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PATTERN AND DETERMINANTS OF NON–PERFORMING ASSETS (NPA) OF SALEM DISTRICT CENTRAL COOPERATIVE BANK (SDCCB): A MICRO LEVEL ANALYSIS

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ABSTRACT

The study hypothesizes that the cooperatives in the present time of competition are losing ground on one hand and their philosophy is limiting them to perform efficiently on the other hand, hence cannot avoid non-performing assets. The study is aimed at understanding the pattern and determinants of NPAs incurred by SDCCB. Descriptive analysis along with step-wise regression analysis was done using time series data procured from the bank. Findings reveal that the most of bank's resources (66.96 per cent) were engaged in lending for non-agricultural purposes and non-agricultural loans of the bank were responsible for the highest amount of NPAs incurred (Rs.3751.72 lakh, 40.23 per cent) followed by cash credit and overdrafts (Rs. 2423.13 lakh, 25.99 per cent) and agricultural loans (Rs.2115.68 lakh, 22.69 per cent) over an average of five years. Temporal pattern reveals that the NPAs of the bank decreased by 24.86 per cent from Rs.10358.24 lakh in 2014 to Rs.7783.17 lakh in 2018. The variable 'follow up' was found to impact the NPAs of the bank negatively and significantly, whereas the variable 'loan waivers' was found to impact the same positively and significantly. In order to ensure the long-term viability of the co-operative credit structure, the bank should focus their attention on follow-up activities after disbursement of loans. Besides proper scrutiny of loan application, examination of collateral, etc. Aspects like loan waivers or loan structuring need to be looked into in totality.

Keywords: Agricultural loans, Cash Credit & Overdrafts, Determinants of NPAs, Liquidated Societies, Non-Agricultural Loans

The co-operative banks are assigned to play a very prominent role in the mobilization of resources and in employing them in nation-building activities, especially rural development. They are expected to do a lot for the rural reconstruction by tapping rural resources and by dispensing adequate credit to the people in privileged sector. The main objective of co-operative banks in India is to provide the banking facility to the people of limited means to put their land and labour for productive purposes. The co-operative banks performed well in urban areas and metropolitans, where the State Co-operative Banks and District Central Co-operative Banks (DCCBs) compete with commercial banks of private and public sectors. The performance of DCCBs in the recent years has not been very encouraging. The health of cooperatives in terms of performance and profitability is crucial not only for their own development but also for the development of rural masses. The non-performing assets (NPAs) of a bank are the crucial indicators of performance.

It has been observed that the Salem District Central Cooperative Bank (SDCCB), one of the leading central cooperative banks operating in Tamil Nadu is losing its customers due to stiff competition being given by commercial banks, RRBs and other private banks on one hand and its internal weaknesses because of cooperative structure of the bank, on the other hand. However, cooperatives do not have aim of multiplying their profit earnings, but a minimal profit is desirable for the survival and the growth of organization. Despite the desirability, declining profits of the bank in recent years (Rs.23.64 crores in 2014 and Rs.17.98 crores in 2017) has been a matter of concern. A satisfactory rate of dividend is indispensable for attracting capital investment by shareholders, but a declining dividend declared by the bank (14% in 2014 and 8% in 2017) again, is not desirable, which shakes very base of the organization.

The cooperative banks are constrained to perform efficiently due to many internal and external factors, including mounting Non-Performing Assets (NPAs) created by them. Today mounting NPAs are the subject of discussion and scrutiny, as a large proportion of banks' assets ceases to generate income, lowers the banks' profitability and limits banks' capacity to grant further credit. In spite a lot of regulatory and remedial provisions and measures in place the mounting NPAs are still the bitter reality due to various internal and external factors. The continuous piling up of NPAs

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(1.32% in 2014 to 4.81% in 2017) also points out the weakened soundness of the banks. The NPAs are lethal to a banking institution, in general and cooperatives in particular, since NPAs make the investments returnless. The NPAs created by the SDCCB over time have been an outcome of various actions, provisions; policies, etc. and require a systematic analysis. An understanding of pattern and determinants of NPAs will help devise corrective action so as the much-warranted institution can be saved. Various terms and concepts used in the study have been described as follows. Loans of a banking institution are regarded as non-performing assets when the principal and interest is not repaid by the borrowers for a given period of time. However, in our country the time period for a loan to be regarded as non-performing is 180 days after the due date, which is much longer than international norms (45 days to 90 days). District Central Cooperative Banks (DCCBs) are those intermediate institutions which form a vital link between the primary agricultural cooperative societies and higher financing institutions like National Bank for Agricultural and Rural Development (NABARD) and state cooperative bank. Jewel loans refer to loans given on the mortgage of gold Jewels, up to maximum Rs.2.00 lakh at the interest rate of 11.5%. Salary loans are the loans given to employees of state and central government, up to maximum Rs.3.00 lakh at interest rate of 11%. Liquidated societies are those societies which are closed permanently and its assets got liquidated (due to their poor performance). Produce pledge loans refer to those loans which are granted to farmers on the security of warehouse receipts of their stored products. Loan Waiver Scheme in the present context refers to the farm loan waiver scheme so far implemented in Tamil Nadu under Agricultural and Rural Debt Relief Scheme and Agricultural Debt Waiver of the Government of India so far between 2006 and 2016.

MATERIALS AND METHODS

The pattern of NPAs was analyzed using secondary data for a period of five years from 2013–14 to 2017–18; while for analyzing the determinants of the NPAs, the data for a period of 15 years from 2003–04 to 2017–18 was used.

Based on the source (type of loan) which led the creation of NPAs, the NPA were grouped as generated by agricultural loans, non-agricultural loans, cash credit & overdraft and liquidated societies. Descriptive analysis was done to analyze the pattern of NPAs incurred by the bank.

The determinants of NPAs incurred by SDCCB were ascertained using stepwise regression model. Stepwise regression is a method of fitting regression model in which in each step a variable is either added to or subtracted from the set of explanatory variables based on a specific criterion. In view of the presence of substantial multicollinearity between some of the crucial variables under consideration, the stepwise regression model was deemed appropriate to ascertain the determinants of NPAs. Vallabh (2016) has also found that the stepwise regression model was most fitted model to determine the factors affecting NPAs in Indian banking system. In the present study backward selection was followed, where in each step an inappropriate variable was subtracted from the set of explanatory variables. In the study, p-value of the regression co-efficient was considered as a criterion for the selection of a variable. The stepwise regression model was specified as below:

$$Y= b_0+b_1X_1+b_2X_2+b_3X_3+b_4X_4+b_5X_5+b_6X_6+U$$

Where,

Y= Total Non-performing assets of SDCCB (Rs.)

X_1= Profit of the bank (Rs.)

X_2= Recovery (%)

X_3= Amount of loan issued by the bank (Rs.)

X_4= State gross domestic product[1] (Rs. Per capita)

X_5= Follow ups by the bank personnel (No.)

X_6= Loan waiver announced by the government (Dummy, Yes=1, No=0)

U= Error term

RESULTS AND DISCUSSION

The pattern and determinants of non-performing assets (NPAs) created by Salem District Central Cooperative Bank (SDCCB) during five years have been dealt in three sections; first section deals with the pattern of loans advanced, second section is devoted for analysis of pattern of NPAs, while the third section covers the determination of factors responsible for creation of NPAs.

Pattern of loans advanced by SDCCB

A district central cooperative bank extends short term and medium term agricultural and non-agricultural loans for varying purpose. Loans for any banking institution are the assets which enable it to generate returns. The pattern of loans advanced by SDCCB over the period under study has been shown in the Table 1. It is evident from the Table that the total amount of loan advanced by the bank increased from Rs.143943 lakh in 2014 to Rs.220703 lakh in 2018, an increase of 53.33 per cent during this period.

It can be noted that the non-agricultural loans were of paramount importance, as they, on an average, occupied more than two-third (66.96 per cent) of total

[1] The state gross domestic product was taken as proxy of per capita annual income of bank customers.

Table 1. Pattern of loans advanced by SDCCB from2014 to 2018

(Rs. in Lakh)

S. No.	Particulars	Years						% change
		2014	2015	2016	2017	2018	Average	
1.	Agril. Loans							
A.	Short Term	50747 (35.25)	59369 (28.50)	67425 (33.95)	43227 (23.10)	79593 (36.06)	60072 (31.33)	56.84
		95.61	94.95	95.05	93.92	94.56	94.83	
B.	Medium Term	2331 (1.62)	3156 (1.52)	3515 (1.77)	2799 (1.50)	4580 (2.08)	3276 (1.71)	96.48
		4.39	5.05	4.95	6.08	5.44	5.17	
	Total Agril. Loans	53078 (36.87)	62525 (30.02)	70940 (35.72)	46026 (24.59)	84173 (38.14)	63348 (33.04)	58.58
2.	Non-Agril. Loans	90865 (63.13)	145780 (69.98)	127687 (64.28)	141143 (75.41)	136530 (61.86)	128401 (66.96)	50.26
	Total	143943 (100.0)	208305 (100.0)	198627 (100.0)	187169 (100.0)	220703 (100.0)	191749 (100.0)	53.33

Source: Basic data on the performance of district central cooperative banks-NAFSCOB (2014-2018)
Note 1. Figures in parentheses indicate the proportion of total loans advanced by the bank.

loans disbursed by the bank.

The amount of non-agricultural loans disbursed grown by 50.26 per cent from Rs.90865 lakh in 2014 to Rs.136530 lakh in 2018. However, the SDCCB similar to any district central co-operative bank – federation of primary agricultural credit societies – is supposed to cater to the needs of federating societies in the area jurisdiction, along with the ordinary banking business, but most of the loans (resources) were directed for non-agricultural purposes. This may be attributed to the fact that the districts the bank covers have relatively smaller cultivated area, and non-agricultural activities being the prime economic activities.

Table further shows that agricultural loans, which were about one-third (33.04 per cent) of total loans advanced by the bank, increased over time from Rs.53078 lakh in 2014 to Rs.84173 lakh in 2018, except a dip to Rs.46026 lakh in 2017. The overall loans advanced by the bank for agricultural purposes grown by 58.58 per cent during period under investigation. Out of total agricultural loans the short-term loans constituted about 95 per cent of total loans disbursed for agricultural purposes (i.e., 31.33 per cent of loans disbursed as whole), while medium term loans comprised only about five per cent of total loans for this purpose. The short-term agricultural loans were the second most important item of total loans advanced by SDCCB next to non-agricultural loans, however the short-term agricultural loans were found to be the most important item of total loan in case of Kumbakonam central cooperative bank (Sivasakthivel, 2011).

Table also reveals that the short-term agricultural loans, (which were about 95 per cent of total agricultural loans) on an average, increased by about 57 per cent from Rs.50747 lakh in 2014 to Rs.79593 lakh in 2018. On the other hand, the medium-term agricultural loans which were only 5.17 per cent of total agricultural loans, increased by 96.48 per cent from Rs.2331 lakh in 2014 to Rs.4580 lakh in 2018. This was due to policy emphasis on expansion and strengthening of agro-enterprises through credit support along with supporting ongoing agricultural activities during this period.

The SDCCB though, was supposed to extend credit support to the agriculture, but more than two–third of its business assets (i.e., loans) were devoted to support the non-agriculture sector. Again, the bank was catering to mainly the short-term financial needs of agriculturists, leaving their medium term needs to be taken care by others.

Pattern of NPAs of SDCCB

The source-wise NPAs generated by SDCCB (Table 2) show that non-agricultural loans advanced by the bank have been the most important cause of mounting NPAs. Out of total NPAs of the bank, the non-agricultural loans were responsible for more than two-fifth with a magnitude of Rs.3751.72 lakh, while the cash credit & overdraft and liquidated societies and agricultural loans were responsible for 25.99 and 22.69 per cent of total NPAs of the bank, respectively.

The temporal pattern indicates a declining level of total NPAs over time from Rs.10358.24 lakh in 2014 to Rs.7783.17 lakh in 2018 (Table 2). Further, the NPAs led by agricultural loans grew by 33.99 per cent over

Table 2. Source-wise pattern of NPAs generated by SDCCB

(Rs. in Lakh)

S. No.	Particulars	Years						% change
		2014	2015	2016	2017	2018	Average	
1.	Agril. Loans	1791.95 (17.30)	2057.35 (17.72)	2000.61 (27.02)	2327.55 (24.59)	2400.95 (30.85)	2115.68 (22.69)	33.99
2.	Non-Agril. Loans	5976.88 (57.70)	6376.31 (54.91)	2379.99 (32.14)	1792.65 (18.94)	2232.79 (28.69)	3751.72 (40.23)	-62.64
3.	Cash Credit & Overdraft	1785.01 (17.23)	2373.4 (20.44)	1833.12 (24.76)	4160.4 (43.94)	1963.72 (25.23)	2423.13 (25.99)	10.01
4.	Liquidated Societies	804.4 (7.77)	804.4 (6.93)	1191.12 (16.09)	1186.71 (12.53)	1185.71 (15.23)	1034.47 (11.09)	47.40
	Total	10358.24 (100.00)	11611.46 (100.00)	7404.84 (100.00)	9467.31 (100.00)	7783.17 (100.00)	9325.01 (100.00)	-24.86

Source: annual reports of SDCCB from 2013-14 to 2018-2019
Note: Figures in parentheses indicate the proportion of the NPA generated by SDCCB in various years.

a period of five years from Rs.1791.95 lakh in 2014 to Rs.2400.95 lakh in 2018, whereas the same caused by non-agricultural loans decreased by 62.64 per cent from Rs.5976.88 in 2014 to Rs.2232.79 in 2018 during similar period. The NPAs led by cash credit & overdraft showed an increase from Rs.1785.01 lakh in 2014 to Rs.1963.72 lakh in 2018. However, total NPAs of SDCCB decreased by 24.86 per cent in five years from Rs.10358.24 lakh in 2014 to Rs.7783.17 lakh in 2018, but that generated by agricultural loans, cash credit & and overdrafts and liquidated societies increased by 33.99 per cent, 10.01 per cent and 47.40 per cent respectively, while that of non-agricultural loans decreased by 62.64 per cent.

However, the agricultural loans generated relatively smaller share of NPAs than that generated by non-agricultural loans and cash credit & overdrafts. The interest subvention on agricultural loans through Kisan Credit Card might have served as an incentive to encourage them to repay the loans on time. But growing level of NPAs generated by agricultural loans over time is surely a reflection of either willful default made by farmers in view of the loan waivers. Chakraborty and Gupta (2018) reported that in Uttar Pradesh, repayment rates fell by 15-25% after implementation of Uttar Pradesh Rin Maafi Yojana 2017. The larger proportion of NPAs generated by non-agricultural loans may be attributed to the diversion of loans to non-productive purposes. During the period under investigation, the NPAs incurred by all sources increased except by non-agricultural loans which caused a decrease in overall NPAs of the bank.

The pattern of NPAs generated by agricultural loans

The NPAs generated by agricultural loans are categorized as generated by short term agricultural loans (STAL) and medium-term agricultural loans (MTAL); further, they are grouped into sub classes as generated by their component items.Table 3 reveals that out of total NPAs generated by agricultural loans, the major portion (87.11 per cent) was generated by MTAL, whereas the STAL generated relatively a low portion (12.89 per cent).

The temporal pattern indicates that the total NPAs generated by STAL grown by more than 966 per cent from Rs.50.11 lakh in 2014 to 534.32 lakh in 2018. The Kisan Credit Card (KCC) loans were not only the main source of NPAs led by STALs of SDCCB, but also grew by a fastest rate (3935.27 per cent) in a period of five years from Rs.10.18 lakh in 2014 to Rs.410.79 lakh in 2018. The conversion of KCC loans into NPAs was due to the fact that these loans need to be repaid strictly within one year to be eligible for interest subvention and renewal of loan. When the farmer-borrowers did not have income (seasonal in nature) commensurate with repayment date, they were bound to make default and create NPAs. Secondly, without interest subvention even the KCC loans happen to be cheaper to the borrowers, making default less costly, may in turn lead a wilful default on the part of KCC holders, however, credit worthiness of them was adversely affected for the future borrowing.

As the MTALs finance relatively higher investment, therefore repayment period is extended up to five years. Amongst various items of MTALs, however the government loan waiver – that refers to the outstanding amount which is needed to be paid by the government to DCCBs for waiving of farmers loans – constituted about 80 per cent of total NPAs generated by MATLs at overall period of five years, but decreased by 16.92 per cent over a period of five years. Another important item of MTALs from NPAs were the SHG loans followed by schematic loans and joint group lending with the magnitudes of Rs.159.07 lakh, Rs.127.37 lakh and

Table 3. Pattern of NPAs generated by agricultural loans advanced by SDCCB

(in Lakh)

S. No.	Particulars	Years						% change
		2014	2015	2016	2017	2018	Average	
A.	Short term							
1.	Joint Group Lending	31.48 (62.81)	43.08 (29.21)	32.95 (13.65)	35.59 (9.12)	47.59 (8.91)	61.09 (17.32)	51.18
2.	Kisan Credit Card Loans	10.18 (20.32)	94.33 (63.96)	155.08 (64.26)	272.26 (69.77)	410.79 (76.88)	232.19 (65.83)	3935.27
3.	Agricultural Jewel credit	8.45 (16.86)	9.81 (6.65)	53.28 (22.08)	82.39 (21.11)	75.94 (14.21)	59.31 (16.82)	798.70
4.	Others	0.00 (0.00)	0.25 (0.17)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.08 (0.02)	-
	Total Short-Term Loans	50.11 (100.0)	147.47 (100.0)	241.31 (100.0)	390.23 (100.0)	534.32 (100.0)	272.69 (100.0)	966.29
		(2.80)	(7.17)	(12.06)	(16.77)	(22.25)	(12.89)	
B.	Medium term							
1.	Schematic loans	109.17 (6.27)	182.56 (9.56)	106.49 (6.05)	69.97 (3.61)	168.68 (9.04)	127.37 (6.89)	54.51
2.	Joint Group Lending	38.21 (2.19)	67.24 (3.52)	54.09 (3.07)	13.77 (0.71)	32.18 (1.72)	41.10 (2.24)	-15.78
3.	SHG loans	57.41 (3.30)	93.60 (4.90)	35.71 (2.03)	257.86 (13.31)	350.79 (18.79)	159.07 (8.52)	511.03
4.	Government Loan waivers	1523.56 (87.47)	1523.56 (79.77)	1523.56 (86.60)	1518.46 (78.38)	1265.81 (67.81)	1470.99 (79.95)	-16.92
5.	Others	13.49 (0.77)	42.90 (2.25)	39.46 (2.24)	77.25 (3.99)	49.17 (2.63)	44.45 (2.41)	264.49
	Total Medium-Term Loans	**1741.84** (100.0)	**1909.86** (100.0)	**1759.31** (100.0)	**1937.31** (100.0)	**1866.63** (100.0)	**1842.99** (100.0)	**7.16**
		(97.20)	(92.83)	(87.94)	(83.23)	(77.75)	(87.11)	
	Grand Total	**1791.95** (100.0)	**2057.33** (100.0)	**2000.62** (100.0)	**2327.54** (100.0)	**2400.95** (100.0)	**2115.68** (100.0)	**33.99**

Source: Annual Reports of SDCCB from 2013-14 to 2018-2019
Note: Figures in parentheses indicate the proportion of the NPA generated by SDCCB in various years.

Rs.41.10 lakh, which constituted 8.52 per cent, 6.89 per cent and 2.24 per cent of total NPAs generated by MTALs in overall period of five years.

The pattern of NPAs indicates that the NPAs generated by MTALs grew by 7.16 per cent from Rs.1741.84 lakh in 2014 to Rs.1866.63 lakh in 2018 over a period of five years. The pattern also suggests that the NPAs generated by government loan waivers declined by about 17 per cent from Rs.1523.56 lakh in 2014 to Rs.1265.81 lakh in 2018. The NPAs led by SHG loans – the second most important item of MTALs from NPAs view point – grew by 511.03 per cent during a period of five years from 57.41 lakh in 2014 to Rs.350.79 lakh in 2018. Over this period the NPAs generated by joint group lending also decreased by 15.78 per cent, whereas that generated by schematic loans increased by54.51 per cent.

It can be concluded that amongst agricultural loans (STAL and MTAL), the KCC loans and government loan-waivers were responsible for generation of NPAs. These two items jointly occupied more than three-fourth of total NPAs generated by agricultural loans. However, NPAs generated by KCC loans showed an increasing pattern while the same generated by government loan-waivers have shown a decreasing pattern over time.

Pattern of NPAs generated by non-agricultural loans

Non-agricultural loans were the most important from NPAs point of view, as they contributed more than two-fifth of total NPAs of the bank. On the basis of tenure, the NPAs generated have been categorized as generated by short term non-agricultural (STNAL) and by medium term non-agricultural loans (MTNAL); and into sub categories thereof.

Out of total NPAs generated by non-agricultural loans (Rs.3751.72 lakh), about two-third NPAs (64.55 per cent i.e., Rs.2421.72 lakh) were occupied by STNAL, whereas slightly more than one-third NPAs (35.45 per cent i.e., Rs.1330.00 lakh) were occupied by MTNAL. During the period of five years, the NPAs generated by STNAL decreased by 93.60 per cent from Rs.5168.40 lakh in 2014 to Rs.330.60 lakh in 2018, whereas during similar period the MTNAL increased by 135.28 per cent from Rs.808.48 lakh to Rs.1902.19 lakh in 2018. The overall NPAs led by non-agricultural loans decreased to the extent of 62.64 per cent during this period.

From Table 4, it can be observed that overall NPAs led by STNAL registered a decline of 93.60 per cent; and this decline was mainly due to decline in the NPAs led by members jewel loan (which occupied 89.25 per cent share of total NPAs led by STNAL).The level of NPAs led by members jewel loan was estimated to be Rs.5017.67 lakh in 2014 decreased to Rs.0.93 lakh in 2018 after a decrease by about 100 per cent. Further, the prominent contributors to the NPAs led by STNAL were member micro credit (Rs.144.24 lakh), petty traders' loan (Rs.0.64 lakh), and joint group lending (34.53 lakh) during the investigation period of five years.

The NPAs generated by various items of STNAL increased during this period by varying rate; minimum rate of increase was recorded in case of petty trader

Table 4. Pattern of NPAs generated by non-agricultural loans advanced by SDCCB

(in Lakh)

S. No.	Particulars	Years						% change
A.	Short term	2014	2015	2016	2017	2018	Average	
1.	Micro-credit	105.54 (2.04)	120.24 (2.10)	147.52 (33.89)	180.85 (39.87)	167.03 (50.52)	144.24 (5.96)	58.26
2.	Petty trader credit	0.60 (0.01)	0.60 (0.01)	0.58 (0.13)	0.72 (0.16)	0.72 (0.22)	0.64 (0.03)	20.00
3.	Joint group lending	16.07 (0.31)	16.06 (0.28)	41.95 (9.64)	50.67 (11.17)	47.89 (14.49)	34.53 (1.43)	198.01
4.	Members jewel loan	5017.67 (97.08)	5530.40 (96.67)	157.61 (36.20)	100.36 (22.13)	0.93 (0.28)	2161.39 (89.25)	-99.98
5.	Other loans	28.52 (0.55)	53.41 (0.93)	87.68 (20.14)	120.97 (26.67)	114.03 (34.49)	80.92 (3.34)	299.82
	Total short term	5168.40 (100.00)	5720.71 (100.00)	435.34 (100.00)	453.57 (100.00)	330.60 (100.00)	2421.72 (100.00)	-93.60
	%	(86.47)	(89.72)	(18.29)	(25.30)	(14.81)	(64.55)	
B.	Medium Term							
1.	Employee society credit	208.81 (25.83)	118.36 (18.05)	1126.78 (57.94)	69.66 (5.20)	225.58 (11.86)	349.84 (23.78)	8.03
2.	Housing loans	109.38 (13.53)	79.64 (12.15)	158.71 (8.16)	183.35 (13.69)	224.50 (11.80)	151.12 (11.87)	105.25
3.	Medium term loan conversion	206.73 (25.57)	204.73 (31.23)	206.73 (10.63)	286.58 (21.40)	286.58 (15.07)	238.27 (20.78)	38.63
4.	Salary loan	30.25 (3.74)	21.47 (3.27)	86.49 (4.45)	163.06 (12.18)	179.71 (9.45)	96.20 (6.62)	494.08
5.	Others	253.31 (31.33)	231.40 (35.30)	365.94 (18.82)	636.43 (47.53)	985.82 (51.83)	494.58 (36.96)	289.18
6.	Total Medium term	808.48 (100.00)	655.60 (100.00)	1944.65 (100.00)	1339.08 (100.00)	1902.19 (100.00)	1330.00 (100.00)	135.28
	%	(13.53)	(10.28)	(81.71)	(74.70)	(85.19)	(35.45)	
	Grand Total	5976.88 100.00	6376.31 (100.00)	2379.99 (100.00)	1792.65 (100.00)	2232.79 (100.00)	3751.72 (100.00)	-62.64

Source: Annual reports of SDCCB from 2013-14 to 2018-2019

Note: 1. Figures in parentheses are the proportion of NPAs generated by total short term non-agricultural loans and medium-term non-agricultural loans respectively.

2. The bold and italic figures in parentheses are proportion of total NPAs generated by non-agricultural loans of SDCCB.

credit (20.00 per cent), whereas the maximum rate was recorded in case of other loans (299.82 per cent). For more than one – third (35.45 per cent) of NPAs led by non-agricultural loans the MTNAL were responsible (Table 4). The NPAs led by the MTNAL had been fluctuating and increased by 135.28 per cent during a period of five years from Rs.808.48 lakh in 2014 to Rs.1902.19 lakh in 2018. Amongst various items of MTNAL the employees' society loans were of paramount importance, as they were responsible for 23.78 per cent of total NPAs led by MTNAL with a magnitude of Rs.349.84 lakh. The medium term converted loans (Rs.238.27 lakh) were next important item of MTNAL which were responsible for 20.78 per cent of total NPAs led by MTNAL. Note that the medium term converted loans are basically short-term loans but are converted into medium term loans as a relief to the borrowers on the occurrence of natural calamities.

The pattern of NPAs led by various items of non-agricultural loans reveals that the NPAs led by employees' society credit had been fluctuating and grown by 8.03 per cent over the period under consideration from Rs.208.81 lakh in 2014 to Rs.225.58 lakh in 2018. The NPAs led by medium term converted loans increased by about 39 per cent from Rs.206.73 lakh in 2014 to Rs.286.58 lakh in 2018. Though, the NPAs led by salary loans at overall period were responsible for 6.62 per cent of total NPAs led by MTNAL, but from growth point of view they were of paramount importance, as the NPAs led by them increased by 494.08 per cent over the study period from Rs.30.25 lakh in 2014 to Rs.179.71 lakh in 2018. The housing loans advanced by SDCCB have also contributed to NPAs. A large proportion of jewel loans which were lent directly by the SDCCB through PACBs proved to be problematic and inefficient in income generating. Further, the NPAs led by non-agricultural loans decreased due to changes in the guidelines related to NPAs.

Pattern of NPAs having resulted from cash credit & overdraft loans and liquidated societies

The cash credit is a short-term loan extended by a bank and the customers are allowed to borrow without maintaining balance. The lending should be within the borrowing limits set by the particular bank. A customer has to pay the interest only for the money he/she actually withdraws, not for the borrowing limit allowed to him/her. The cash credit has to be renewed once in a year by submitting necessary documents. By the overdraft facility, a customer can withdraw amount more than what he/she has in his/her current deposit account.

The cash credit and overdraft allowed by SDCCB were responsible for creation of NPAs of worth Rs.2423.12 lakh, which accounted for 70.08 per cent of total NPAs led by cash credit & and over draft and liquidation of societies (and 25.99 per cent of total NPAs of SDCCB), while the liquidated societies generated NPAs of worth Rs.1034.47 lakh (29.92 per cent) during similar period, which stood at 11.09 per cent of total NPAs of SDCCB.

Over the period under investigation the NPAs led by cash credit and overdraft grew by 10.01 per cent from Rs.1785.01 lakh in 2014 to Rs.1963.70 lakh in 2018, whereas the same led by liquidation of societies grew by 47.40 per cent from Rs.804.40 lakh in 2014 to Rs.1185.71 lakh in 2018. Overall NPAs led by cash credit and overdraft and liquidation of societies grew by 21.63 per cent from Rs.2589.41 lakh to Rs.3149.41 lakh during similar period.

Amongst various components of cash credit and overdraft the most prominent one was the Jewel loans provided to primary agricultural cooperative banks, responsible for more than three-fourth (76.66 per cent) of NPAs led jointly by cash credit and overdraft overall period of five years with a magnitude of Rs.1857.49. The next important item of cash credit and overdrafts was non-renewed cash credit that was responsible for NPAs of worth R.350.66 lakh, which stood at 14.47 per cent of NPAs led by cash credit and overdraft during overall period.

The temporal pattern reveals that the NPAs led by Jewel loan cash credit to PACBs grew by 28.47 per cent from Rs.1276.74 lakh in 2014 to Rs.160.19 lakh in 2018, whereas the same led by non-renewed cash credit decreased by 33.81 per cent from Rs.456.10 lakh in 2014 to Rs.301.91 lakh in 2018. It may also be noted that the highest decline in NPAs led by any individual item was observed in case of item 'others' with a rate of 64.88 per cent from Rs.47.87 lakh in 2014 to Rs.16.81 lakh in 2018.

Determinants of NPA of SDCCB

The regression co-efficient of the variable 'loan waiver' was found to be positive and significant (Table 6), indicating that the loan waivers and NPAs of the bank were moving in the same direction. The magnitude of the co-efficient indicates that announcement of loan waivers discouraged the farmers in repaying the loans; and thus, in turn resulted in NPAs. It is suggested that the basic income of farmers would serve the purpose of providing relief to the farmers without amounting to increase in NPAs of the banks. The loan waivers highly tend to erode the credit culture as a whole, the bitter harvests of which are to be reaped in future. De and Tantri (2013) highlighted the problem of loan waivers leading to strategic defaults. If debtors expect future debts to be waived off, their incentive to repay future loans reduces.

Table 5. Pattern of NPAs resulted from cash credit and overdraft liquidated societies

(Rs. In Lakh)

S.No.	Particulars	Year						% change
		2014	2015	2016	2017	2018	Average	
A.	Cash credit and overdraft							
1.	Jewel loan cash credit to PACBs	1276.74 (71.53)	1568.94 (66.11)	986.87 (53.84)	3814.71 (91.69)	1640.19 (83.53)	1857.49 (76.66)	28.47
2.	Non-renewed cash credits	456.10 (25.55)	474.57 (20.00)	283.40 (15.46)	237.32 (5.70)	301.91 (15.37)	350.66 (14.47)	-33.81
3.	Produce pledge loans	4.30 (0.24)	1.48 (0.06)	5.84 (0.32)	2.70 (0.06)	4.79 (0.24)	3.82 (0.16)	11.40
4.	Others	47.87 (2.68)	328.40 (13.84)	557.00 (30.39)	105.65 (2.54)	16.81 (0.86)	211.15 (8.71)	-64.88
	Total	1785.01 (100.00)	2373.39 (100.00)	1833.11 (100.00)	4160.38 (100.00)	1963.70 (100.00)	2423.12 (100.00)	10.01
		(68.94)	(74.69)	(60.61)	(77.81)	(62.35)	(70.08)	
B.	Liquidated Societies	804.40 ***(31.06)***	804.40 ***(25.31)***	1191.12 ***(39.39)***	1186.71 ***(22.19)***	1185.71 ***(37.65)***	1034.47 ***(29.92)***	47.40
	Total	2589.41 ***(100.00)***	3177.79 ***(100.00)***	3024.23 ***(100.00)***	5347.09 ***(100.00)***	3149.41 ***(100.00)***	3457.59 ***(100.00)***	21.63

Source: annual reports of SDCCB from 2013-14 to 2018-2019

Note: 1. Figures in parentheses indicate the proportion of the NPA generated by the cash credit & overdrafts loans and liquidated societies by SDCCB.

The regression co-efficient of variable 'number of follows–up' was found to be negative and significant. The magnitude of the co-efficient indicates that when better follow up by the bank personnel was done the incidence of occurrence of NPAs was reduced. Better follow up will ensure that the loan sanctioned will be used for the purpose for which it was sanctioned. And proper utilization of loan, without diversion, will inculcate credit discipline among the borrowers, in turn lead to better returns and timely repayment of the loan. As Chaitanya (2004) found that a lack of due meticulousness for loan disbursement and poor after disbursement monitoring resulted in NPAs. Again, Meenakshi and Mahesh (2010) reported that improper monitoring and follow up processes were the causes of rising NPAs.

It can be concluded that despite being an agricultural cooperative credit organization, most of the business assets of SDCCB were devoted to fulfill financial needs of non-agriculture sector, instead of agriculture sector.

Table 6. Regression co-efficient of determinants of NPA of SDCCB

Step	Variables							R^2
	Profit (X_1)	Recovery % (X_2)	Loan issued X_3)	SGDP (X_4)	Follow up by the bank (X_5)	Loan waiver (X_6)	Intercept	
1.	0.522 (1.147)	-89.926 (97.258)	0.002 (0.001)	0.019 (0.013)	-3.377 (0.690)	3203.398 (1177.245)	24097.451 (6571.871)	0.886
2.	-	-57.0792 (62.647)	0.001 (0.001)	0.018 (0.013)	-3.547 (0.558)	3401.021 (1050.184)	22539.890 (5385.938)	0.883
3.		-	0.0007 (0.001)	0.011 (0.010)	-3.539 (0.553)	2879.736 (873.823)	18004.3 (2040.114)	0.873
4.			-	0.008 (0.009)	-3.534 (0.539)	2786.961 (839.245)	18347.91 (1915.197)	0.869
5.				-	-3.611* (0.531)	2740.122* (835.256)	19055 (1762.29)	0.859

Note: 1.* indicate level of significance at 5 per cent

2. The figures in the bracket are the standard errors of the respective regression co-efficients

Also, non-agricultural loans were a prime source of NPAs of the bank with more than two – fifth of NPAs of the bank. The agricultural loans were relatively less important source of NPAs. The NPAs generated by different sources increased over time except non-agricultural loans. Amongst agricultural loans, the KCC loans and government loan-waivers were responsible for most of the (more than three-fourth) of NPAs generated by agricultural loans. However, NPAs generated by KCC loans had shown an increasing pattern, while the same generated by government loan-waivers showed a decreasing pattern over time. The loan waivers encouraged the agricultural borrowers not to repay the loans and the follow ups visits made by the bank personnel had been helpful in reducing the incidence of occurrence of NPAs.

Authors' contribution

Conceptualization of research work and designing of experiments(VS, SC); Execution of field/lab work and data collection(SC); Data analysis and interpretation of results (SC,VS); Preparation of manuscript (SC,VS).

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