Operational Risk Management In Indian Banks : Evaluation Of Applicability Of The RCSA Method Under Advanced Measurement Approach

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INTRODUCTION

Operational risk is the risk of loss arising from the materialization of a wide variety of events including fraud, theft, computer hacking, loss of key staff members, lawsuits, loss of information, terrorism, vandalism and natural disasters. It has received increasingly significant attention due to the recent global turmoil. Operational loss events have become the major cause of spectacular business failures (for example, Societe Generale, Madoff, Morgan Stanley amongst others). The trend towards greater dependence on technology, more intensive competition, and globalization have left the corporate world more exposed to operational risk than ever before.

The greater interest of the regulators in operational risk (enshrined in the Basel II Accord) is attributable to the changing risk profile of the financial services sector, which has resulted from the growth in e-business activity and reliance on technology, the growing use of outsourcing arrangements, and the increasing complexity of financial assets and trading procedures. The Basel Committee on Banking Supervision (BCBS, 1999) expresses the view that operational risk is "*sufficiently important for banks to devote the necessary resources to quantify*".

GROWING IMPORTANCE OF OPERATIONAL RISK

Of all the different types of risk that can affect banks, Operational Risk (OpRisk) can be among the most devastating and the most difficult to anticipate. OpRisk remains an enigma for risk managers. It is the relative lack of understanding of it that is threatening. Unlike market and credit risk, which tend to be isolated in specific areas of business, operational risks are inherent in all business processes. It is a broader concept than "operations" or back office risk.Moosa Imad A. (2007) points out that Operational Risk has been receiving increasingly significant attention from the media, regulators and business executives, as financial scandals keep on surfacing (for example, Subprime, Societe Generale, Barings, Enron and Parmalt) and because operational loss events have become the major cause of spectacular business failures (for example, Lehman Brothers, Morgan Stanley, Barings Bank and Long-Term Capital Management).

Most leading organizations recognize that by improving operational risk management (ORM) practices they can reduce losses, lower costs associated with fixing problems and increase customer and employee satisfaction, all of which leads to improved financial performance and enhanced shareholder value. Just one percent of the events cause 60-70% of the losses in the financial services industry. Very large operational losses can cause bankruptcy and even moderately large operational losses can seriously impact financial performance. Chapelle Ariane (2006) observes that management of Operational risk serves two goals viz., avoidance of catastrophic events and reduction of medium and small losses. Some techniques are efficient to serve the first goal, while others better serve the second.

Wei (2007) examined the impact of operational loss events on the market value of announcing and non-announcing U.S. financial institutions using data from the OpVar database. The results reveal significantly negative impact of the announcement of operational losses on stock prices. He further observed that the declines in market value were of a larger magnitude than the operational losses causing them. Wei's views support the conjecture put forward by Cummins et al. (2006). A significant contagion effect was also detected. Using data from the same source, Cummins et al. (2006) conducted an event study of the impact of operational loss events on the market values of U.S. banks and insurance companies, obtaining similar results to those obtained by Wei (2007). They found losses to be proportionately larger for institutions with higher Tobin's Q ratios, which implies that operational losses are more serious for firms with strong growth prospects.

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Recent developments like growth of e-commerce, complex structured financial products, failures, bailouts , mergers and consolidations, the use of automated technology, the growing use of outsourcing arrangements, and the increasing complexity of financial assets and trading procedures have led to the increasing significance of operational risk.

MEASURING REGULATORY CAPITAL AGAINST OPERATIONAL RISK

The Basel II Accord suggests three methods for calculating regulatory operational risk capital (the capital charge): **(i) The Basic Indicators Approach (BIA), (ii) The Standardized Approach (TSA) and (iii) The Advanced Measurement Approach (AMA).**

BIA is the simplest approach for calculating operational risk capital. This is the default approach to be followed by every Basel II compliant bank irrespective of their size or sophistication . No eligibility criteria are required as a prerequisite for using the BIA. as it is designed for small domestic banks. According to this approach, banks must hold capital against operational risk that is equal to the average of the previous three years of a fixed percentage (α) of positive annual gross income, which means that negative gross income figures must be excluded. Hence,

$$K = \frac{\alpha \sum_{i=1}^{n} Y_j}{n}$$

where K is the capital charge, Y is positive gross income over the previous three years and n is the number of the previous three years for which gross income is positive. The parameter α is determined by the Basel Committee. The Indian Banks are following the BIA as per the RBI guidelines and α is 15%.

$$K = \frac{\alpha \sum_{t=1}^{3} max\left[\sum_{j=1}^{8} \beta_j Y_j, 0\right]}{3}$$

Standardised Approach of computation of operational risk capital of banks is arrived at by dividing the banks' activities into eight business lines and taking a specific percentage of gross income of each business line and aggregating the same for a given year and use multiplier (Beta) of average gross income to compute capital charge. The eight business lines are: Corporate Finance (18%), Trading and Sales (18%), Retail Banking (12%), Commercial Banking(15%), Payment and Settlement (18%), Agency Services (15%), Asset Management (12%) and Retail Brokerage (12%). This approach contains an element of incentive for cherry picking in view of varying % of income considered for computation of capital charge. The total capital charge is calculated as a three-year average of the simple sum of capital charges of individual business lines in each year, where βj is set by the Basel Committee to relate the level of required capital to the level of gross income for business line j. Basel II recognises the element of diversification of risk in the SME sector and has assigned a lower risk weight for retail SME exposure under standardised approach. The non-retail SME exposure would also attract a lower risk weight where they have better external ratings under the standardised approach. Therefore, shifting to Basel II, could be advantageous for economies whose banks have significant SME exposure.

Alternative Standardised Approach (ASA) uses loans and advances, instead of gross income, for retail banking and commercial banking business lines multiplied by fixed factor which results in capital charge to be set aside. Large Diversified Banks in major markets are not envisaged to use alternative standardized approach.

The Advanced Measurement Approach (AMA) is the most complicated of the three options. Under this approach, each firm calculates it own capital requirements, by developing and applying its own internal risk measurement system. The BCBS (2004a) suggests that if banks move from the BIA along a continuum towards the AMA, they will be rewarded with a lower capital charge. The regulatory capital requirement is calculated by using the bank's internal operational risk model. One of the objectives of the Basel II Accord is to align regulatory capital with the economic capital determined by the banks' internal models, which can be achieved by using the AMA.

PROBLEMS ASSOCIATED WITH OPERATIONAL RISK MODELING UNDER AMA

The problem is that it is not quite clear what the AMA comprises. For example, Chapelle et al. (2004) define the AMA as encompassing "*all measurement techniques that lead to a precise measurement of the exposure of each business line of a financial institution to each category of operational loss event*".It is described as encompassing three versions: the loss distribution approach (LDA), the scenario-based approach (SBA) and the scorecard approach (SCA). The three approaches differ on the nature of data required to implement the procedure: LDA depends on historical data (hence, it is backward-looking), the other two approaches are forward-looking because hypothetical futuristic data is collected from "expert opinion" via scenario analysis and scorecards. Andres and Va der Brink (2004) list the three approaches as separate versions of the AMA and go on to illustrate a scenario-based AMA. Kuhn and Neu (2004) also describe the AMA as being dependent on internal or external data or expert knowledge, meaning that they are separate approaches. The problem of data has undoubtedly restricted the ability of researchers to conduct empirical studies on the measurement, causes and consequences of operational risk. Wei (2007) observed that "*quantification of operational risk has been hindered by the lack of internal and external data on operational losses".* Several researchers have experimented with operational loss data over the past few years.

Unlike the modeling of market and credit risk, the measurement of operational risk faces the challenge of limited data availability. Furthermore, due to the sensitive nature of operational loss data, institutions are not likely to freely share their loss data. Only recently has the measurement of operational risk moved towards a data-driven Loss Distribution Approach (LDA). Therefore, many financial institutions have begun collecting operational loss data as they are trying to move towards an LDA to measure their operational risk. Operational risk is much more difficult to quantify than market risk and credit risk, which have much more well-behaved loss distributions compared with operational risk.

Risk managers have applied extreme value theory to model operational risk in such a way that the tail of the loss distribution is fitted separately by fat-tail distributions, such as the Pareto, Weibull, or Gumbel distribution, whereas the empirical distribution is used for the lower part of the loss distribution. A major drawback of that approach, however, is that risk measures (e.g. the Value-at-Risk) depending on the overall loss distribution are very sensitive to the chosen threshold level that separates the empirical from the fitted fat-tail distribution. A concept that defines optimality related to the choice of the threshold level has not been developed yet.

One problem faced by most financial institutions is that there is not enough internal or external data to model the distributions, specially the severity distribution, in a statistically significant way. Ran Wei (2007) applied Bayesian credibility to combine external and internal data. He separately estimated frequency and severity distributions of external data and then applied credibility theory to aggregate them with internal data. There are varied complaints aimed at AMA ranging from it not being able to capture the risk of tail events, not being forward looking, encourage too great a focus on measuring risk rather than managing it . EVT has been touted as one solution to the enduring problem of tail events - the huge losses that every bank fears but only rarely suffers. These losses are the ones that matter. However, according to Chernobai A. et al. (2008), we can't apply EVT to historic events in order to predict future losses. Even if there have been one or two extreme events in the past history of the bank, presumably, the bank knows what the issue were, knows the source of the risk, and has taken steps to prevent a repeat.

In essence, AMA Models are not forward looking. Simultaneously, the firms are also exposed to another risk christened Model risk which is defined as the risk "*that the model is not a sufficiently robust reflection of reality*". Certainly, it's a risk that has leapt onto centre stage for operational risk executives in recent past especially post sub prime fiasco. As instruments get more complex, translating the models that price them into language that senior executives and the board can understand is increasingly challenging. *Since one-off operational risk events also elude purely quantitative models, sound risk measurement would also require a qualitative overlay, whose prominence needs to be carefully balanced with a considerable degree of judgement and mindful interpretation of historical precedence.*

Wood Duncan (2008) has explored that some bankers are strongly advocating a back-to-basics approach for both regulation and risk management. Rather than relying on quantitative modelling techniques, there are calls for a simpler, qualitative approach. An analysis of the losses suffered by the banks and the risk management approach shows that the banks who followed an optimum mix of quantitative techniques accompanied with the nuts and bolts of risk management - limits, controls, governance, reporting and good old-fashioned common-sense and judgement -

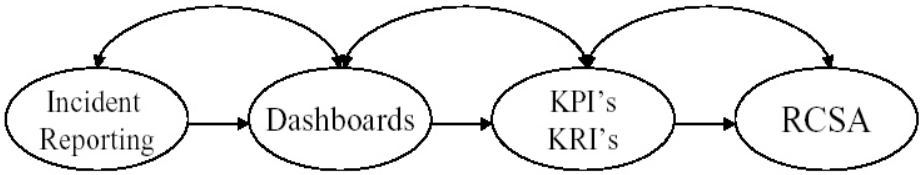
were better off in facing the crisis head on. Wood believes LDA to be a very subjective process, with assumptions being made all the time on shapes of distributions for frequency or severity. He advocates the use of Risk and Control Self-Assessment (RCSA) and key risk indicator (KRI) approaches as they are a lot more objective and, provide the necessary focus for corrective action, leading to truly controlling operational risks rather than just measuring it, and hence is more effective. The AMA has to factor in these forward-looking measures, as just relying on loss data is a bit like living in the past. Past data does not reflect the current risk state of a firm and this is what causes or prevents operational losses from occurring. Change in risk profile of the firm requires a change in the past methodologies used to measure its operational risk. Forward-looking measures will make AMA a lot more reliable in predicting operational losses. Heavy investment by many banks in sophisticated risk management system and the failure of these systems at the time (during sub prime crisis) when they were most required to function has made many bankers lose confidence in the power of those tools and hence in quantitative techniques.

Carrel Philippe (2008) advocates use of qualitative approach as it will result in a more considered shift in the risk management agenda. He believes that till now, risk has been quantified, assessed, documented and reported. However, in the future, probably, there will be fewer complex algorithms and a lot more human intervention. In the light of these facts and disclosures and increased focus on qualitative technique to manage Operational risk, this paper focuses on RCSA as a method of Operational Risk Management.

RCSA: METHODOLOGY AND SCOPE OF APPLICATION IN INDIAN BANKS

The EUR4.9 billion rogue trading loss suffered by Societe Generale in January 2008 has prompted calls for operational risk managers to refocus on the nuts and bolts of management, rather than the minutiae of measurement. Chapelle Ariane (2005) reviews the rules of Basel II regarding the treatment of operational risk, and focuses on four axes of operational risk management:

Figure 1. The Four Dimensions of Operational Risk Management (ORM)



Incident Reporting is a static analysis of losses. It gives a cartography of past events, their nature and their causes. Dashboards is a dynamic analysis of losses. They describe the evolution of operational events by activity or by department, providing a dynamic representation of the losses. Key risks and performance indicators allow a comparison of the dashboards to predefined standards and an assessment of the evolution of the risk. Risk and Control Self-Assessment (RCSA) is a proactive analysis which provides a prospective view of the potential risk based on the collection of information by experts in the field.

RCSA is based on the idea that people on the field are better informed than external auditors or controllers. The Basel Committee has acknowledged this fact, by allowing banks to model their risks themselves, provided they comply with a number of criteria. Thus, the RCSA gives the floor to the line manager as well as to key, experienced people in the assessed activity or entity. It is a co-operative work between line management, operational risk management, and internal audit. In workshops and group discussions, the objectives are to identify the various risks of the entity, assess the level of control, and suggest improvements.

Dev Ashish (2007) observes that Risk & Control Self-Assessment (RCSA) is gaining popularity as an operational risk management tool. He points out that RCSA is increasingly being used as a means of more fully assessing the effectiveness of the risk management framework of a bank from an operational risk perspective. Kumar Vijay T. (2008) explains that Risk and control self assessment (RCSA) is a process through which operational risks and the effectiveness of controls are assessed and examined. He observes that most popular approach for conducting RCSA is to hold a workshop where the stakeholders identify and assess risks and controls in their respective areas of operations. Kumar Vijay T. elaborates that primary objectives of RCSA are to ensure **(a)** the reliability and integrity of information

(b) compliance with policies, plans, procedures, laws, regulations and contracts **(c)** the safeguarding of assets **(d)** the economic and efficient use of resources **(e)** the accomplishment of established objectives and goals for operations or programs. The use of RCSA strategy requires delivery of periodic high level information on RCSA to risk management committee and board of directors. Senior management is required to inculcate an organisational culture that places high priority on sound internal controls and policies and receive regular reports about RCSA results. The policy on RCSA must be approved by the board of directors and the operational risk manager should establish the RCSA standards contained in the policy. The responsibility of carrying out the RCSA process lies upon heads of the businesses/functions. The internal audit manager acts as a facilitator in an RCSA workshop.Jim Ryan and David Shu (2007) analysed results from the third annual State of Operational Risk Management (ORM) global survey and revealed the maturity of foundational activities, such as loss event collection and risk control self-assessments (RCSA), but an immature state for areas that have the opportunity to add the greatest value, i.e., scenario analysis, capital modelling and key risk indicators. The survey indicated increasing popularity of RCSA among Operational Risk management techniques. Chartis conducted a global survey of banks and insurance companies across the financial services industry between January and March 2008, and reported that, in terms of data inputs into the ORM system, 72% of the respondents use risk/control self assessment data.The Advanced Measurement Approach (AMA) survey March 2008 conducted by Chase Cooper highlighted significant gap between financial institutions' expectations and the actual AMA implementation experience. The survey further highlighted the benefits of AMA modeling leading to improved business decision-making and efficiency including higher standards for the RCSA process. The organizations implementing AMA have been forced to supplement loss data by scenario analysis and RCSA data. The paper believes that the industry as a whole will embrace quantitative analysis of RCSA data but the fundamental point is that an AMA programme forces the issue as a necessity.

INDIAN ANALYSIS

A study of annual reports of 31 Indian Scheduled Commercial Banks reveals that 23 banks wish to follow RCSA method on their movement to AMA approach. An essential requirement for RCSA is to hold workshops for the employees and take their opinions in building up the framework. The paper seeks to gauge the preparedness of Indian banks for following RCSA. A survey of 900 junior to senior management employees working in a range of departments of the sample banks was performed for the purpose. The objective of the questionnaire administered on these employees as part of the survey was to assess their awareness of Basel II and evaluate the steps taken and practices being followed by different banks at the branch level w.r.t. management of operational risk and implementation of RCSA. The data captured was analysed to find out the awareness, views and policies followed by these banks. The respondents' information serves as a status check of Operational risk policies of these banks and as guiding force to these banks on reforms required for holistic approach towards implementation of Operational Risk Management policies. The survey questionnaires were sent /mailed to 1200 bankers of which response was received from 900 respondents in commercial banks (public sector and private sector banks) in June 2009. The written / e-mailed responses to the questionnaires were received from a total of thirty-one banks on various dates between July 2009 and September 2009. These included fourteen public sector banks, five old private sector banks, seven new private sector banks and five foreign banks. These sample banks represent a cross section of banks in India representing different categories and sizes of banks in India. 545 responses were received via e mails and the remaining questionnaires were filled up by personal visits to various branches of respondent banks.

STYLE OF THE QUESTIONNAIRE

The objective of the questionnaire was to assess the awareness of bank employees at different management levels, geographical locations, diverse verticals (except risk management) about Basel II and operational risk. The application of various qualitative criteria for operational risk management requires the staff at all levels to be aware and well informed about various causes and implications of ORM. The survey seeked information on awareness of these employees (across a cross section of banks) about different types of risk. The questionnaire further examined the various procedures and practices being followed by the banks at the branch level to minimize operational risk. This information would help in assessment of strategies adopted by these banks for prevention of losses due to operational risk from people, polices, systems and external events.

ANALYSIS OF THE QUESTIONNAIRE

❁**Respondent Profile :** The survey included 900 respondents belonging to different departments, branches and hierarchy levels of different category of 31 banks.

Of all the 900 respondents who participated in the survey, 427 were employed in the Public Sector (47%) , 272 belonged to New Private Sector Banks (30%), 105 belonged to old Private Sector (12%) and 96 were employed with the Foreign Banks (11%).

❁**Experience of Respondents**: The respondent profile with respect to their experience was very varied. The purpose of the study is to assess the awareness at all levels and in all categories of banks.

❁**Position in the Bank :** The respondent profile in terms of position in the bank was in sync with the work experience with the bank. 92% respondents had an experience of more than 1 year, of which, only 8% belonged to the Senior Management and remaining belonged to the Junior (59%) or Middle Management (32%).

AWARENESS OF RESPONDENTS ACROSS POSITIONS AND CATEGORY OF BANKS

This section assesses the awareness of employees at different levels on a range of banking issues across all categories of banks.

❁**Basel Awareness Across Bank Categories & Positions:** Most of the respondents were aware about the Basel Accord (79%). The awareness percentage varied across respondents working at different positions. It was observed that awareness about Basel Accord was maximum (92%) at the senior level but dropped to 85% at the middle level and further to 65% at the junior level. Cross comparison of awareness of respondents across different category of banks by chi square test showed that the difference was significant at the junior level (p value .001). However, it was not significant at both the Middle and Senior management level. This implies that efforts must be made to improve the awareness about Basel Accord especially at the junior level in all the banks (mainly public sector and old private sector banks).

❁**Awareness of Basel Norms:** Though respondents were aware of the Basel accord per se, however, awareness about implementation of Basel norms for the banks dropped to 72%. Only 59% respondents working at junior level in various banks were aware about the implementation of Basel norms in the banks.

Table 1 : Awareness Of Basel Norms At Different Hierarchy In Different Category Of Banks (All Figures Denote Percentage Of Respondents)

	Public Sector	Private (New)	Private (Old)	Foreign Banks	χ^2 (p value)
Junior	48	71	59	72	.011
Middle	71	77	81	90	.011
Senior	87	83	-	-	.833

The difference in awareness about Basel norms across different categories of banks is significant at the junior and middle level (p value .011) with more people at Private Sector (New) Banks and Foreign Banks being aware as compared to the Public Sector and old Private Sector Banks. The awareness improves significantly at the Senior level and the difference amongst different category of banks also disappears at this level. It is suggested that Public sector banks and old private sector banks must attempt to improve awareness at the junior and middle level.

RISK AWARENESS

Respondents are much more aware about Credit Risk than any other risk.

❁**Awareness About Basel II's Emphasis On Which Category Of Risk:** Efforts must be made to increase awareness about other types of risk . Basel II emphasizes on Operational Risk and introduced capital calculation on Operational risk. However, awareness about this fact amongst the respondents was a meagre 40.44%. Position wise analysis shows awareness to be maximum amongst middle management at 47% followed by senior management at 42% and 27.62% at the junior management level. Respondents misconceived that Basel II lays more emphasis on credit risk. Chi square test indicates relationship between position of employees and their awareness about Basel II's contents to be

significant. (p value .001).

Table 2: Awareness Of Different Types Of Risk

S.No.	Type of Risk	Frequency	Percent
1	Credit	761	84.6
2	Market	442	49.1
3	Liquidity	345	38.3
4	Reputational	296	32.9
5	Legal	236	26.2
6	Operational	515	57.2

A survey of Annual Reports of these banks reveals that they intend to use RCSA analysis as part of AMA. RCSA method requires enmasse participation from all levels of employees. Lack of awareness about Operational Risk and Basel II will be a huge roadblock on the journey to RCSA. Efforts must be made using workshops and providing information on the banks' intranet to improve awareness amongst employees.

❁**Workshops By Banks To Increase Awareness About Basel II :** It is observed that Banks organise workshops to promote awareness about Basel II; however, there are differences amongst different categories of banks with regard to awareness about the workshops and attendance requirement at such workshops.

Table 3 : Holding Of Basel II Awareness Workshops And Attendance Requirements At These Workshops (Figures In Percentage)

	Holding Basel II Workshop	Attendance Mandatory
Public Sector	62.5	57
Private (new)	64.7	67
Private (old)	40	21
Foreign	92.7	100
Chi Square (p Value)	.000	0.000

Overall, across all categories of banks, 64% respondents reported that their banks hold a Basel II awareness workshop. However, there is stark difference in awareness about Basel II workshops across different categories of banks which is authenticated by the Chi Square test (p value 0.000). The respondents who were aware about Basel II workshops being held at their banks were further queried about attendance requirement at such workshops. This reduced the sample size to 576. Similar differences were observed in this analysis too. Attendance norms were least stringent at Private Sector (old) banks as compared to other categories. Chi Square test revealed this difference amongst different category of banks also to be significant (p value 0.000).

FREQUENCY OF WORKSHOPS

Wide variations exist in frequency of workshops with 49% respondents reporting that the workshop frequency is not fixed across all categories of banks. This implies that banks hold workshops to improve awareness about Basel II but awareness level about such workshops is not encouraging. The attendance requirements are not strict and there is no clear schedule about frequency of such workshops.

The management of banks can post an annual schedule of workshops on the website and make it mandatory for all employees to attend one workshop as a prerequisite to their career growth path. It is understood during informal discussion with respondents that they it is difficult to spare time from the busy schedule to attend such workshops, but strict regulations alone can make it happen. Since one of the major causes of Operational Risk is people, an attempt must be made to sensitize employees and reduce people risk contribution in the operational risk losses. Awareness about Banks' policy document on Operational Risk is lowest at Old Private Sector Banks as compared to other categories of banks. Informal discussions revealed that it was mandatory for all employees to read certain bank and RBI documents before every internal audit at foreign banks, which improved their awareness. Documents in simple language may be framed and a copy must be kept in every branch so as to improve awareness. It was observed that

awareness about RBIs policies on Operational Risk is better at all banks.

Table 4 : Awareness About Existence Of Bank's Policy On Operational Risk (Figures In Percentage)

	Awareness About Bank's Document On Operational Risk	Awareness About RBI's Policy Document On Operational Risk
Public Sector	68	65
Private (new)	59	63
Private (old)	16	62
Foreign	75	73

MONITORING OF TRANSACTIONS

Efficient system of monitoring of transactions can bring down operational losses. Most of the respondents reported of an efficient monitoring system in their bank.

❁**Employee Frauds :**The table below reports only the frauds observed by the respondents at different positions of different categories of banks. Respondents who reported no fraud or unawareness about fraud are not mentioned here. The entire analysis shall be focused only on the respondents who expressed their awareness about a fraud at their bank.

Table 5 : Awareness Of Fraud At Different Hierarchy Levels In Different Categories Of Banks(Figures In Percentage)

	Public Sector	Private (New)	Private (Old)	Foreign Banks	χ^2 (p value)
Junior	27.3	41.6	48.3	33.3	0.000
Middle	66.2	59.1	72.4	71.7	0.222
Senior	71.1	100	-	-	0.099

These figures are an indicator of awareness of frauds having taken place in a particular respondent's bank. Overall, 56.6% respondents i.e., 509 respondents reported about instances of fraud at their organization. There are two possible reasons for this figure being less in certain cases viz., **(1)** Being at a junior level, the respondent is genuinely unaware about any instance of fraud at his/her institution. **(2)** The respondent considers it unethical to report about a fraud outside the bank even if it is an entirely confidential survey. Across all categories of banks, awareness about a fraud improved as we move from junior to senior management. In most of the public sector banks, instance of employee fraud is immediately circulated so as to increase awareness and avoid re-happening of a similar instance. Chi square test reveals a significant relationship between bank categories and awareness about a fraud at the junior level (p value .000) . However, the relationship is not significant at the middle and the senior level, implying similar awareness at these levels across all categories of banks.

❁**Division Of The Employee Who Committed The Fraud :** The awareness is maximum about frauds in the retail division followed by operations / back office. Awareness about the division of employee committing a fraud changes significantly with position. At the senior level, 57% employees reported division as 'All the above', which is actually true since frauds do not take place in a single division. However, at the junior level, individuals usually get to know only about the frauds in their respective division, hence retail is reported foremost.

Table 6 : Hierarchy Wise Awareness About Division In Which The Fraud Took Place (Figures In Percentage)

	Retail	Corporate Banking	Transaction Banking	Operations / Back Office	All the Above	χ^2 p value
Junior	71.3	9.9	0	13.9	5	0.000
Middle	34.4	15.1	3.4	23.9	23.3	
Senior	10.6	10.6	6.1	15.2	57.6	
Total	38.5	13.5	3.1	20.8	24.1	

Chi Square test also show a significant relationship (p value 0.000) between position of the respondent and awareness about the division where the fraud took place. On performing division wise analysis, it is observed that within retail, awareness falls as we move from junior to senior management. It increases for corporate banking and 'All the above' category.

Table 7 : Fraud Detection Strategies In Different Divisions (Figures In Percentage)

	Internal Audit	Colleagues	The Software	Any of the above	χ^2 (p value)
Retail	69	26	0	17.1	0.000
Corporate Banking	74.3	8.6	0	5	
Transaction Banking	43.8	56.2	0	0	
Operations /Back Office	65.7	5.6	11.1	17.6	
All the Above	20.8	0.8	0	78.4	
Total	**56.6**	**14.3**	**2.3**	**26.8**	

It is observed that Internal Audit helped in detecting most of the frauds reported by the respondents. Any of the above strategy i.e., a combination of all the detection criterion viz., Internal Audit, Colleagues, software is responsible for detecting 26.8% frauds. 78.4% frauds in 'All the Above' category are detected by a combination of strategy i.e., any of the above. This is true in realty too, since it is always a combination of various strategies that helps in detection of Fraud. Internal Audit emerged as the major fraud detection method. Hence, banks must focus on building up a more stringent and frequent Internal Audit to detect as well as avoid frauds in the future.

Table 8 : Strategies Followed By Different Category Of Banks To Avoid Frauds In Future (Figures In Percentages)

	Essential Supervisor Authorisation	Stringent Internal Audit	Job Rotation	Encouragement of Whistle Blowers	Compulsory Leave
Public Sector	69.5	73.1	62.2	66.3	9.8
Private (New)	83.6	98.1	80.8	91.2	72.3
Private (Old)	58.2	93.4	72.5	83.6	11.2
Foreign	72.6	85.7	70.2	96.4	100
Total	72.1	84.6	70	79.4	38
χ^2 (p value)	0.000	0.000	0.000	0.000	0.000

Banks have devised many strategies to detect and prevent frauds. The most popular strategy followed by all categories of banks was Stringent Internal Audit followed by encouragement of whistle blowers. Basel II norms also suggest increased importance of Internal Audit for managing Operational Risk. Chi Square test suggests significant relationship (p value 0.000) between category of bank and all the four strategies. In the recent sub-prime crisis, disregard for whistle blowers was one of the important reasons for failure of some financial institutions. Encouragement of whistle blowers by Indian Banks is a good indicator of policies being followed by Indian banks as it is a good prevention strategy provided it is followed in the right earnest.

❁ **Compulsory Leave :** Grant of compulsory leave to an employee serves as a good policy to detect frauds. The policy is considered effective by many banks as it does not let an employee leave any work pending, unattended and makes him prone to sudden checks. All the foreign banks and 72% New Private Banks follow this policy but the same is not true for Public sector and old Private sector banks. This policy change can lead to employees of public sector and old private sector banks adopt a cautious approach. Chi Square test suggests relationship between compulsory leave and category of bank to be significant (p value .001).

❁ **Outsourcing Of Transactions :** Basel II perceives outsourcing as one of the prime causes of operational risk but it has

become a necessary evil with the banking institutions. However, banks in India have developed adequate strategies to combat the risks arising out of outsourced transactions. The transactions of outsourced employees were either monitored by permanent employees or banks had a system of testing data entries by outsourced employees and verifying them to minimize critical errors. It is observed that banks understand the risks arising out of use of outsource employees and have made adequate arrangements to prevent operational risk losses arising from the same.

❁ **System Failure:** 76% respondents had experienced a system failure at their respective organisation. In this age of on line transactions and entire business being linked with IT, a technical snag or even a small system failure can become a cause of loss due to operational risk. In 27 % cases, system was restored within 1 hour, whereas 54% respondents reported that it was restored within 1-4 hours. The median for the same also works to be 1-4 hours. 11% respondents reported that system restoration took 12 24 hours. It is observed that in this IT savvy world, every minute of system failure leads to losses. Hence, efforts must be made by all the banks to minimize system restoration time.

❁ **Attrition Rate:** High rates of attrition lead to discontinuity in the management process and training requirements for the new recruits. Many senior bankers consider high rates of attrition as a cause for operational risk . New Private sector banks lead in this category followed by old Private Sector banks. Attrition rate was minimum in Public sector Banks. Informal discussions with respondents show that long working hours and rigorous targets drain out the employees at New Private Sector banks even though they are well compensated for it. A better pay package is the lure for the Old Private sector bank employees to switch jobs. Job stability at Public Sector banks and good working environment at foreign banks made respondents stick to their jobs at these institutions. Chi square test (p value .001) show significant relationship between attrition rate and category of banks. However, banks have adequate arrangements to smoothen the transition process in case of high rates of attrition by either making the supervisor responsible for it or making the handover process compulsory so as to smoothen transition. It is suggested that the HR department of the bank must strive to bring down the attrition rate.

❁ **Trust in Bank's OR policies:** All the respondents from foreign banks felt that their bank had superior operational risk management policies vis-à-vis other banks. This proportion was 31% i.e., minimum in case of Old Private Sector banks. 73% respondents from New Private Banks carried the pride that their bank had superior operational risk management policies whereas, this proportion dropped to 62% in case of Public Sector banks. This analysis shows self belief of employees in the organisation they work for. It is advised that attempts must be made to sensitise the employees about the various operation risk prevention programmes that the bank has designed so that they develop trust for their employer bank.

SUMMARY

The present study performed a survey on a cross section of 31 banks comprising of all the categories and sizes based in India. Overall, the responses evidence the growing awareness and importance of operational risk management in Indian banking institutions.The sub-prime crisis has made the organizations more conscious and as a result, all the banks are giving due attention to all types of risk. AMA is on the agenda of all the banks and they are gearing up for it as per RBI guideline of April 2013. RCSA emerged as unanimous choice of all the practitioners as a qualitative approach and to involve the entire workforce in the process of operational risk management. The awareness about Basel Accord was maximum at senior level followed by middle level and was lowest at the junior level. Though respondents were aware of the Basel accord per se, however, awareness about implementation of Basel norms for the banks was lower. Significant differences are observed in awareness at the junior level across different categories of banks with awareness being maximum in Private Sector (New) Banks and Foreign Banks as compared to the Public Sector and old Private Sector Banks. The awareness significantly improves at the middle level, however, inter bank differences are still significant. The awareness further improves at the Senior level. Awareness about Credit Risk is more than that of any other type of risk. Efforts must be made to increase awareness about other types of risk . Only 40% respondents were aware that Basel II lays maximum emphasis on operational risk with awareness to be maximum amongst the middle management followed by senior and those at the junior level . Majority of the respondents at foreign banks (93%) reported that their banks hold a Basel II awareness workshop but the awareness level dropped at all other banks. The attendance requirement was observed to be most stringent at foreign banks as compared to others. No clear schedule about frequency of such workshops emerged at any of the banks.

Awareness about bank and RBI policies was the least at old private sector banks as compared to other categories of

banks. Awareness about RBI's policies on Operational Risk was better across all banks. Awareness about a fraud improved as we move from junior to senior management. There is maximum awareness of frauds in the retail division and then operations / back office. Internal Audit helped in detecting most of the frauds followed by a combination of all the detection criterion viz., Internal Audit, Colleagues, software. In realty too, it is always a combination of various strategies that helps in detection of Fraud.

❁**Strategies To Avoid Frauds In The Future:** In the recent sub-prime crisis, disregard for whistle blowers was one of the important reasons for failure of some financial institutions. Encouragement of whistle blowers by Indian Banks is a good indicator of a potential fraud prevention strategy. Most of the foreign banks and New Private Banks follow the policy of Compulsory Leave but the same is not true for Public sector and old Private sector banks. Most of the banks had experienced a system failure at their respective organisation with the restoration time being different across banks. However, most of them were able to restore it within 4 hours. It is observed that banks are following a healthy practice of centralised daily backup which minimises cases of data loss. Attrition rate was observed to be minimum for Public sector Banks whereas, New Private sector banks lead in this category followed by old Private Sector banks. Banks with a relatively higher attrition rate agreed of a positive relationship between attrition rate and increase in operational risk events.

KEY FINDINGS & RECOMMENDATIONS OF THE STUDY

It is observed that in the light of lack of awareness about operational risk per se and lack of fixed schedule for holding workshops to spread awareness about operational risk and to build RCSA schedule, the Indian banks are still far away from implementing RCSA to manage operational risk. Private Sector (old) banks as well as Public sector and private sector (New) banks must display better discipline in terms of holding workshops, attendance at these workshops and fixed schedule of workshops apprising employees about Basel II. Banks need to follow a proactive approach to manage and prevent operational risk. All the frauds must be disclosed to the employees and they should be trained in light of these frauds to avoid a similar mishap in future. Whistle blowers need to be further encouraged and Internal Audit strengthened to detect fraud at an early stage and prevent major losses. Grant of compulsory leave can be another step to keep the employees under check. Overall, it is observed that if Indian banks follow a strict time schedule to train their employees and hold RCSA workshops , they can be prepared to follow this qualitative approach to manage operational risk and become AMA compliant. RBI can also take steps to make operational risk implementation policy simpler , easy to understand and implement, especially for small and average sized banks. It can also hold training sessions to guide banks in implementation of operational risk procedures and policies.

SCOPE FOR FURTHER RESEARCH

Studies can be performed to assess and develop specific training requirements of employees at different levels in different categories of banks. A comparative analysis of all these parameters can be performed with banks in other developing nations / emerging economies.

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