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A Comprehensive Study Of Indian Commercial Banks On Maturity Of Credit Risk Management Capability

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Abstract
A wide array of credit risk management (CRM) practices have been followed by commercial banks since their inception. These practices have evolved over the years; new practices/strategies have been formulated, old practices have been updated/revised, traditional operations are being replaced by new sophisticated procedures. With such continuous evolution of CRM practices, CRM capability maturity of banks has also improved over time. Further, the role/importance and effectiveness of each CRM practice in determining the maturity of CRM capability is an important issue that needs to be addressed. A number of capability maturity models have been suggested in general for a business organisation. However, these studies focus on the assessment of overall business risk management maturity and do not offer any model to trace the path of evolution towards maturity in CRM capability in commercial banks. This article attempts to fill this gap by investigating into how commercial banks mature in their ability to manage credit risk in their advances portfolio. The objective of this study is to go beyond descriptive in terms of specifying practices, challenges and issues in each stage of CRM capability maturity and also be prescriptive in terms of recommended strategies and actions to move on to the next higher level of CRM capability maturity. The path of A comprehensive study of Indian commercial banks on maturity of credit risk management capability is illustrated on the basis of primary data collected from 35 Indian commercial banks (representing 70 per cent of the population) through a structured questionnaire in year 2014–2015. A comprehensive list of questions relating to major elements of CRM namely, (a) CRM organisation, (b) CRM policy and strategy; and (c) CRM operations and systems at the transaction level; and (d) CRM operations and systems at the portfolio level were included in questionnaire. The CRM index tool is employed to benchmark a given commercial bank's approach to CRM against four standard levels of maturity. The statistical analysis of scores in four major elements of the CRM index for banks lying in different stages of maturity clearly brings out whether or not credit risk processes/techniques/tools/procedures are adequate, identifies realistic targets for improvement and shall enable bank management to frame concrete plans for evolving towards a higher CRM capability maturity level. This study, by drawing conclusions from empirical data, is unique and contributes to additional insights into the risk management literature in emerging economies.
Keywords: *Commercial banks, credit risk management capability maturity, credit risk management operations and systems, Indian banking sector.*

1- INTRODUCTION

The credit risk in lending activities is all about evaluation of individual clients/transactions and analysis of effects of their aggregation/correlations in terms of credit portfolio risk. Credit risk management (CRM) capability empowers banks to identify assesses, manage proactively and optimise credit risk (Reserve Bank of India guidance note on CRM, 2002). CRM capability involves laying down appropriate organisational structures, framing suitable policies, strategies and implementing appropriate operations and systems at both, the transactional level and the portfolio level. The increasing complexity of the legal environment, regulatory guidelines, provisioning norms, introduction of new credit instruments and the increased competition in the markets are some of the major factors pushing the banks to adopt more sophisticated techniques/practices and progress ahead in the path of the evolution of capability maturity in CRM. These CRM practices have evolved over the years; new practices/strategies have been formulated, old ones have been updated/revised and traditional opera- tions are being replaced by new sophisticated procedures. With such a continuous evolution of CRM practices, CRM capability maturity of banks has also improved over time.

However, to understand this path of evolution of practices towards higher capability maturity in CRM, it is necessary to address underlying complex issues, such as, defining the stages of capability maturity, specifying the practices/ processes/attributes and monitoring progress towards higher maturity levels, preferably in quantitative terms. Spencer Pickett (2005) also emphasised that each organisa- tion needs to define various levels or stages of risk management maturity and then plot evolution through these levels. A descriptive analysis applied along with quantitative assessment of capability maturity in overall CRM and in each specific element of CRM shall serve multiple purposes for both the bank management and external parties.

2- NEED FOR THE STUDY

With the issue of CRM principles by the Basel committee in 1999 and the issue of guidance notes on risk manage-ment by regulatory authorities of various countries, a formal CRM framework is now considered an essential component of Asset Liability management. Increasingly, across the globe all commercial banks are being asked to show evidence of a systematic approach followed to design, implement and improvise a CRM framework in their annual reports. This inevitably requires an in-depth understanding of the intricacies underlying process of the evolution of CRM capability maturity. Such improvement in understanding the path of evolution towards maturity by each individual bank shall also increase the soundness of the commercial banks in the economy and contributes towards strengthening the risk management of the financial system of the nation as a whole.

Further, insight into the process of the evolution of CRM capability maturity shall be of great aid in following a disciplined process for the ongoing monitoring, evaluation and control of credit risk, a major risk in the banking sector since loan transactions account for more than 50 per cent of all banking activities. A quantitative tool in this regard will make it further possible for a regulatory authority, investors and other stakeholders to monitor the CRM maturity level of a bank over a time period enabling a dynamic assessment and shall also give useful insight into process by which the entire banking industry of a nation shall move towards benchmark practices. An objective assessment can help in defining future strategies for improving the existing CRM processes (Crawford, 2002; Ibbs & Kawk, 2000), and identifying weaknesses and strengths (Hillson, 2003; Ren & Yeo, 2004) in a country's banking system as a whole.

The bank management may use this information to target the CRM elements which need improvement over a period of time. Such an exercise will also enable a bank to assess the impact of their CRM practices on their credit risk profile and thereby to maintain the level of aggregate credit risk in its credit portfolio within appropriate limits. A leading consultancy firm KPMG (2011) advocated that '…Risk processes should be carried out in the context of where a business is headed, not solely based on where it is today'. Therefore, a study illustrating the path of the evolution of CRM processes will build an understanding of the potential scope of improvement, a necessary prerequisite to building the business case for investment in better/ improved CRM practices/processes. The present study attempts to trace the path of the evolution towards a higher maturity or stronger capability in the management of credit risk in commercial banks, based on empirical evidence from the Indian banking sector. A brief review of existing literature on maturity modelling follows

3- PRIOR RESEARCH

A number of capability maturity models have been sug- gested for a business organisation, each proposing various levels of maturity in risk management practices. Some of the widely recognised models are: The International Association for Contract and Commercial Management (IACCM) (2002), Loosemore et al., 2006, Orisni (2002, pp. 66–67), Risk Management Research and Development Program (2002), Spencer Pickett (2005), etc. However, these studies were focused on the assessment of overall

business risk management maturity and thus did not offer any model to trace the path of evolution

towards maturity in CRM capability in commercial banks. A mathe- matical tool that allows both, making comparisons of CRM capability maturity across the banking industry and also in making assessments of varied CRM practices for a given bank on different situation dates, does not seem to have been suggested so far. This study makes a modest attempt to provide some answers in this area. Further, it offers a comprehensive model for evaluation of the CRM framework incorporating the entire gamut of inter- nationally accepted benchmark practices/techniques/ strategies/tools affecting the functioning of the CRM process in a bank.

Elements of Credit Risk Management

Three elements, also called as building blocks of CRM by the Reserve Bank of India (RBI), in its Guidance Note on CRM (2002) are: (a) CRM policy and strategy; (b) CRM organisation; and (c) CRM operations and systems. The operations and systems may be further sub-divided into two categories, namely, operations and systems at the transaction level and operations and systems at the port- folio level. At a given time, a bank may follow a mix of practices relating to each element, as listed further.

CRM Policy and Strategy

The CRM policy of a bank defines basic procedures, guidelines and rules within which a loan portfolio is to be managed. 'Complexity and scope of credit policy and strategy should be adequate to the size of the institution and the nature of its activities, and must be consistent with prudent banking practices and relevant regulatory require-ments' (Association of Supervisors of Banks of the Americas, 2008). Some of the major issues included in CRM policy are, exposure limits, portfolio mix, target markets, pricing decisions on individual clients, mini- mum acceptable credit risk rating and administration of compliance, including monitoring conduct of account, etc.

CRM Organisation

Sound organisation is sine qua non for successful implementation of an effective CRM framework. The organisational structure designs and reviews processes for CRM and also coordinates the various functional activ- ities, which advise on risk management issues within the bank. Practices relating to CRM organisation encompass issues relating to forming committees, forming super-specialised groups, constituting an independent credit administration department, distinct unit for review of credit accounts, an independent unit/department for managing defaulting credit accounts, delegation of credit approving authority, and staffing and training.

CRM Operations and Systems

CRM practices relating to operations and systems determine what the risk managers actually do, at the transaction level and at the credit portfolio level. At transaction level CRM operations and systems are primarily based on a credit risk rating mechanism. The credit rating mechanism includes practices relating to the estimation of the credit risk of individual clients and differentiating the individual transactions and credit groups in relation to risk, which allows for determining practices regarding the frequency of monitoring credit risk. Regular reviews on credit risk ratings of individual accounts reflect trends within the credit portfolio facilitating credit portfolio risk monitoring and control. CRM operations and systems at the port- folio level encompass practices relating to analysing credit portfolio risk on a varied basis of classification of advances, such as, industry and geographical concentration, product mix, credit ratings, etc., and estimation of credit portfolio risk.

CRM in Emerging Economies

Significant structural changes have been noticed in emerg- ing economies mainly with respect to deregulation, privati-sation and consolidation of financial markets. The commercial banks in these economies are incorporating complex changes in the risk management framework (organisational structure and operations and systems) to meet new regulatory norms from their central banks and the Basel II guidelines. Scott (2003) in his study on CRM for emerging markets observed that many advanced, quantitative and dynamic credit risk measurement methodologies are neither suitable nor possible in emerging markets, which usually lack data, standardised external ratings and secondary markets for pricing. This study attempts to investigate how the CRM capability maturity evolves in commercial banks in emerging economies, given their distinctive features. The study draws conclusions on the basis of empirical data from the Indian banking sector. India is taken as a case study for two reasons. First, as observed by Demetriades and Luintel (1996), 'India is presently one of the most important developing countries in the present world with a rich history of banking sector controls'. After the wave of economic reforms in India in the 1990s, these controls have gradually been relaxed, allowing increased play of market forces, functional auton- omy and operational flexibility to commercial banks.

Second, the time period of the study is five years after the detailed CRM guidelines were issued by the RBI in 2002, the central bank of India, coinciding with the issue of such guidelines in other developing countries. This enables us to clearly track the CRM practices/techniques adopted by banks in other emerging economies.

Profile of Indian Banking Sector

Until the early 1990s, the management of credit risk in Indian commercial banks was generally limited to reviews of individual transactions and individual loan accounts were held passively in the balance sheet till maturity. However, after the financial sector liberalisation process carried out since the mid-1990s, risk management capabilities of banks have come into greater focus. This process of maturity in CRM practices gained further impetus with the issue of regulatory guidelines and guidance notes on asset liability management and guidelines on management of credit risk, market risk and operational risk by the central bank, the RBI since 1999. The urgent need for Indian banks to bring in innovation to have tremendous flexibility, next practices and best practices was emphasised and duly taken care of by commercial banks in India. Further, the implementation of the revised capital adequacy norms and Basel II accord led to a sharp focus on CRM capabilities.

There are 50 Indian Scheduled Commercial Banks (SCBs) in India, including 28 public sector banks and 22 private sector banks. In recent years, the public sector banks have contributed to over 70 per cent of the banking assets. The Indian private sector banks contributed about 20 per cent, while foreign banks accounted for less than 10 per cent of the total banking assets (Reserve Bank of India, 2010). The Indian scheduled banks have made big strides in managing credit risk. As observed by another study on CRM practices followed by commercial banks in India by Arora (2010), 'a vast majority of sample banks were following the benchmark practices with regard to CRM organizational structure, documentation of CRM policies, definition of exposure norms, design of credit risk rating framework, etc'. This study also identified focus areas for further improvement in CRM, 'such as, setting up of super-specialised groups, training of CRM officials, applicability of credit risk rating framework, credit risk monitoring practices at transaction level, credit portfolio risk analysis, etc'. Thus, one may infer that CRM practices and regulatory guidelines are both evolving in Indian banking sector. To examine this evolution of CRM capability maturity, the present article adopts the following methodology.

4- OBJECTIVE AND RESEARCH METHODOLOGY

This article aims to explore how commercial banks mature in their ability to manage credit risk in their advances port- folio. The objective of this article is to go beyond descriptive in terms of specific practices, challenges and issues in each stage of CRM capability maturity, but to also be prescriptive in terms of recommended strategies and actions to move to the next higher level of CRM capability maturity. To achieve this objective, a survey of commercial banks in India was made in 2014–2015 through a structured questionnaire. The questionnaire sought to collect data on practices relating to three elements of credit risk management, namely, (a) CRM organisation; (b) CRM policy and strategy; and (c) CRM operations and systems.

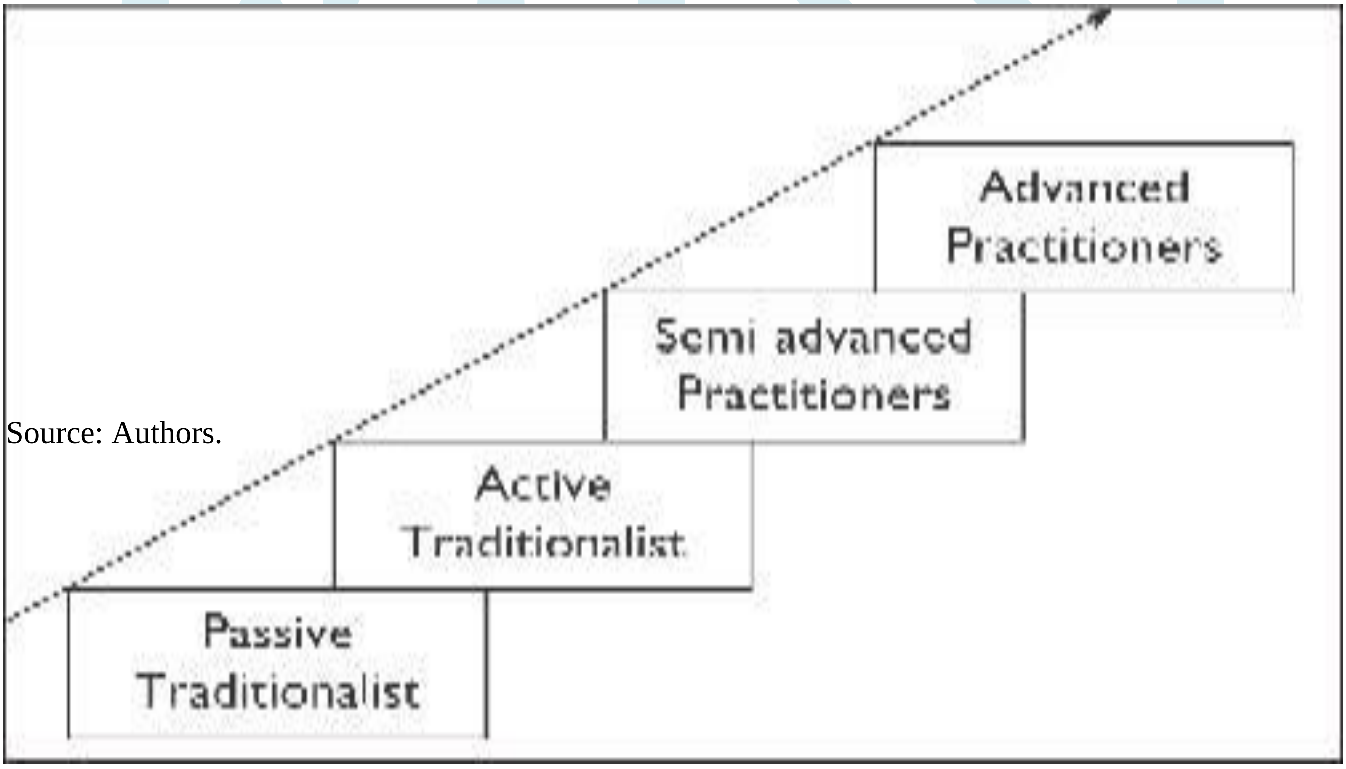
The response to the questionnaire was collected from 35 scheduled Indian commercial banks in 2014–2015, which represented nearly 70 per cent of the population. The data relating to CRM practices was further used to compute the CRM index score for each sample bank following the methodology as suggested by Kumar, Arora and Lihelle (2011). The CRM index methodology was used to arrive at a score ranging from 0 to 100, based on predefined benchmark practices that management efforts should strive to develop and follow. The overall CRM index score and scores in each element of CRM were analysed through statistical measures, such as, measures of central tendency (mean, median) and measures of dispersion (standard deviation, range, coefficient of variation).

5- THE FOUR STAGES OF CRM IN MATURITY

The four stages of CRM capability maturity are defined, as the Risk Management Research and Development Program (2002) also stressed that ‘to have more than four levels of maturity would increase ambiguity without giving any additional refinement to the model’. The four stages in the (b) active traditionalist; (c) semi-advanced practitioners; and (d) advanced practitioners. Each stage of maturity
reflects the extent to which inter- nationally considered best CRM practices are followed by banks falling in that stage of maturity and as CRM practices evolve in terms of maturity, normally banks will move on to the next higher stage of maturity, reflecting increasing levels of sophistication in CRM capability.

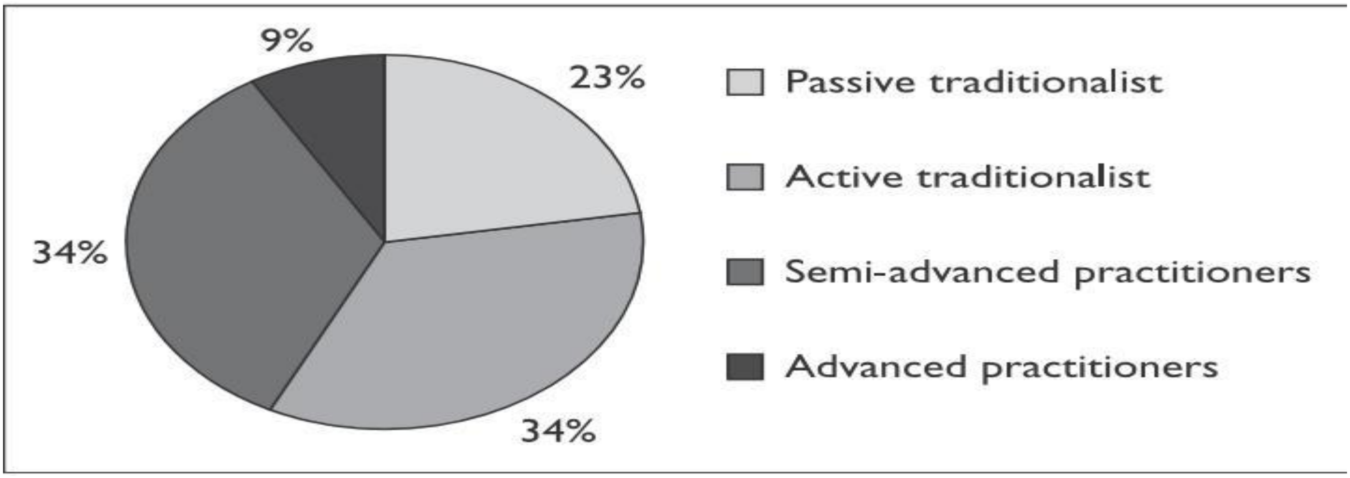
As depicted in Figure 1, progress in capability maturity may be depicted in terms of a series of steps, each step building from and helping to support the previous ones. Passive traditionalist is the first step/level of maturity in evolution of CRM practices and each next stage represents the next higher step/level of maturity in CRM. It may be noted that positive features of CRM maturity in one stage continue to exist and more benchmark practices are followed as the banks progress in the path of evolution towards higher capability maturity.

Figure 1. Evolution of Capability Maturity in CRM



Source: Authors.

Figure 2. Distribution of Sample Banks in Four Stages for Maturity



Source: Authors.

On the basis of their CRM index scores, the sample banks were classified into four stages of CRM capability maturity. Figure 2 presents the distribution of sample banks across four stages of capability maturity in CRM. As may be observed from Figure 2, 23 per cent of the sample banks were at the primitive stage of passive traditionalist in the path of evolution in CRM practices. Further, same proportion (12 out of 35) of the sample banks were at the stage of active traditionalist and that of semi-advanced practitioners. The lowest percentage of the sample banks have reached the stage of advanced practitioners.

Progressing in CRM Capability Maturity

The overall CRM index score indicates the relative posi- tion of a bank in various stages in the path of evolution of maturity in CRM capability. To better understand the practices followed in each stage of maturity, the scores for each element of CRM need to be closely examined. Accordingly, the overall CRM index scores obtained by sample banks lying in a given stage of maturity is broken down into scores for each element of the CRM system, namely, policy and strategy, organisation, operations and systems at the transaction level and finally operations and systems at the portfolio level. Such analysis shall also pinpoint the areas of strengths and identify the focus areas of improvement to move towards next higher stage of maturity in CRM capability.

Stage I: Passive Traditionalist

Banks lying in this initial stage of maturity were following traditional CRM practices, such as, documented policy, industry/sector exposure limits, simple credit risk rating model and monitoring of credit portfolios in descriptive terms only.

Table 1. Summary Statistics: Passive Traditionalist (number of banks = 8)

	Policy & Strategy	Organisation	Operations and Systems at Transaction Level	Operations and Systems at Portfolio Level
Maximum score	20	14	36	30
Mean score	11.6250	9.1250	21.8750	11.1250
Median score	12.0000	9.0000	22.0000	11.0000
Mean score (%)	58.12	65.14	60.76	**37.08**
Range	9.00	7.00	6.00	8.00
Std. deviation	3.02076	2.29518	2.29518	2.90012
Coefficient of variation (%)	25.9850	25.1526	10.4922	**26.0684**
Skewness	−0.807	−0.675	−0.837	0.538

Source: Authors.

Table 1 depicts the summary statistics for Passive traditionalist banks for each element of CRM. As may be observed from the table, mean scores of the banks falling in the stage of passive traditionalist are less than 60 per cent for each element of CRM except CRM organisation. The mean scores are the lowest, (below 40 per cent) with regard to operations and systems at the portfolio level. This finding clearly indicates that to move on to the next stage of maturity, the CRM practices should necessarily evolve in respect of each element of CRM with greatest emphasis in the area of operations and systems at the port- folio level.

Stage II: Active Traditionalist

Progressing in CRM Capability Maturity Banks in the second stage of maturity had refined their traditional CRM practices to a limited extent, such as, strengthening CRM structure, designing new operations and systems, developing training programmes for in-house staff, etc.

Table 2. Summary Statistics: Active Traditionalist (number of banks = 12)

	CRM Policy and Strategy	CRM Organisation	Operations and Systems at the Transaction Level	Operations and Systems at the Portfolio Level
Maximum score	20	14	36	30
Mean score	12.6667	9.6667	22.9167	16.0000
Median score	12.5000	9.5000	22.5000	16.0000
Mean score (%)	63.33	69.05	63.65	**53.33**
Minimum	8.00	7.00	17.00	8.00
Maximum	16.00	12.00	30.00	22.00
Range	8.00	5.00	13.00	14.00
Std. deviation	2.05971	1.92275	3.31548	4.26401
Coefficient of variation (%)	16.2608	19.8904	14.4467	**26.6501**
Skewness	−0.660	−0.075	0.411	−0.473

Source: Authors.

Table 2 depicts the summary statistics for active traditionalist banks. It may be observed that, mean scores of the sample banks falling in the stage of active traditionalists have improved in all CRM elements, particularly with significant progress achieved in the element of CRM operations and systems at the portfolio level, where the mean score increased by nearly 50 per cent.

Stage III: Semi-advanced Practitioners

Banks in this maturity stage were following; in addition, some more sophisticated CRM practices such as credit risk estimation procedures, linking the delegation of credit approval authority with credit risk rating, portfolio risk monitoring, etc.

Table 3. Summary Statistics: Semi-advanced Practitioners (number of banks = 12)

	Policy	Organisation	Operations and Systems at the Transaction Level	Operations and Systems at the Portfolio Level
Maximum score	20	14	36	30
Number of banks	12	12	12	12
Mean score	14.4167	10.6667	25.5833	20.1667
Median score	15.0000	11.0000	25.5000	20.0000
Mean score (%)	72.08	76.19	71.06	**67.22**
Minimum	10.00	8.00	22.00	14.00
Maximum	17.00	12.00	31.00	28.00
Range	7.00	4.00	9.00	14.00
Std. deviation	2.10878	1.43548	2.60971	3.58870
Coefficient of variation (%)	14.6273	13.4575	10.2008	17.7952
Skewness	−0.803	−1.065	0.623	0.673

Source: Authors.

Table 3 depicts the summary statistics for banks falling in the stage of semi-advanced practitioners. The findings indicate that sample banks again improved in each element of CRM, indicating a relatively higher level of maturity. The mean scores exceeded 70 per cent for each element except in the area of operations and systems at the portfolio level where the mean score (per cent) remained lowest at 67 per cent. It may be noted that the range of scores in CRM organisation was lowest, indicating a fairly similar organisational structure in sample banks.

Stage IV: Advanced Practitioners

Banks in this final stage of maturity were following most of the benchmark practices regarding CRM. It was observed that these sample banks had macro (portfolio) view of their risk–return trade-offs in CRM and ascertained relatively more accurate parameters for credit risk estimation at transaction level, such as, loss given default, credit value at risk, etc. They also had a well laid out organisation structure for credit risk monitoring and closely monitored credit portfolio, for instance, by classifying portfolio on the basis of various parameters such as, size of account, maturity, type of facility, credit rating and industry/sector, etc. Thus, these banks employed more sophisticated practices and analytical tools to identify, assess and manage proactively credit risk in the advances portfolio.

Table 4. Case Summaries: Advanced Practitioners (number of banks = 3)

	Policy	Organisation	Operations and Systems at the Transaction Level	Operations and Systems at the Portfolio Level
Maximum score	20	14	36	30
Mean score	15.0000	12.3333	31.0000	22.6667
Median score	16.0000	13.0000	31.0000	22.0000
Mean score (%)	75.0	88.07	86.11	75.55
Minimum	12.00	11.00	30.00	20.00
Maximum	17.00	13.00	32.00	26.00
Range	5.00	2.00	2.00	6.00
Std. deviation	2.64575	1.15470	1.00000	3.05505
Coefficient of variation (%)	7.000	1.333	1.000	9.333

Source: Authors.

Table 4 depicts the summary statistics for advanced practitioners. It may be observed that mean scores of the banks falling in the stage of advanced practitioners have again improved in all elements and the maximum improvement is achieved (mean scores increased nearly by 15 per cent) in CRM operations and systems at the transaction level followed by CRM organisation (nearly by 12 per cent). Further, the mean scores (per cent) were still less than 80 per cent in two elements, namely, operations and systems at the portfolio level and in policy and strategy, indicating two potential areas for improvement in the near future or, in other words, a never-ending process of evolution.

6- CONCLUSION

Thus, the underlying premise that there is a continuum in levels of CRM capability maturity and commercial banks usually continuously evolve credit risk management practices over time to progress ahead in the path of evolution towards higher stages of CRM capability maturity is proven true. One may also infer that there is a strong case for setting aside the resources in developing economies either by regulatory authority/policy makers/government for designing and implementing varied CRM practices in commercial banks so as to help them in reaching higher stages of CRM capability maturity. The empirical evidence from Indian banking system suggested that in emerging economies, the commercial banks should primarily focus on CRM operations and systems at both transaction level and at portfolio level to reach higher stages of CRM capability maturity.

7- CONTRIBUTIONS OF THE STUDY

The present study makes a valuable contribution in the area of research in risk management in emerging economies. It follows a holistic approach and integrates the three building blocks of CRM, namely: (a) organisation; (b) policy and strategy; and (c) operations and systems, to build an understanding of the process of evolution of capability maturity in CRM. The study is unique since it draws statistical conclusions based on an analysis of findings of primary data in CRM. The study will also enable the depiction of maturity in CRM practices for a bank and for the banking system of a country. The insight into the process of evolution of maturity in CRM capability maturity in commercial banks may also serve as blueprint for improvement and for creating the management performance benchmarks. Sucbenchmarks may be applied further for more clearly establishing performance targets for improving management effectiveness.

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