objectives in general. The results also indicate that there is a significant difference between the public and private sector banks in the practice of risk identification. Risk identification is better in new private sector banks. While risk identification in old private sector banks, SBI and associates and other nationalized banks is found to be less, lesser and least effective respectively. This reflects that in order to improve risk identification system risk should be systematically identified and proper risk ranking should be done.

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APPENDIX

Bank’s Risk Management Scale

Authors-Al-Tamimi and Al-Mazrooei (2007)

Instructions

Please read the questions carefully and mark (X) at the appropriate place in one of the five columns, as the case may be. The questionnaire is designed to know your opinion in general. Please note it is not to test policies of your banks. There is no right or wrong answer. The data is being collected for purely academic purpose.

General Information

Name of the Bank:

Name of the employee (optional):

Designation:

STATEMENT	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. The bank carries out a comprehensive and systematic identification of its risks relating to each of its declared aims and objectives					
2. The bank finds it difficult to prioritize its main risks.					
3. Changes in risk are recognized and identified with the bank’s roles and responsibilities?					
4. My bank is aware of the strengths and weaknesses of the risk management systems of other banks.					
5. My bank has developed and applied procedures for the systematic identification of investment opportunities					