Objectives of credit risk management, causes and factors impacting mitigations of risk - A study w.r.t. Bengaluru Urban Commercial Banks.

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Abstract

In order to achieve financial soundness banks should manage the risk effectively. Credit risk is banker's loss arising from a borrower who fails to keep up his promise of repayment well in time. The bank's profitability is impacted by the level of loans and advances, non-performing loans and deposits. In this 'market driven economy' globalization trends coupled with intensive competition within the country and outside the country are making the banks to frame suitable risk management strategies. Bank frauds, failures, economic sluggishness, global financial crisis impactness, large sized money transfer from one to another country, taking shelter in other countries and possible legal delays etc., are some of the examples where in the commercial banks should be careful and take extra care to measure the quantum of associate risks.

Credit risk causes economic downturn as banks fail due to default risk from customers, which has had a negative impact on the economic development of many nations (Reinhart &Regoff, 2008). In 2008 at global level credit crises emerged due to mass issuing of sub-prime mortgages to individuals in the US leading to default which caused problems around the world. Subprime mortgages and other loans with less restrictions can generate remarkable losses including corporate failures and bankruptcy of financial institutions (Brown et al. 2014). The present research paper reveals data that socio-economic characteristics are impacting on CRM, respondents are well aware of objectives behind CRM. Further, the respondents clearly expressed about the causes of risk management and also ranked the factors impacting credit risk mitigation. The study analyzed the data with the help of quantitative techniques like chi-square, contingency co-efficient, ANOVA, Kendall's concordance and Garrette ranking technique.

Keywords: Competition, relationship, variation, risk mitigation, objectives Basel III, banking, corporate failures, deposits, interests, etc.,

Introduction

Banks face in their normal course of business potential sources of risk like liquidity risk, credit risk, interest rate risk, market risk, foreign exchange and political risk (Campbell, 2007). But the credit risk is the largest risk faced by banks and financial intermediaries (Gray et al. 1997). Sound credit granting process, appropriate credit administration, measurement monitoring and control of risk definitely helps the banks to assess the extent of credit risk. In order to sustain the pressures, the banks should introduce structured comprehensive measures. The management of banks have to base their business decisions on a dynamic and integrated risk management system and process driven by corporate strategies. (Pai, T.A. 2011).

Commercial banks provide financial assistance to the development purpose. They pump resources for economic growth (Brooks, 2014). There is an indication that credit functioning commercial banks accelerate economic growth, while poorly functioning financial institutions hinder economic progress and intensity poverty (Muye and Muye, 2017). Banks face different risks like financial, operational and strategic. These risks like financial, operational and strategic. These risks impacts deeply on the performance of banks. The amount of loss caused by credit risk compared to others is severe to cause bank problems (Ladley, 2013). Improper credit risk management reduce the bank profitability and affects the quality of banks assets and enhances loan losses and non-performing loan which may eventually lead to financial distress (Chinive L. Duaka, 2015). Banking industry impacts the level of economic activity and economic development. They are not just the store houses of the nation's wealth but are reservoirs of resources necessary for economic development. An attempt is made to understand the objectives of CRM, probed the causes of credit risk and analyzed factors impacting litigation of risk.

Significance of the study

Banks faces innumerable risk while they lend to needy. Generally, banks adopt adequate systems for credit assessment of individual projects and evaluating the associated risk. As the banking industry is highly competitive and they operate in a global competitive scenario which operates in high powered financial operations with high new risk, banks requires a high tech most sophisticated and troubleshooting instruments for risk assessment, monitoring and controlling risk exposure. Hence banks have to equip with identification of risk, its assessment, monitoring and controlling. The risk assessment techniques of borrowers involve studying and evaluating the qualitative and quantitative indicators of the borrower. In order to minimize loan losses and consequently reduce credit risk it is essential for commercial banks to have an effective CRM system in place (Muro et al., 2013). Further, the role played by banks is unique as they are instrumental in national development and creators economic wealth and this impacts in overall economy as a sound and profitable banking sector. Banks should be capable of withstanding any negative shocks and contribute to the stability of financial system.

Review of Literature

Kariuki (2017) reveals that credit risk identification, credit risk analysis, credit risk monitoring and credit risk control improve the financial performance of MFIs.

Paulino et al., (2018) in their study on commercial banks in juba city concluded that CRM variables of credit risk identification, credit risk analysis and appraisal are not significantly related to financial performance of financial institutions.

TurgutTursoy (2018) stated that the Basel III amendments have been created and nations are working to develop the new components into the old version by 2027. Further the researcher stated that with the new Basel III application, RIS started to consider the liquidity and other issues to increase the health of the banking industry.

Samuel Kapadia et al. (2019) has expressed that NPAs have shaken the entire Indian banking sector and thus have grabbed the attention of post liberalisation of the financial sector. Further, they have stated that NPAs reflected the performance of the banks.

Geresem Orichom et al. (2021) examined the contribution of capital structure and CRM to financial performance MFIs and employed cross sectional design to survey. The results confirm that capital structure and financial performance are not significantly related. Further the study reveals that capital structure and CRM combines effect have a strong explanatory power for financial performance of MFIs.

Objectives:

(1) To study the demographic profile of respondents.

(2) To know the objectives of credit risk management.

(3) To analyse the causes of credit risk.

(4) To study the factors impacting mitigation of risk.

Hypotheses:

(1) The demographic profile of the respondents is not impacting in the credit risk management.

(2) There are no objectives behind credit risk management.

(3) There are no causes of credit risk.

(4) Factors are not impacting on mitigation of risk.

Research questions:

(1) What are the reasons behind demographic profile of respondents for not impacting in credit risk management?

(2) What are the objectives of credit risk management?

(3) What are the causes of credit risk?

(4) Which factors are impacting mitigation of risk?

Research Methodology:

Research design: Research design can be viewed as the structure of research and it occupies a central space as it holds all the elements in a research project and guides the performance of all elements. Ahuja Ram (2010) defines it as "is the plan, structure and strategy and investigation concaved as to obtain ensured to research question and central variance". Zikmand (1988) defined as "a master plan specifying the methods and procedure for collecting and analysing the needed information". A research design must be based on more or less some methodology and it commences when once the topic and problem of research has been selected. It is a "blue print" or "pre-projected plan of action" for the future purpose of data collection. Further, the socio-economic characteristics impact on the CRM, causes, objectives and factors impacting mitigation of CRM also studies in detail with the help of research design.

Research instrument and questionnaire design :A questionnaire is a research instrument containing related questions for the purpose of collecting data from respondents (Saul McLeody 2018). The researchers are required to apply most relevant and most effective way to collect maximum quantity of data in terms of validity and reliability as suggested by researchers (Thrope and Lowe, 1991). The present research collects the necessary data from both primary and secondary sources. The primary data collected by administering questionnaire as schedule in order to avoid possible non response and delay and further respecting the Covid-19 norms. Secondary sources include e-journals books and internet. The relevant references are given at the end.

Universe of the study : The present study is confined only to Bengaluru Urban. It is not possible to cover all the respondent customers in Bengaluru and hence a sample of 200 considered for the study after considering the Covid-19 norms.

Sampling technique : Data collected from 200 sample respondents which includes salaried employees 100 (50%) (Government service 40 (20%) and private service 60 respondents 30%), business 30 (15%) startup entrepreneurs 22 (11%) retired 18 (9%) and home maker 20 (10%).

Method of data analyses : The study adopted x2, Garrette ranking technique and Kendall's coefficient of concordance and ANOVA for the purpose of data analysis. These techniques are performed as they are simple to compute and sufficient for the analysis.

Limitations / constraints :

(1)   The study is confined only to Bengaluru urban.

(2)   Any kind of generalization requires further in-depth study.

(3)   The sample is small and confined only to 200.

(4)   Covid-19 norms made difficult to collect the data directly and with some pre cautionary steps the data collected after convincing the respondents.

Data presentation and analysis - A : Demographic profile of the respondents

The socio-economic characteristics of respondents that were necessary for the study includes genders, marital status, age, education, occupation, income, deposits and availing loan. The significance of studying characteristics lies in the fact that whether they impact the study on CRM or not.

Research questionnaire : What are the reasons behind socio-economic characteristics for not impacting in credit risk management?

Hypotheses No. 1 : H0 : The socio-economic characteristics do not impact on CRM at Bengaluru.

H1 : There exist significant variation in the socio-economic characteristics and hence impacts on the CRM.

The study on socio-economic impact assessment is to decide about how a project or research work will affect the lives of respondents of an area. The respondents were asked to answer all questions. All the socio-economic characteristics of respondents and their significance and degree of relationship studied in relation whether they impact the study or not. Table-1 reveals data about socio-economic characteristics of respondents. There are 170 (85%) makes and 30 (15%) females. Out of 200 respondents 155 (75.5%) are married, 30 (15%) remained single and 15(7.5%) were divorcee including cool divorcees. 70 respondents (35%) belongs to the age group of 35-45 years followed by 55 (27.5%) pertain to the age group of 25-35 years, 30 (15%) belongs the age group of 25-35 years. 60 respondents (30%) were bachelor degree holders, 40(20%) studied up to PUC, 35 (17.5%) professional degree holders, 25 (12.5%) were post graduates, 60 respondents (30%) employees in private sector, 40 (20%) in government service, 30 (15%) doing business, 22 (11%) were startup entrepreneurs. The income details reveals that 70 (35%) once getting a monthly income in between Rs. 40K - 60K followed by 50 (25%) between 20K - 40K, 40 respondents (20%) getting a monthly income of Rs. 60K - 80K. Out of 200 respondents 140 (70%) were deposit holidays, 40 (20$) said no and 20 (10%) stood neutral, 90 respondents (45%) availed already loan assistance, 70 (35%) are awaiting, 30 (15%) said not availed any loan. All the socio-economic characteristics revealed positive significance and showed high degree of relationship.

Analysis and interpretation of data : B

Research question No. 2 : What are the objective of credit risk management?

Hypotheses H0 : There are no objectives behind credit risk management.

H1 : There exist significant variation in the objectives of credit risk management.

Table-2 provides information about objectives of CRM. These objectives vary from providing high quality of service to the customers to minimization of risk. 140 respondents (70%) out of 200 stated strongly agree followed by 42 (21%) agree and 18 (9%) somewhat agree. Out of the 140 respondents who said strongly agree, 25 said about the objective of providing high quality of service to customers, 24 spoke about meeting

statutory and legal obligation, 23 identified about minimization of financial and other negative consequences of losses and claims, 18 pointed about minimization of financial and other negative consequences of losses and claims, 18 pointed about initiation of action to prevent the adverse effects of risks, and 17 each felt about ensuring that risk is consistent with and support the stated objectives and minimization of risks. Out of 42 who said agree 10 spoke about providing high quality of service to customers, 9 felt about minimize the financial and other negative consequences, 7 felt about prevention of adverse effects and 6 voiced about meeting statutory and legal obligation. Out of 18 who said somewhat agree 5 spoke about providing high quality of service, 4 felt about minimizing the financial and other negative consequences. ANOVA fails to accept H0 and accept H1 and hence it is concluded that there exists significant variation in the data.

Research question No. 3 : What are the causes of credit risk?

Hypotheses No. 3 : H0 : There exist no significant variation in the causes of credit risk.

H1 : There exist significant variation in the causes of credit risk.

Table-3 highlights about the causes of credit risk. These causes vary from inadequate supervision to volatile interest rates. 125 respondents (62%) out of 200 said strongly agree followed by 50(25%) stated agree and the rest 25 (12.5%) expressed some what agree. Out of 125 respondents who said strongly agree 20 voiced about poor credit assessments 18 pointed about inadequate supervision, 17 felt about reckless lending, 14 expressed about laxity on credit assessment, 13 opined about inappropriate credit policies and 12 indicated about poor lending practices. Out of 50 who said agree 10 spoke about inadequate supervision, 8 each about poor credit assessment and reckless lending 5 opined about inappropriate credit policies and 4 each expressed about government interference and laxity in credit assessment and favoritism. Out of 25 who said somewhat agree, 4 each pointed at inadequate supervision and inappropriate credit policy and 3 each expressed about reckless lending and poor lending practices, '2' fails to accept H0 and accepts H1 and hence it is concluded that there exists significant relationship between the causes and risk.

Research question No. 4: What factors are impacting mitigation of risks.

Hypotheses H0 : There is no significant variation in the factors impacting mitigation of risk.

H1: There exist significant variation in the data and factors are impacting mitigation risk.

Table-4 reveals data about factors impacting mitigation of risk. 13 factors are impacting on mitigation of risk in commercial banks. These impacting factors are ranked by using Garrett ranking technique. X values are determined by using the formula 100 (Rij - 0.5) Nj and calculated values are derived are further referred to the Garrett conversion table to decide Garrett values. These Garrett values are multiplied by 200 to get total score and total score is divided by 200 to get mean score. Ranks are awarded on the strength of total score. First rank was assigned to excellent credit rating without subjectivity, second rank was awarded to risk based approval and sanctions and third rank was assigned avoiding completely bribe taking while sanctioning loan. The last rank was awarded to focusing weak and problematic loans. (For Garrette values refer to Table 5).

Summary and discussion of findings:

The main objective behind the present research work is to know how socio-economic characteristics impact CRM, analyzing the objectives of CRM, causes credit risk, and factors impacting mitigation of risk. In order to provide value for the research present work different experts contribution to CRM field were considered.

The present study adopted survey research design. A structured questionnaire was administered as schedule in order to avoid possible delay, non-response wand to follow physical distance norms. The target population covered were customers of the bank. The respondents were interviewed by the research by visiting various banks while customers were availing services at the bank. They were appealed after completion of bank work and after following strict Covid norms and the opinions were entered in the questionnaire. The findings of the study were presented, analyzed and interpreted using Chi-square, contingency coefficient, ANOVA, Kendall's co-efficient of concordance and Garrett ranking technique. The study reveals about the presence of favorable socio-economic factors impacting CRM, analyzed objectives of CRM, studied the causes of credit risk and factors impacting mitation of risk.

The study revealed about the objectives behind risk management which vary from providing high quality of service to customers to minimizing the risk associated with new development and activities. The study also probed the causes behind credit risk. These causes vary from inadequate supervision by the central bank to volatile interest rates. 13 factors impacted mitigation of risk and first rank was assigned to excellent credit rating without subjectively, second rank was awarded to risk based approval and sanction and the third and final rank was assigned to avoiding completely bribe taking while sanctioning loan.

The bi-polar opinions expressed considered as the basis of judgement regarding that all socio-economic characteristics impacted very much on risk and there exist significant variation and high degree of association between the attributes. The objectives of CRM were well aware and the major objectives expressed by respondents include providing high quality of service to customers, meeting statutory and legal obligation and minimizing the financial and other negative consequences. The major causes of credit risk includes inadequate supervision by the central bank, poor credit assessment and reckless lending. The study also reveals about major impacting mitigation of risk factors. They include excellent credit rating without subjectivity risk based approval and sanctions and avoiding completely bribe taking while sanctioning the loan. The convenient sampling technique was performed at the time of data collection. However, the questionnaire was administered to gather most reliable information from the respondents. The secondary sources include e-journals books and interest. The findings were presented analyzed and discussed using Chi-square contingency coefficient, ANOVA, Kendall's coefficient of concordance and Garrett ranking techniques.

Conclusion

Banks face innumerable risks in today's deregulated market. Enhanced volatility has paved the way for designing about small analysis and specialized applications in managing credit risk. Quantification of loss, identification of risk is possible through implementing well defined framework. Now banks are adopting best structures, processes and technologies available at the global level and moved from strength to strength.

Covid-19 did not affect banking business and in fact we found a surge in banking activities on account of online business. Most probably this is the only industry which was not affected by Covid-19. The post lockdown scenario at Bengaluru during mid of June to August 2021 saw brisk banking business. The study reveals that socio-economic characteristics are impacting very much the CRM and respondents are aware of mitigation of risk, objectives behind CRM and causes of credit risk. The study points at major causes of credit risk being inadequate supervision by the central bank, poor credit assessment and reckless lending.

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Table - 1 : Socio-economic characteristics and level of CRM - Chi-square and contingency test

Characteristics	x^2	TV@0.05	df	result of x^2	"c"	Result of 'C'
Gender	98.00	3.841	1	Significant	0.573	High Degree
Marital Status	177.24	5.991	2	Significant	0.747	High Degree
Age	46.25	9.488	4	Significant	0.433	High Degree
Education	41.05	11.070	5	Significant	0.41	High Degree
Occupation	59.926	12.592	6	Significant	0.48	High Degree
Income	88.00	11.070	5	Significant	0.55	High Degree
Depositor	123.99	5.991	2	Significant	0.61	High Degree
Availed loan	80.00	7.815	3	Significant	0.53	High Degree

Source : Authors compilation

Note : x^2 = chi-square

'c' = $\sqrt{(x^2 / x^2 + N)}$

Where 'c' = contingency coefficient

N = Number of observations

When the value 'c' is equal or near 1, it means there is high degree of association between attributes. Contingency co-efficient will always to be less than 1.

Table - 2 : Objectives of credit risk management

Objectives of CRM	SA	A	SWA	T
To provide high quality of service to customers	25	10	5	40
To initiate action to prevent the adverse effects of risks	18	7	2	27
To ensure the management of risk is consistent with and supports the stated objectives	17	3	2	22
To minimise the human cost of risk	16	4	1	21
To meet strategy & legal obligation	24	6	2	32
To minimise the financial and other negative consequences of losses and claims	23	9	4	36
To minimise the risks associated with new development and activities	17	3	2	22
Total	140	42	18	200

Source : Field Survey

Note : SA - Strongly Agree, A - Agree, SWA - Somewhat Agree, T - Total

ANOVA Table

Source of variation	SS	df	MS	F-ratio	5% F limit (From F table)
Between the sample	1193.6629	(3-1)=2	1193.6629/2 =596.8314	596.8114/ 8.2063 = 72.72	
Within the sample	147.7143	(21-3)=18	147.7143/18 =8.2063		(2, 18) = (3.55)
Total	1341.3772	(21-1)=20			

Source: Survey Data

ANOVA Analysis : The calculated value being 72.72 higher than the TV = 3.55 @ 5% level of significance with df = v1 = 2 and v2 = 18 fails to accept H_0 and accepts H_1 and hence it is concluded that there exist significant variation in the data.

Table - 3 : Causes of credit risk

Drivers of causes of credit risk	SA	A	SWA	RT	RT^2
Inadequate supervision by the Central Bank	18	10	4	32	1024
Government interference	6	4	2	12	144
Inappropriate credit policies	13	5	4	22	484
Poor credit assessment	20	8	2	30	900
Reckless lending	17	8	3	28	784
Laxity in credit assessment &favouritism	14	4	2	20	400
Poor lending practices	12	3	3	18	324
Poor loan underwriting	10	2	2	14	196
Low capital and liquidity levels	8	3	1	12	144
Volatile interest rates	7	3	2	12	144
Total	125	50	25	200	4544

Source : Field Survey

Note : SA - Strongly Agree, A - Agree, SWA - Somewhat Agree, RT - Row Total

$SSR = \Sigma RT^2 - (\Sigma RT)^2 / N$

$\qquad = 4544 - (200)^2 / 10 = 4544 - 4000 / 10$

$\qquad = 4544 - 4000 = 544$

$W = 12 \times SSR / K^2 N (N^2 - 1)$

$\qquad = 12 \times 544 / 9 \times 10 (100-1)$

$\qquad = 6528 / 90 (99) = 6528 / 8910$

$\qquad = 0.732$

Test the significance of W by using the chi-square statistics.

$x^2 = k (n-1) w$

$\qquad = 3 (10-1) 0.732$

$\qquad = 3 \times 9 \times 0.732 = 19.764$

Decision : At 9 d.f. with 0.05 level of significance the TV = 16.919. The calculated value being 19.764 higher than the critical table value w fails to accept H0 and accepts H1. Therefore it is concludes here that there exist significant relation between causes of credit risk.

Table - 4 : Factors impacting mitigation of risk - Garrett Ranking Technique.

Ranks		Scale & Score value of ranks															
Factors	Scale value(x)	I 84	II 74	III 67	IV 62	V 58	VI 54	VII 50	VIII 46	IX 42	X 38	XI 33	XII 26	XIII 16	Total	Mean Score	Rank
Regular discussion	f	40	30	25	22	20	17	9	10	8	5	8	4	2	200		
& feedback	fx	3360	2220	1675	1364	1160	918	450	460	336	190	264	104	32	12533	60.67	VIII
Restricted credit	f	38	28	29	20	18	20	12	10	9	5	7	8	4	200		
approval	fx	2520	2072	1943	1240	1044	1080	600	460	378	190	231	208	64	12030	60.15	XI
Independence of risk assessment from loan sanction	f	45	40	35	15	20	10	8	7	6	5	4	3	2	200		
	fx	3780	2960	2345	930	1160	540	400	322	252	190	132	78	32	13121	65.60	IV
Risk based approval	f	48	44	31	20	18	9	10	2	5	4	3	2	4	200		
and sanctions	fx	4032	3256	2077	1240	1044	486	500	92	210	152	99	52	64	13304	66.52	II
Implementation of	f	35	30	28	16	17	10	14	9	10	12	8	5	6	200		
KYC Norms	fx	2940	2220	1876	992	986	540	700	414	400	456	264	130	96	12034	60.17	X
Focusing weak and	f	30	25	24	15	20	19	15	10	12	8	9	7	6	200		
problematic loans	fx	2520	1800	1608	930	1160	1026	750	460	504	304	297	182	96	11687	58.43	XIII
Internal Auditor	f	34	32	30	25	20	18	9	8	6	5	4	4	5	200		
	fx	2856	2368	2010	1550	1160	972	450	368	252	190	132	104	80	12492	62.46	IX
Regular rating	f	34	32	30	25	20	18	9	8	6	5	4	4	5	200		
Services	fx	2856	2368	2010	1550	1160	972	450	368	252	190	132	104	80	12616	63.08	VII
Avoiding completely	f	95	42	40	21	10	5	8	9	6	5	4	3	2	200		

bribe taking while loan sanctioned	fx	3780	3108	2620	1302	580	270	400	416	252	190	132	98	22	13220	66.1	I II
Reduction in loan process	f	38	35	31	25	20	13	8	6	5	4	5	4	6	200		
	fx	3192	2590	2077	1550	1160	702	400	276	210	152	165	104	96	12674	63.37	VI
Multi tier credit approval process	f	28	31	29	20	15	18	14	8	10	12	6	5	4	200		
	fx	2352	2294	1943	1240	870	972	700	368	420	456	198	130	64	12007	60.03	XII
Excellent credit rating without subjectivity	f	50	45	30	20	12	8	10	7	5	4	4	3	2	200		
	fx	4200	3330	2010	1240	696	412	500	322	210	152	132	78	32	13334	66.67	I
Independent loan reviews	f	45	43	25	20	5	8	10	7	10	5	4	3	5	200		
	fx	3780	3182	1675	1240	870	432	500	322	420	190	132	78	80	12901	64.50	V

Source : Field Survey

Note : X - scale value; f - number of respondents; R - Rank

Mean score = Total score / N

Table - 5 : Per cent position and Garrett values

Sl.No.	$100(R_{ij}-0.5)/N_j$	Calculated value	Garrett Value
1.	100(1-0.5)/13	3.84	84
2.	100(2-0.5)/13	11.53	74
3.	100(3-0.5)/13	19.23	67
4.	100(4-0.5)/13	26.92	62
5.	100(5-0.5)/13	34.61	58
6.	100(6-0.5)/13	42.30	54
7.	100(7-0.5)/13	50.00	50
8.	100(8-0.5)/13	57.69	46
9.	100(9-0.5)/13	65.38	42
10.	100(10-0.5)/13	73.07	38
11.	100(11-0.5)13	80.76	33
12.	100(12-0.5)13	88.46	26
13.	100(13-0.5)/13	96.15	16

Source : (1) SubhashVadgale (2016). Village consumer behavior towards perishable goods.A study with respect to Ahmednagar district of Maharashtra, Pezzottaite Journals, 5, (3) 2286-2287.
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