

## STRATEGIC MODEL FOR STRENGTHENING TO PACS –AN ECONOMETRIC ANALYSIS

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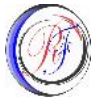
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### INTRODUCTION

The growth of any firm or business institution, is mostly depends on the effective and appropriate strategy management by the firm. Proper strategy management will not be possible without activeness of management body and leadership. Every firm has to be aware of their own strength, weakness, opportunities and threats. Weakness and strengths are the internal forces which can be managed by using appropriate strategic plan. Threats and opportunities are not under the control of firm therefore it may say external negative and positive forces. Therefore there is negligible scope for strategy management in external environment risk of the firm. In order to reduce the magnitude of the internal and external risk, proper strategy has to be implemented by firm. Strength is the key force of a firm, with the help of which firm can grow smoothly. There are basically five steps in strategy management. These steps are formulation of strategy, planning for strategy, implementation of strategy, evaluation of the strategy and modification of the strategy.

In Indian agriculture finance, primary agriculture cooperative societies are playing very crucial role. Especially short term and medium term loan are provided by the PACs at affordable cost. These PACs are also firms which are making business in rural area by considering the common interest of their members. They are also facing several problems while undertaking their day to day activities. The problem of overdues of the PACs is one of the burning issues therein. This problem is serious since overdues adversely affects the capacity of borrowing on the part of the cooperatives from the central financing agencies and consequently reduces their loan facilities to cultivators. The objective of increase in production depends so much on the availability of the credit facilities to the cultivators to obtaining the much needed inputs. This principal of strategy management is also applicable to the PACs though they are motivated by the common concern. Though the principle of strategy management is very much applicable to PACs, hardly few PACs are aware of this principle and therefore they are unable to manage their problems like overdues. The present paper is attempted towards the finding the answer of some the basic questions like, which type of strategy has to be adopted by PACs in order survive in modern competitive era? How to overcome from the weakness? How to receive benefits from strength? The answer of these questions were tried to solve with the help of cross section regression model and framing a strengthening model.

Study has focused on internal and external environment of the PACs along with qualitative, quantitative and dummy variable. The strengthening model is purely applied



model which can be tested by using well designed questionnaire. In present paper the model is partially tested due to secondary data constraint.

### **OBJECTIVES OF THE STUDY**

The major objectives of the present study are as below.

1. To frame logical model for strengthening primary cooperative agriculture credit societies.
2. To test the validity and viability of presented model to overcome from overdues.
3. To suggest appropriate policy implication to overcome from overdues.

### **DATA BASE AND RESEARCH METHODOLOGY**

The paper is based on secondary data. The necessary data has been collected from the various reports of the, National Federation of State Cooperative Banks Ltd. (NAFSCB). The gathered data has been processed in eviews software. The prominent statistical technique such as multiple regression analysis has been applied for the validity and viability testing of the model.

### **APPLIED STRATEGIC MODEL FOR THE STRENGTHENING TO PACs**

Strength may be define as all those internal environmental forces of the firm which positively influences on the growth of firm (in our model PACs). These strengths can be classified into two broad categories namely qualitative and quantitative forces. The qualitative forces like goodwill of the PACs, Active and talented secretary, belief of the members, experience of the management body, relations of PACs with the members and upper cooperative institution (District Cooperative Bank). These qualitative forces cannot measurable though these forces are playing very crucial role in the strengthening to PACs. The quantitative forces are all those forces which are measurable. These forces are namely growth of share capital, growth working capital, physical and financial assets, growth of deposits, demand for loan, rate of profit etc.

Diagram 1 presents the framework of strength of a PACs. This fundamental framework of strength of PACs can be reduce the intensity of internal risk and obtain the benefits from strength.

### **MODEL FOR OVERDUES MANAGEMENT**

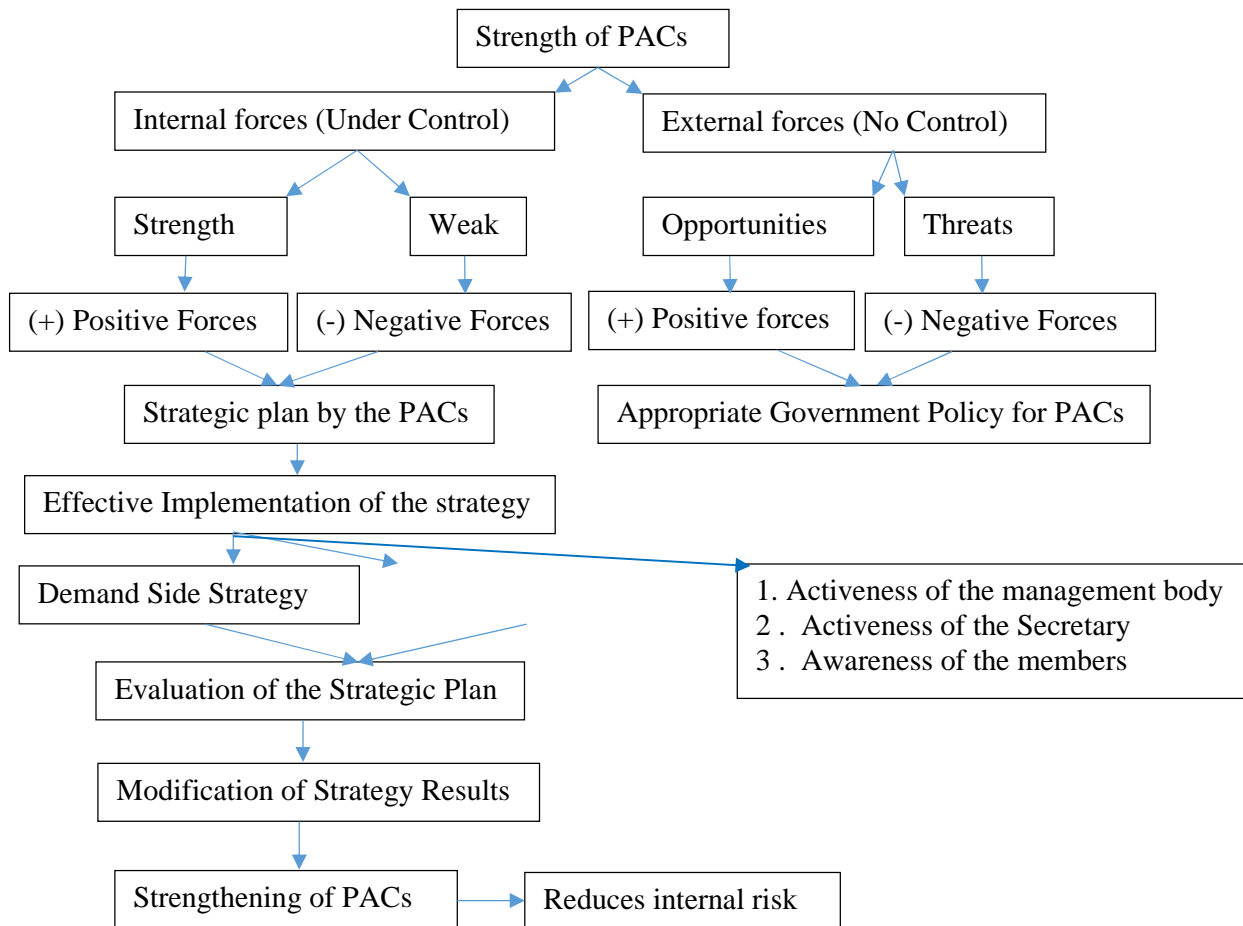
Overdues of primary agriculture credit societies are influenced by certain factors, which have been broadly categorized into external and internal factors<sup>1</sup>. The external factors are those beyond the control of the beneficiaries and the credit societies. They are, for example, the agro-climatic conditions, irrigation facilities, cropping pattern and the like. Failure of monsoon, untimely rainfall or excess rains and such other calamities do adversely affects agriculture and reduce the capacity of the cultivators –members to repay their dues. Similarly, lack of irrigation facilities results in less return from cultivation as compared to returns owning to the presence of such facilities, consequently affecting their repaying capacity.

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<sup>1</sup> Reserve Bank of India : Report of the Study Team on Overdues of the Co-operative Credit Institutions, Agriculture Credit Department ,Bambay ,1974,Chapter II,PP.25-71

Some factors falling under the description of cropping pattern unique to a given area are also relevant. They are the proportion of area under cash crops to gross area under cultivation, and the intensity of cropping. It is generally observed that a cultivator raising cash crops in his field is placed in a more favorable position to pay his dues to the credit society than one who

Diagram 1: Strength of PACs



does not raise such cash crops. Further, a cultivator who exploits his land much more than one who does not do so is likely to have a larger cash turnover so as to pay up the installments without incurring overdues.

The internal factors are those well within the control of the credit societies themselves. They are internal resources, organizational structure and supervisory arrangement over recoveries. Internal resources are defined as share capital, membership fees, reserve funds and deposits from members. If the internal resources from a large part of the total working capital of the society, the latter is in a position to meet its Overdues to the district central financing agency by diverting the internal resources from other uses. Though the purpose of further borrowing without obstruction would thus be facilitated the opportunity cost of internal resources in alternative uses is high. Being aware of this, the society may recover the overdues from its members to a greater extent than a society whose internal resources from smaller proportion of the working capital.

Experience has been that if a credit society has a full time paid secretary and if the society is subject to frequent supervision by the district central co-operative bank, the overdues of such a society are likely to be far less than those of credit society being without a full time paid secretary and not subject to any supervision. Further, if the credit facility extended by a society has been more in kind such as fertilizers and seeds, there is a greater possibility of its being used directly as input in agriculture increasing the capacity of the cultivator to repay the installment to the society. In a similar way, if there is any provision for the cultivator to repay at least some part of the loan through cooperative marketing society, by offering his produce, the chance of the recovery of the loan are ensured to substantial extent.

The causes seemingly responsible for overdues as discussed above can be incorporated in a stochastic model in order to test their validity in given situation. A functional relationship is formulated as below.

$$Y = f(X_1, X_2, X_3, X_4) \bar{\lambda}$$

Where

$Y$  = Overdues of primary agriculture cooperative society in rupees

$X_1$  = The proportion of net irrigated area to the total net cultivated area covered by the society expressed in percentage.

$X_2$  = The proportion of gross area under cash crops to gross cultivated area covered by the society expressed in percentage.

$X_3$  = The proportion of gross cultivated area to the net cultivated area covered by the society expressed in percentage.

$X_4$  = The proportion of internal resources to working capital of the society in rupees.

$\bar{\lambda}$  = Represents the influence of the external forces .

In addition to the above four independent variable, dummy variables can be added to the regression equation sought to be fitted for the estimation purpose. They are

$D_1$  = If the society disburses loan in kind and has facilities for selling fertilizers and other inputs, this will assume the value of unity and, if not, zero.

$D_2$  = If the society has a full time secretary, this will assume the value of unity and if not, zero.

$D_3$  = If the society has been subject to supervision consistently, this will assume the value of unity and if not, zero.

$D_4$  = If the repayment of loan is linked with marketing, this will assume the value of unity and if not, zero.

A cross-sectional multiple regression analysis of overdues of primary agriculture co-operatives societies incorporating the above explanatory variables has to be done on certain assumption. They are:

1. In addition to the variables explained above, there may be some exogenous factors as well. For example, overdues may be caused by willful defaulters. It is not possible to capture the influence of such forces.

2. It is assumed that there is no or negligible degree of inter-society difference in the managerial skill of the secretaries wherever such secretaries are working.
3. The next assumption is in regard to the quality of supervision over societies where such supervision is exercised. It is assumed that there is no or negligible degree of inter-society difference in the quality of supervision.
4. It is assumed that the inter-society soil-quality differences of land are also captured by the variable, cropping intensity, just as it reflects the application and hard work of the cultivator.

Under the above restrictive assumption, the following hypotheses are sought to be tested:

- a) There is negative relationship between overdues of cooperative society and irrigation facilities obtained in the area covered by the society.

e.g.  $(\frac{\partial y}{\partial x1} < 0)$

- b) The relationship between the overdues of the society and the proportion of area under cash crops to the area under total agricultural production raised in the area of the society is inverse  $(\frac{\partial y}{\partial x2} < 0)$

- c) Cropping intensity has a negative influence on overdues position of the society  $(\frac{\partial y}{\partial x3} < 0)$

- d) Overdues of the society are inverse relationship with the proportion of internal resources to the total working capital of the society  $(\frac{\partial y}{\partial x4} < 0)$

- e) Secretarial assistance to a society reduces the incidence of Overdues of the society  $(\frac{\partial y}{\partial D1} < 0)$

- f) Effective supervision over a society and the overdues of the society move in opposite direction  $(\frac{\partial y}{\partial D2} < 0)$

- g) Linking credit with marketing and overdues of the society are inversely related  $(\frac{\partial y}{\partial D3} < 0)$

- h) Distribution of loan in kind has a negative influence on Overdues position  $(\frac{\partial y}{\partial D4} < 0)$

In fact this model has to be tested by acquiring facts by well designing questionnaire. The next section deals with the application of the model to the overdues based on available secondary data.

## PARTIAL TESTING OF THE STRENGTHENING MODEL

Primary data is requires for proper testing of the model which is not gathered for present work. Therefore this model has been tested partially. In order to check the viability and validity of the model multiple regression techniques has been used. The quantitative data of PACs which truly determines the degree of strengthen has been identified and considered it as “explanator”. These regressors are own fund, loan issued, paid up capital, total deposits, total resources and total reserves. The overdues were considered as dependent or regressed variable and attempts were made to explore the validity of the model. Before explaining regression statistical inferences, it is essential to explain rough data. The table-1 depicted the

financial position of PACs over a period of 10 years from 2002 to 2011. Table reveals that the number of PACs during the study period came down drastically, in 2002 it was 112309 lakh, which comes down to 92432 lakh in 2011. It implies that the existences of PACs are under threaten. The causes of threatens may be differs from region to region. Continuous increasing overdue is a basic considerable issue of deteriorating of PACs.

Table 1: All India Position of PACs Including FSS From 2002 to 2012 (Rs in Lakhs)

Main Items of PACS									
	Total Balance (Overdues)	No. of Societies	Paid Up Capital	Total Reserves	Own Funds	Total Deposits	Total Resources	Total Loan Issued	Percentage of Overdues to Demand
2002	1528937	112309	495339	324459	819798	1912023	5759612	3399586	37.9
2003	1629517	105735	516642	323094	839736	1814253	6079707	3511924	36.84
2004	1605223	108779	557136	362569	919705	1897604	6842258	3921172	33.59
2005	1547623	106384	564425	364776	929201	1956119	6987080	4291959	30.36
2006	1575150	93224	613841	490043	1103884	2348407	7823740	4961275	29.11
2007	2400348	94950	659665	438718	1098383	2544926	8428106	5764248	35.67
2008	3793635	95633	700732	488850	1189582	2624538	8707964	5878674	44.82
2009	3952400	94647	714842	533021	1247863	3528607	9952860	7493754	41.39
2010	2269713	93413	755117	690444	1445561	3723816	10569387	9130382	25.15
2011	2430359	92432	828010	771577	1599587	5025279	15508423	10730023	26.78
Mean	2273291	99750.6	640574.9	478755.1	1119330	2737557	8665914	5908300	34.161
Stan. Error	303.1446	27.5889	104.5857	123.5728	160.8927	323.7191	535.7493	498.6848	0.798166
Stan. Devi	918966.6	7611.476	109381.7	152702.3	258864.7	1047941	2870273	2486865	6.370684
Coeffi. SD	0.404245	0.076305	0.170755	0.318957	0.231268	0.382801	0.331214	0.42091	0.18649
Coeffi. Varian	40.42451	7.630507	17.07554	31.89571	23.12675	38.28014	33.12141	42.09104	18.649

Source: Performance of PACs by NFSCOB 2011-12

### Multiple Regression Results

Dependent Variable: OVERDUES				
Method: Least Squares				
Sample: 2002 2011				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
DEPOSITS	-3.35	2.16	-1.551936	0.2185
FUND	-2.83	1.65	-1.715422	0.1848
ISSUEDLOAN	1.18	7.61	1.544910	0.2201
RESERVES	-3.48	2.12	-1.644325	0.1987
RESOURCES	-7.74	5.03	-1.539973	0.2212
C	8.48	4.91	1.728743	0.1823
R-squared	1.00	Mean dependent var		2273290.
Adjusted R-squared	1.00	S.D. dependent var		918966.6
S.E. of regression	3.25	Akaike info criterion		-31.44901
Sum squared resid	3.17	Schwarz criterion		-31.23720
		F-statistic		1.20

### REGRESSION EQUATION

Estimation Command:

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LS OVERDUES DEPOSITS FUND ISSUEDLOAN RESERVES RESOURCES C
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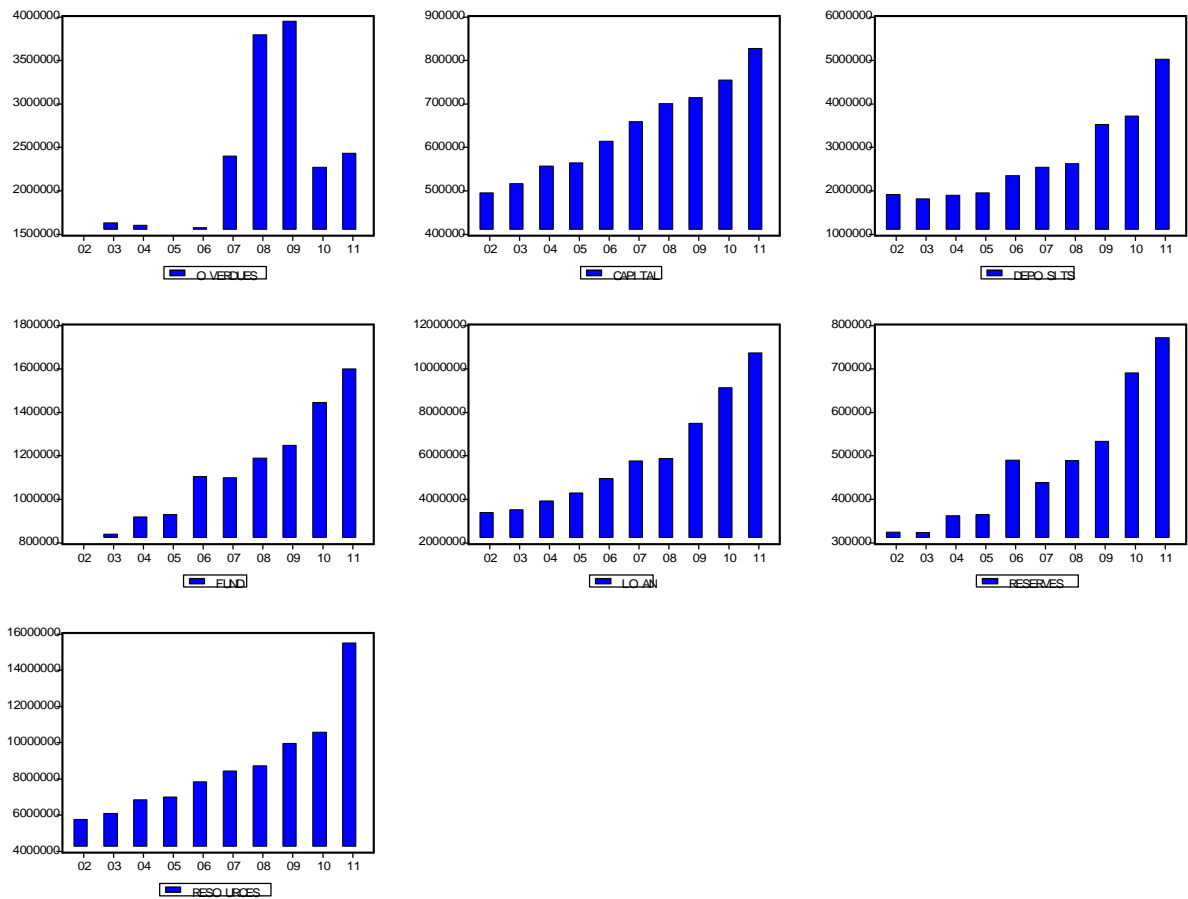
Estimation Equation:

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OVERDUES = C(1)*DEPOSITS + C(2)*FUND + C(3)*ISSUEDLOAN + C(4) * RESERVES + C(5)*
RESOURCES + C(6)
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Substituted Coefficients:

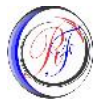
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OVERDUES = -3.350098284e-13*DEPOSITS - 2.830896096e-12*FUND + 1.176329314e-
13*ISSUEDLOAN - 3.480661219e-12*RESERVES - 7.743729789e-14*RESOURCES +
8.483236226e-07
```

Graph :1 Multiple Graph of Selective Aggregates of PACs



### FINDINGS

As per as quantification is possible, some of these factors were incorporated in a stochastic model to find out the determinants of overdues. Paper focused attention on analysis of overdues of primary agriculture cooperative societies. Following finding can be drawn based on regression results.



1. A time series regression analysis of overdues from 2002 to 2011 reveals that the except total issued loan coefficient, all other coefficient are negatively related to the overdues. It implies that with the strengthening of PACs the adverse influence of overdues goes to decline.
2. The coefficient of total resources is also negative which implies that with the increase in total resources of the PACs, overdues can decline.
3. It quite general observation that with the increase in the total volume of loan issued, there more probability of the overdues and vice-versa. This observation is also consistence with the statistical inferences.
4. Though the above results are based on single internal forces (i.g financial aspects of PACs) the significance of other variable (internal and external) which are included in the model cannot be disregarded.

## CONCLUSION

Increasing the capacity of cultivator-members of the cooperatives to repay their liabilities is the key to reduce the overdues position of the PACs. Efforts towards improving irrigation facilities, and switching on to a more favourable cropping pattern with stress on higher income yielding crops are some important solutions to the growing problem of overdues. Along with external strategy, proper internal strategy has to be adopted by the PACs to overcome from weakness like overdues. Improved management techniques, secretarial skill and beliefs of the members will definitely helps in the strengthening to PACs in modern competitive era.

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