
A STUDY ON ORGANIZATIONAL COMMITMENT AND JOB SATISFACTION AMONG BANK EMPLOYEES IN MADURAI CITY

Abstract

The changes occurred in the theory of management has also significantly affected the attitude of organizations to their workers. The management paradigm, which until the mid of 20th century was under the influence of the “classical organization theory”, considered organizations as “closed-mechanical” systems and its workers as mere elements composing them. This approach tended to see them as parts of a machine rather than socio-psychological beings. Any lack of productivity or mistake of a worker was repaired by simply removing this worker and bringing a new one in his place. In this approach workers had no importance as “individuals” at all and their contribution to the organization was limited strictly to their job description. This attitude of the management reflected on the workers, causing that these were not trying to become more useful for the organization. When found a better job they used to quit their organizations to new one and to stay there until they find even better. The “neo-classical organization theory”, developed to compensate the shortcomings of the classic organization theory, addressed the socio-psychological side of the workers. From that time on, their feelings and views, social and psychological needs gained in importance. The attitude towards workers changed and with that increased the importance given to them. This process brought closer the worker and the organization and increased their mutual attachment. With the modern and post-modern management approaches, the cooperation and synergy between organization and the worker get more significance. “Mechanical” and “closed” organization models have left the place to “organic” and “open” models. In the new period, the organizations, like living organisms, have to follow closely the changes, opportunities, threats, possibilities and problems in the external world and inside themselves, have to adapt to the change and if necessary to steer the change. The workers started to be seen as organs composing the organism. Henceforth it is matter that these are healthy and dynamic, that they fulfill their missions in the best way. To achieve this goal effectively it is necessary to strengthen the organizational commitment. Hence, the present study focused on organizational commitment and job satisfaction among bank employees in Madurai city and study based on both primary and secondary sources of data collections.

Keywords: Mechanical and Closed Systems, Attitude of the Management, Socio-psychological Beings and Worker and Organisation Mutual attachment.

INTRODUCTION

Organizational commitment is an issue of prime importance, especially to the management and owners of the organizations. Organizational commitment and job satisfaction are directly related to an organization’s profitability and competitive position in the market. Organizational commitment directly

affects employees’ performance and is therefore treated as an issue of great importance. Commitment is a sort of bond between an employee and the organization he is working for. The strength of this bond is dependent on various factors. This study will try to find the relation of some of these factors with organizational commitment. Organizational

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commitment has a strong relation with the employee behaviour. If an employee is committed to an organization, it would reduce the chances or occurrences of absenteeism and turnover. Commitment refers to an employee's willingness to work positively in an organization and his continuance to work for it. Organizations, like Banks, are considered to be one of the more stressed-out sectors in the World. This is also the case with banking sector in India. Long working hours and inefficient use of technology are two of the main reasons of employees' lack of satisfaction and commitment. A few branches in India even work with over fifty workers, whereas some of the branches still perform most of their work manually; with present day technology available to them. Banking sector is one of the fanciest sectors for young business graduates. But the problems they face after joining the banking sector affect their commitment and in turn, raise issues like turnover, absenteeism and under-performance.

Banking sector has grown, by leaps and bounds, in the last 10 years or so, in India. With multinational and private banks coming into the banking sector, a lot of opportunities were created in the sector. These multinational and private banks recruited many experienced and qualified employees from the other competing banks, at much better salaries and packages. This affected the quality of workforce of the existing banks. So, it was thought significant to organize a study relating to the commitment of employees in the banking sector

OBJECTIVES OF THE STUDY

This present study has been conducted with the following objectives:

1. To know about the Banking Sector in India.
2. To know about the Organisational Commitment towards Bank Employees.
3. To analyse various factors relating to the studies.
4. To give valuable suggestions and recommendations for enriching the organizational commitment towards Bank Employees in Madurai City.

OPERATIONAL DEFINITIONS

Organizational commitment may be viewed as, "an organizational member's psychological attachment to the organization. Organizational commitment plays a very large role in determining whether a member will stay with the organization and zealously work towards organizational goals".

Job satisfaction is, "the level of contentment a person feels regarding his or her job. This feeling is mainly based on an individual's perception of satisfaction. Job satisfaction can be influenced by a person's ability to complete required tasks, the level of communication in an organization, and the way management treats employees".

REVIEWS OF RELATED LITERATURE

Becker (1960) concept of commitment represents a component of attitudinal commitment because he emphasized the awareness of the costs associated with leaving the organization. However, their argument is untenable. Becker defined commitment as a consistent line of activity (i.e., maintaining membership in the organization) and attempted to explain what causes this inconsistency. Therefore, Becker's view of commitment seems to be more congruent with the behavioral rather than attitudinal approach of Porter and his colleagues. Alutto, Hrebiniak & Alonso (1973) Commitment, according to their study, was measured by evaluating the reasons causing a person to leave his organization. Porter, Steers, Mowday & Boulian (1974) focused on commitment with respect to the psychological attachment one had towards the organization. The attitudinal approach advanced by Porter and his colleagues attempted to describe commitment as a focused attitude, uncontaminated by other constructs such as behavioral intentions. Accordingly, commitment was defined by Porter and his supporters as the relative strength of an individual's identification in an organization".

Mowday, Steers & Porter (1979) Considered commitment as an alternative

construct to job satisfaction and argued that commitment can sometimes predict turnover better than job satisfaction. Commitment was characterized by three related factors: (1) a strong belief in and acceptance of the organization's goals and values; (2) a willingness to exert considerable effort on behalf of the organization; and (3) a strong desire to maintain membership in the organization". Mowday, Porter & Steers (1982) argues that the willingness to perform actions in support of the organization reflects more of a mindset rather than behavioral intentions, and therefore, items such as the ones above reflect the attitudinal approach of the OCQ. However, some of the critiques did convince researchers to be more cautious in the application of the OCQ. The solution found by these researchers was to use a shorter version of the scale, a 9-item version that omitted the six negatively phrased items or a 12-item version that omitted the three items supposedly dealing with turnover intentions.

BANKING SECTOR IN INDIA

The banking sector is the lifeline of any modern economy. It is one of the important financial pillars of the financial sector, which plays a vital role in the functioning of an economy. It is very important for economic development of a country that its financing requirements of trade, industry and agriculture are met with higher degree of commitment and responsibility. Thus, the development of a country is integrally linked with the development of banking. In a modern economy, banks are to be considered not as dealers in money but as the leaders of development. They play an important role in the mobilization of deposits and disbursement of credit to various sectors of the economy. The banking system reflects the economic health of the country. The strength of an economy depends on the strength and efficiency of the financial system, which in turn depends on a sound and solvent banking system. A sound banking system efficiently mobilized savings in productive sectors and a solvent banking system ensures that the bank is capable of meeting its obligation to the depositors. In

India, banks are playing a crucial role in socio-economic progress of the country after independence. The banking sector is dominant in India as it accounts for more than half the assets of the financial sector. Indian banks have been going through a fascinating phase through rapid changes brought about by financial sector reforms, which are being implemented in a phased manner. The current process of transformation should be viewed as an opportunity to convert Indian banking into a sound, strong and vibrant system capable of playing its role efficiently and effectively on their own without imposing any burden on government. After the liberalization of the Indian economy, the Government has announced a number of reform measures on the basis of the recommendation of the Narasimhan Committee to make the banking sector economically viable and competitively strong. The current global crisis that hit every country raised various issue regarding efficiency and solvency of banking system in front of policy makers. Now, crisis has been almost over, Government of India (GOI) and Reserve Bank of India (RBI) are trying to draw some lessons. RBI is making necessary changes in his policy to ensure price stability in the economy. The main objective of these changes is to increase the efficiency of banking system as a whole as well as of individual institutions. So, it is necessary to measure the efficiency of Indian Banks so that corrective steps can be taken to improve the health of banking system.

ORGANISATIONAL COMMITMENT TOWARDS BANK EMPLOYEES

Affective Commitment: Affective commitment describes the affective allegiance to the organization. In this approach, the source of the commitment of the employees is their feelings towards the organization. In this type of commitment, to make a part of the organization gives pleasure and pride from emotional point of view. The organization represents much for its employees both materially and spiritually. Therefore affective commitment is accepted as a strong type of commitment.

The employees with this kind of commitment identify themselves fully with the organization. Therefore, they are ready to make sacrifices for the sake of their organization and won't envisage leaving it. Certain conditions must be created to foster the affective commitment among employees:

- ✓ Autonomy in the mission: In the fulfillment of their missions, the employees must have the power, to a certain extent, of taking and implementing decisions.
- ✓ Clarity and significance of the mission: The employees must be involved in a job suitable to their abilities and significant from their own point of view. The job definition, rights, authorities and responsibilities of the employees must be clearly defined.
- ✓ Image of the mission: The mission carried out by the employees must not cause a negative image and must not create a discreditable effect from social perspective.
- ✓ Qualities required for the mission: The qualities and the requirements of the mission must be clearly identified.
- ✓ Attitude of the manager: The managers who are in direct or indirect interaction with employees should give value to the personality and honour of their subordinates; they should pay attention to their needs; they should avoid any humiliating behaviour before other employees.
- ✓ Participation in management: Employees should be able to express freely their views and suggestions to their superiors. For this purpose, appropriate mechanisms should be established and implemented. They must be consulted and given the possibility to ask questions and to obtain information related to the decisions that concern them, before these decision are taken. Views and suggestions of employees must be given importance and should be implemented; if not implementable, the reason should be properly explained.

- ✓ Organizational justice perceptions: In the process of taking organizational decisions and distribution of resources, perception of justice by the employees should be assured.
- ✓ Organizational confidence – confidence in the leader: The employees should trust to both the organization and the top management in what concerns the meeting of their current and future personal and professional needs.

Continuance Commitment:

Continuance commitment is a type of commitment in which the employees have financial dependence on the organization. In this type of commitment, it is the material/financial benefit that makes employees stay with the organization. Their personal benefit is the measure of the significance that organization has in their eyes. Therefore, the continuance commitment is not considered as a strong type of commitment. The employees do not make sacrifices for their organizations, except in case they are compelled to do so, and at the first opportunity (in case they find a better job with better financial opportunities) they quit the organization. The factors forging the continuance commitment can be listed as follows:

- ✓ Age: The employee is either too old or too young to find job out of the organization.
- ✓ Working period: The employees' long period of working for the organization, their familiarity with the job, the low probability of finding a job out of the organization, or their short working period in the organization resulting in lack of experience.
- ✓ Career opportunity: Lack of opportunity of making career out of the organization.
- ✓ Educational background: Type of education is not appropriate for working in better conditions out of the organization.
- ✓ Marital Status: Being married and/or with children, so that the employee does not dare to quit the organization.
- ✓ Alternative job opportunities: Alternative job opportunities are limited.

- ✓ Sex: the continuance commitment of women is less strong than that of men.
- ✓ Organizational justice perception (distributional justice): feeling that organizational justice is better assured than in other organizations.

Normative Commitment :

This type of commitment to the organization derives from the fact that the employees believe they must work in the organization due to conscientious and ethical reasons. The sources of the normative commitment can be the following: The employees were treated with much favour by the organization's management, the employee has worked in the organization since long time, the organization has been a life-saver for the employee in difficult times, or the services provided by the organization are considered as

socially and spiritually important- noble duties. Therefore, they consider themselves responsible before the organization in terms of normative commitment. This feeling makes their work for the organization meaningful. The more they are grateful to the organization, the more they feel pride for working for it. The employees with such commitment can do important sacrifices for their organization and generally do not consider leaving the organization. The factors which foster the normative commitment are:

- ✓ The colleagues have got strong organizational commitment.
- ✓ Gratefulness felt for the assistances and favours made by the organization.
- ✓ The importance given by the employee to principles and values.
- ✓ The effect of social frame of mind.

ANALYSIS PART OF THE STUDY

Table 1: Demographic Factors of the Respondents

Demographic Factors	Category	Percentage of the respondents
Gender	Male	52.00
	Female	48.00
	Total	100.00
Educational Qualification	Under Graduate	41.00
	Post Graduate	43.00
	Diploma	12.00
	Certificate Courses	04.00
	Total	100.00
Positions in the Bank	Juniors	64.00
	Middle Management	33.00
	Senior Management	03.00
	Total	100.00
Length of Service	Below 3 years	16.00
	4 – 7 years	15.00
	8 – 10 years	26.00
	Above 10 years	42.00
	Total	100.00

Department	Treasury	10.00
	Support Function	11.00
	Consumer Banking	26.00
	Corporate Banking	53.00
	Total	100.00

Source: Primary data

Table 2: Affective, Normative and Continuance Organizational Commitment of Bank Employees

Factors	SA	A	NA	DA	SDA
I do feel a strong sense of belonging to this organization	43	24	30	3	0
This organization has a great deal of personal to me	36	14	35	12	3
I do feel 'emotionally attached' to this organization	12	58	25	5	0
I do feel like 'part of family' at this organization	25	62	13	0	0
I really feel as if this organization's problems are my own	10	67	15	7	1
I enjoy discussing my organization with people outside it	22	38	35	5	0
I would be happy to spend the rest of my career with this organization	18	42	21	11	8
I am afraid of what might happen if I quit my job without having another one lined up	20	35	30	15	0
It would very hard for me to leave this organization right now, even if I wanted to	14	40	26	18	0
Too much in my life would be disrupted if I decided I wanted to leave this organization now	26	28	32	10	4
Right now, staying with this organization is a matter of necessity as much as desire	34	36	28	2	0
I feel that I have too few options to consider leaving this organization	36	42	15	5	2
One of the few serious consequences of leaving this organization would be scarify of available alternatives	49	28	20	3	0
One of the major reasons I continue to work for this organization is that leaving would require considerable personal sacrifice- another organization may not match the overall benefit I have here	25	42	30	1	2
I think people these days move from company to company too often	28	36	30	4	2
I do believe that person must always be loyal to his/her organization	30	48	15	5	2
One of the major reason I continue to work for this organization is that I believe that loyalty is importance & therefore I feel a sense of moral obligation to remain	33	23	35	6	3

If I got another offer for a better job elsewhere I would not feel it was right to leave the organization	26	38	22	8	6
I was taught to believe in the value of remaining loyal to one organization	19	28	35	10	8
If I got another offer for a better job elsewhere I would not feel it was right to leave the organization.	26	39	16	12	7
Things were better in the days when people stayed with one organization for most of their career	15	40	30	10	5

Source: Primary data

Table 3: The Extent of Employees Engagement towards Organizational Commitment in the Banks

Factors	Mean	Standard Deviation
I feel motivated to do my job at Bank	3.36	0.86
I know what is expected of me at work	3.32	0.86
In the past year, I have had opportunities to learn and grow at work	4.00	0.65
Leadership and management enjoy a high level of trust from employees	3.52	0.87
My Job gives me fulfillment 3.20	1.04	
Our employee engagement strategy is supportive of the business strategy	3.64	0.76
Someone at work encourages my career development	3.20	0.76
Strategic HR policies and initiatives promote employee engagement at all levels of the organization	3.16	0.94
The organization encourages the sharing of information, knowledge and resources	3.52	0.76

Source: Primary data

Table 4: Descriptive Analyses Values Related to Answers on Propositions

Proposition	Mean	Standard Deviation	Percentage	Percentage in Total
This organization deserves commitment	4.33	0.856	23.8	23.8
			19.0	42.9
			57.1	100.0
I am proud to work for this organization	4.05	1.203	4.8	4.8
			9.5	14.3
			9.5	23.8
			28.6	52.4
			47.6	100.0

To work in this institution h Deviation special meaning for me	3.90	1.044	4.8 4.8	4.8 9.5
			14.3	23.8
			47.6	71.4
			28.6	100.0
I work in this organization with good grace	3.86	1.276	4.8	4.8
			14.3	19.0
			14.3	33.3
			23.8	57.1
I feel like a part of the family in this institution			42.9	100.0
	3.76	1.044	14.3	14.3
			23.8	38.1
			33.3	71.4
I owe a lot to this Organization			28.6	100.0
	3.67	1.238	4.8	4.8
			19.0	23.8
			9.5	33.3
Quitting this organization will put me in a difficult financial position			38.1	71.4
			28.6	100.00
	3.33	1.155	9.5	9.
			19.0	28.6
If I find better job, I will quit this organization right away			4.8	33.3
			61.9	95.2
		4	.8	100.00
	2.67	1.155	14.3	14.3
I won't quit this organization even if I find better job			38.1	52.4
			19.0	71.4
			23.8	95.2
			4.8	100.0
	2.57	1.028	9.5	9.5
			47.6	57.1
			23.8	81.0
			14.3	95.2
			4.8	100.0

Even if I quit this organization without finding another job, I won't have any problem	2.52	1.327	28.6	28.6
			28.6	57.1
			9.5	66.7
			28.6	95.2
If I quit this organization, I won't feel myself comfortable from a conscientious aspect			4.8	100.0
	2.43	1.165	23.8	23.8
			33.3	57.1
			23.8	81.0
I don't find ethical to change job			14.3	95.2
			4.8	100.0
	2.29	1.231	28.6	28.6
			38.1	66.7
This organization or any other makes no difference for me			19.0	85.7
			4.8	90.5
			9.5	100.0
	2.05	1.071	33.3	33.3
Actually, I work in this institution from obligation			42.9	76.2
			14.3	90.5
			4.8	95.2
			4.8	100.0
This organization has no meaning for me	1.90	1.179	52.4	52.4
			23.8	76.2
			4.8	81.0
			19.0	100.0
	1.19	0.512	85.7	85.7
			9.5	95.2
			4.8	100.0

Source: Primary data

Table 5: Statements on Employees Commitment towards Bank

Statements	Mean	Standard Deviation
I am not keen to leave my organization right now	3.04	1.00
I feel "emotionally attached" to this organization	2.50	0.98
I feel a strong sense of "belonging" to my organization	2.46	1.06
I feel like "part of the family" at my organization	2.71	1.12
I feel obliged to remain with my current employer	2.75	1.19
I have turned down better offers	2.88	1.03
I observe punctuality	2.63	0.97

I owe a great deal to my organization	2.71	1.04
I really feel that this organization's problems are my own	2.88	1.03
I report absent from my work for no good reason	2.63	0.97
I would be very happy to spend the rest of my career with this organization	2.71	1.04
I would not leave my organization right now because I have a sense of obligation to the people in it	2.88	1.12
Right now, staying with my organization is a matter of necessity as much as desire	2.63	1.06
There is a work-life balance in the organization	2.21	0.88
This organization deserves my loyalty	3.21	0.72
This organization has a great deal of personal meaning for me	1.43	0.99

Source: Primary data

Table 6: Comparison of Propositions with Demographic Factors

Propositions Related to Affective Commitment (Chi-Square Result)						
Propositions	Status	Age	Sex	Education	Income	Working Period
I am proud to work for this organization	0.347	0.622	0.218	0.764	0.383	0.341
I feel like a part of the family in this institution	0.044	0.516	0.218	0.151	0.154	0.495
I work in this organization with good grace	0.330	0.934	0.812	0.611	0.404	0.543
This organization has no meaning for me	0.133	0.133	0.475	0.651	0.652	0.465
This organization or any other makes no difference for me	0.611	0.611	0.539	0.339	0.380	0.514
To work in this institution has a special meaning for me	0.121	0.673	0.671	0.217	0.323	0.460

Propositions Related to Continuance Commitment (Chi-Square Result)						
Actually, I work in this institution from obligation	0.226	0.110	0.123	0.498	0.449	0.555
Even if I quit this organization without finding another job, I won't have any problem	0.504	0.188	0.746	0.364	0.844	0.454
If I find better job, I will quit this organization right away	0.629	0.648	0.802	0.747	0.917	0.684
Quitting this organization will put me in a difficult financial position	0.836	0.810	0.112	0.138	0.860	0.819

Propositions Related to Normative Commitment (Chi-Square Result)

I don't find ethical to change Job	0.561	0.561	0.456	0.274	0.427	0.498
I owe a lot to this Organization	0.450	0.846	0.715	0.914	0.519	0.213
I won't quit this organization even if I find better job	0.573	0.725	0.599	0.618	0.898	0.749
If I quit this organization, I won't feel myself comfortable from a conscientious aspect	0.359	0.086	0.256	0.429	0.920	0.795
This organization deserves Commitment	0.073	0.073	0.675	0.844	0.844	0.980

Source: Primary data

SUGGESTIONS AND RECOMMENDATIONS

There is need for managers to include employees in the goal-setting process. This helps to ensure that workers understand the goals, and promotes acceptance of challenging objectives that they help define. In addition, the organization needs to consider how to recognize and encourage contributions that exceed expectations. Managers need to use routine discussions about performance and feedback sessions to learn which aspects of the job hold the most interest for each employee and which tasks are most challenging. During such discussions, managers can define what "going above and beyond the call of duty" looks like and generate ideas for rewarding such contributions. In order to increase engagement, the organization needs to enable employees to experience success over the long term. It should facilitate congruence between employee commitment in the organization and other life commitments. The bank should also value the expertise of experienced employees. It should also ensure that there is staff empowerment and clear career paths. There should be ability to grow based on performance as well as room for decision making within given parameters especially for the management staff. Conducive environment should be ensured so that the employee's personal values are in sync with the organization as well as transparency and integrity. Barclays should respond to employee issues and challenges and strategies to mitigate them so as to guarantee continued existence in this competitive environment. Banks should invest in Human resource and Information

technology with the aim of improving performance.

CONCLUSION

The respondent's working duration at the bank confirms that the respondents were knowledgeable with the bank's operations and as such gave responses relevant to the study. The results show that the study was able to collect responses Junior, middle and senior management in the organization. Based on the results form data analysis and findings of the research, it can be concluded that the employees know what is expected of them at work and the organization encourages the sharing of information, knowledge and resources. It can also be concluded that allowing people to make their own decisions about work, to control their work, and to achieve their goals may help employees become more engaged in their jobs. Empowerment however, may not be effective if not aligned with proper rewards and feedback for employee commitment. It can be concluded that there is evidence that employee engagement has a direct relationship with employee commitment. This result confirms the findings of previous studies of the social exchange theory.

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DRIVERS OF INVESTMENT IN A SOCIAL INSURANCE SCHEME : A STUDY WITH REFERENCE TO EASTERN REGION OF VIRUDHUNAGAR DISTRICT, TAMIL NADU

Abstract:

In India, there had been for a long time a joint family system that took care of social security need of all the members, as the system had an easy access to the property of the joint family. In tune with its cultural tradition, the family members discharged a sense of shared responsibility towards one another. Depending on the resources to draw upon, the family members often found the best relief for the special care and needs by the aged and those in poor health. But with the passage of time, with increasing industrialization, urbanization and migration, there has been a heavy fall in joint family units. This is where the formal system of social security gains significance. The present paper sheds light on the drivers of investment in a newly introduced social insurance scheme, namely, 'Pradhan Mantri Suraksha Bima Yojana' in eastern region of Virudhunagar district, Tamil Nadu.

Key words: Social insurance, PMSBY, Cluster analysis, Discriminant analysis.

Introduction

Prime Minister of the country, Mr.Narendra Modi launched the flagship social security scheme, including Rs.2 lakh accident cover at a premium of just one rupee per month on 9th May, 2015. This social insurance scheme-Pradhan Mantri Suraksha Bima Yojana (PMSBY) provides insurance cover in an unfortunate event of death or disability due to an accident. The accident insurance scheme, i.e., PMSBY will offer a renewable one year accidental death – cum – disability cover of Rs.2 lakhs to all savings bank account holders in the age group of 18-70 years for a premium of Rs.12 per annum per subscriber. The scheme would be administered through public/private sector general insurance companies. A salient point is that this insurance comes under the social security measure of the Government of India.

Literature review

Ashis Dev Roy. (1987), studied the nature and importance of better customer

service to policy holders and emphasized the need for quality in service¹.

Jack Burke. (2005), stressed that only post sales service help in capturing more customers. In India, insurance has not been on the main agenda of either individuals or companies. So, reforms encompass not merely regulatory intervention but also promotional effort to develop the market².

Jaya Basu and Chandra Sekar. (2000), found that majority of the population in India were ignorant of insurance policies. They report that the penetration level of insurance policies was only 0.5% as against 2.86% in Israel and 2.43% in Hong Kong. If this position is to be improved in India, there is a need to raise consumer awareness, innovate low price units with a low premium and right distribution method with planning for rigorous training to insurance agents³.

Kotler, (2000), is of the view that for consumers, opening up of the insurance sector

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will mean improved customer service, product innovation, and channel diversification. In line with the global trend of financial services convergence, the non life insurance industry in India is set to see some major drama unfolding in the near future⁴.

Malhotra, R.N. (1996), finds the awareness level of various policies of general and life insurance companies is quite limited⁵.

Malliga, R. (2000), in her study examined the association between socio-economic status, personality traits of the agents and their performance in southern end districts of Tamil Nadu. It was noted that there was a significant correlation between the agents's marketing strategies and their performance⁶.

Mishra, M.N. (1987) examined the strategies of insurance companies to provide satisfaction to customers. He reported that the Life Insurance Corporation of India, from 1980 onwards has taken remedial measures meant for improving customer satisfaction⁷.

Namasivayam, Ganesan, S. and Rajendran, S.(2006), examined the demographic variables that influence the purchase of insurance policies and policyholders' preference for various kinds of policies. They found that variables like age, education, and gender of policy holders were insignificant; however, income, family size and occupation were significant⁸.

Prakasha Rao, B.K.S. and Kenkateswara Rao, B.H.(2005) in their article "Buoyant Rural Markets" concluded that the establishment of micro branches and the appointment of specialized insurance agents in rural areas help the policyholders to market different insurance products⁹.

Raghunadhan, R.(1988), analyzed the insurance coverage of the insurable population and concluded that more self employed and farm workers are to be tapped. The author suggested to launch new schemes to satisfy the prospective investors¹⁰.

Shesha Ayyar, V.(1986), examined various issues in developing new policies. He suggested the need for including ancillary

benefits such as accident benefit, disablement and hospitalization benefits¹¹.

Vinay Verma. (1999), in his study, offered suggestions to improve insurance business. He suggested the introduction of health insurance products for different segments¹².

Research problem

To day, India is confronted with a mammoth population where millions of people are in dire need of social security. This makes imperative on the part of the state to provide some sort of social security to its citizens. In this context, the launching of Pradhan Mantri Suraksha Bima Yojana (PMSBY) in August 2015, as a social security measure, namely, social insurance scheme is highly appreciable. Here, the following research questions arise.

1. How do the respondents come to know about this policy?
2. What are the factors that influence them to subscribe to this policy?- and such other related questions. The present study titled "Drivers of investment in a social insurance scheme: 'Pradhan Mantri Suraksha' a study with reference to eastern region of Virudhunagar district, Tamil Nadu", attempts to provide answers to the above questions.

Objectives of the study are

1. To examine the respondents' sources of awareness of the policy.
2. To find out the features considered by the respondents for their subscription to the policy.
3. To offer concrete suggestions in the light of findings of the study.

Hypothesis to be tested

H₀: There is no significant difference in respondent's education level and their source of awareness to invest in PMSBY policy.

Data and Methodology

The study mainly depended on primary data which were collected by conducting a sample survey. The survey was conducted

during Jan-Mar. 2016. The instrument used was an undisguised and a structured questionnaire which was pretested.

In the absence of a concrete sampling frame, a popular non random sampling, i.e., quota sampling was used. Considering the money and time constraints, it was thought to have an adequate sample size of 300 policyholders of PMSBY. Discarding the illegible and incomplete questionnaires 17 in number, the actual number of respondents turned out to be 283. The breakup of 283 respondents into labourers (no.126), self

employed (no.127), small traders (no.19), and clerks (no.11) was made by conducting a pilot study through insurance agents in the study area for fixing the number of samples in each category, which was based on 'occupation' as control variable.

Relevant statistical tools such as percentage calculation, ANOVA (one way), cluster analysis and two group discriminant analysis were made for the analysis of survey data.

Results and Discussion

Table 1 presents demographic characteristics of respondents

Variable	Count(F)	% to total
1. Educational level:		
(a) Illiterate	64	22.6
(b) Schooling		
i. Middle school	37	13.1
ii. Higher Secondary	95	33.6
(c) Graduate	61	21.6
(d) Diploma holder	26	9.2
Total	283	100.0
2. Occupation		
a. Labour	126	44.5
b. Self-employed	127	44.9
c. Small business	19	6.7
d. Clerk	11	3.9
Total	283	100
3. Monthly Income (Rs.)		
a. Below 5,000		3.9
b. 5001 - 10,000		22.2
c. 10,001-15,000		26.1
d. 15,001-20,000		7.8
Total	283	100.0
Source: Primary data		

Sources of awareness of the policy

There may be various sources of awareness about the PMSBY. The present study disclosed that sizeable 39.6% respondents were aware of the policy through friends and relatives, 31.1% through family members and 24.4% through advertisement media and 4.9% through banks.

Performing cluster analysis

Input data

Cluster analysis, a multivariate statistical technique was applied for grouping the policy holders of the study region in terms of features of Pradhan Mantri Suraksha Bima Yojana insurance policy, that drive them to invest in the policy. Nine statements relating to the policy

holders' views on service features of the policy such as low rate of premium, period of payment of premium, policy counseling, advertisement of insurance company, banks' role in investment in the policy, agents' policy counseling, premium payment for short period, facility for transfer of policy and insurance company's care for the customers were given. Sample policyholders' responses as their levels of agreement/disagreement at 5 point numerical scale to the above nine variables were obtained.

Output interpretation – stage one :

First, the data were put in the SPSS package and hierarchal clustering was carried out. The basic output at this first stage was agglomeration schedule that showed the number of clusters that existed in the data.

Table 2
Agglomeration schedule using average linkage

1 - cluster	1752.752-1457.592 =	295.16
2 - cluster	1457.592-1238.981 =	218.611
3 - cluster	1238.981-1071.498 =	167.483
4 - cluster	1071.498-964.147 =	107.351
5 - cluster	964.147-884.425 =	79.722

Source: Primary data

One may ignore the first difference of 295.16 as it indicates only one cluster. The next largest difference is 218.611 which indicates a 2 – cluster solution. Therefore, in this case one would choose a 2 - cluster solution.

2nd stage

After identifying the number of clusters in the data, a K- means clustering was run as it would give more stable clusters. From the output of this technique, final cluster centres were chosen as they were considered to be the best solution.

Table 3 - Final cluster centres

S.No		Cluster	
		1	2
1	Premium payment takes only a short time in the bank	4.37	3.88
2	Transfer of policy from one branch to another is easy	4.50	4.71
3	There is speedy dispatch of policy bond	4.27	4.10
4	Insurance company's rules for medical test are strict	3.33	4.29
5	Agent's policy counseling is good	4.51	3.27
6	Premium rate is low	4.92	4.22
7	Insurance company caters to the need of the insured	4.86	3.26
8	Advertisement of insurance company/banks influences the respondents to take the policy	3.27	2.69
9	Bank's role in financial inclusion encourages respondents to invest in the policy	3.19	4.11

Note : the above points correspond to the values obtained in the 5 point numerical scale.

Source : Primary data. Results calculated through SPSS

Final stage – interpretation

The policyholders belonging to two clusters/groups may be broadly described as follows.

Cluster 1 : This group is more concerned about low rate of premium, policy advertisement, quickness in sending the policy document, payment of premium through banks and customer care of insurance company. Members of this cluster demand several features of the policy. In short, they are feature oriented people.

Cluster 2 : Buyers of this cluster give more importance to few aspects like easy transfer of policy and banks 'role in policy investment. Therefore, it may be concluded that while one group considers several features of the policy, the other group concerns about only a few features of the policy for investment.

Performing two group (linear) discriminant analysis:

The above two clusters or groups obtained from the cluster analysis were used in the subsequent analysis of discriminant analysis as the dependent variable. Here, the discriminant

analysis was made to classify the respondents into two groups, namely, those who expect several features in Pradhan Mantri Suraksha Bima Yojana policy, and those who expect only few features of the policy: this analysis was also performed in order to identify which independent variables caused differentiating the respondents into two groups. The three independent variables, i.e., respondents' age, income and family size were considered to be the differentiating variables.

One will build a discriminant function and find out,

1. The percentage of policyholders that the function is able to classify correctly.
2. Statistical significance of the discriminating function.
3. Which variable is better in discriminating between those who have expected several features of the policy, and those who have expected few features of the policy?

In the input data, the code for the respondents expecting several features of the policy is given as 1, and code for the respondents expecting few features of the policy is given as 2.

Output interpretation

The output classification matrix reveals that about 72% of original grouped cases are correctly classified.

Table 4
Statistical Significance

Test of function(s)	Wilks' Lambda	Chi-/square	df	sig
1	.972	4.434	3	0.010

Table 5
Standardized Discriminant function Co-efficients

	Function	
	1	
Age	-	.293
Educational qualification	-	.562
Number of family members	-	.792

There are ways of checking the significance (validity) of the discriminant function. One may look into the Wilks' lambda; its value shall be between 0 and 1, and value less than 1 is preferred. Further, one may observe p-value of the F test as given in Table 5; p-value is less than 0.05, it indicates the discriminant between two groups is highly significant.

There are three independent variables –age, education and number of family members to predict which variable is stronger to group the respondents in terms of their expectation of either a large number of policy features or a few policy features. This is understood by seeing the standardized co-efficient table. The output of the table shows that the number of family members with the co-efficient .792 is the best predictor, followed by educational level with the co-efficient - .562.

Testing of hypothesis

One way ANOVA was performed to test the following hypothesis.

H₀: There is no significant difference in respondents' sources of awareness to invest in

the policy for the factor different levels of education.

The result of analysis of ANOVA includes variance between groups, within groups, total sum of squares and mean squares. The F-ratio for this analysis is 4.275 with probability of 0.0006 (0.05<0.006). At 5% significance level, the analysis rejects the null hypothesis thereby indicating there is significant difference in respondents' sources of awareness about investment in policy at their different education levels.

Suggestions and Conclusion

The analysis revealed the need for bankers' role in persuading the low income group of consumers to subscribe to the policy. The discriminant analysis revealed that the size of family of respondents was a stronger discriminating variable of classification of the respondents. Hence, agents may pay attention to the households of respondents with the large family size.

Cluster analysis revealed that the respondents were belonging to the two clusters (or customer segments). Members of cluster 1

demanding several features of the policy, i.e., they were feature oriented customers. On the other hand, the characteristics of group 2 were certain basic features of bank's role in financial inclusion and facile transfer of policy coupled with low rate of premium of policy. The analysis suggests for intensifying the efforts of financial institutions and agents to organize customer care camps.

It was learnt during the survey, a considerable number of people failed to take cognizance of the policy due to the name of the policy given in Hindi language. Therefore, along with the existing name of the policy, there may be the Tamil version of the policy too; this would produce a salutary effect of reaching out a large number of low income group of people in Tamil Nadu.

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“A STUDY ON BUYER’S PRE-PURCHASE BEHAVIOUR INTENTION AND PREFERENCE OF ONLINE SHOPPING” WITH REFERENCE TO ARUPPUKOTTAI.

Abstract

Online shopping is a recent phenomenon in the field of e-business and is definitely going to be the future of shopping in the world. Most of the companies are running their online portals to sell their products/services online. The present study attempts to analyze the pre-purchase behaviour intention and choice and hypothesized relationships relating to online shopping. A structured questionnaire was used to collect the relevant data from consumers.

Keywords

Online shopping, Buyers intention

Introduction

Online shopping refers to the shopping behaviour of consumer from an online store or a website used for online purchasing purpose. It is a new type of retail shopping is a recent phenomenon in the field of e-business and is definitely going to be the future of shopping in the world. Most of the companies are running their online portals to sell their product/service online. The availability of quality information, various brands and product enables the customers to make a choice from a wider market. The people who find it easy, useful and enjoyable accept online shopping.

Online shopping has experienced a rapid growth during the recent years due to its unique advantages for both consumers and retailers, such as shopping, saving travel cost and time and offering a wide range of products. The internet can make it easier for business to have information on their products and services available for shopping, limited information-processing capability and the explosive amount of information on the web has, however, led customers to demand more control, less effort and greater efficiency during shopping. When a consumer realizes the needs, he goes for an information search. He does the same, so that he can make the right decision. He gathers the information about the following

- Product Brands
- Products Variations
- Product Quality
- Product Alternatives.

The consumer can gather information about a product depending on his age, gender, education and product’s price, risk and acceptance.

According to AcNielsen (2009), more than 627 million people in the world have shopped online. Forrester research Inc. (2002) had estimated that e-commerce market would research \$228 BN IN 2007, \$258 BN IN 2008 and \$288 bn in 2009. By 2010 e-commerce would have accounted for \$316 bn in sales, or 13% of overall retail sales. Retail sales for e-commerce in the US had grown at a compounded annual growth rate of about 25% for the first six years of this millennium, attaining a value in the fourth quarter of 2006 of over \$29 bn, or about 3.3% of all retail sales (US census Bureau, 2008). In the US, online retail spending grew by 19% a year to \$136.4 bn in 2007, which accounted for 4% of retail sales (InternetRetailer.com, 2008). eMarketer (2014) reported the global business to consumer e-commerce sales had been forecasted to increase by 20.1% in 2014 to reach \$1.5 tn according to digital marketing research firm. Demandware(2013) concluded that the

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Asia-Pacific region was expected to have an average annual growth rate of 33% from 2010 to 2015 which would make it the fastest growing e-commerce market globally.

Reinhardt and Passariello(2002), expressed that in US, online sales were forecasted to exceed \$36 bn in 2002, and grow annually by 20.9% to reach \$81 bn in 2006. Europeans are spending more money online as well. Whereas combined revenues for Amazon.com's European operations grew at more than 70% annually in each of the past three quarters, topping \$218 mn. While these figures show that a large number of consumers in the US and Europe frequently use the internet for shopping purposes, it is not clear what drives them to shop online

According to Reibstein (2002), it is very important that consumers are content with the products and services provided by a particular website as satisfied customers are likely to be a loyal and make repetitive purchases which will increase profitability of that particular e-commerce company. Schaupp and Belanger (2005) suggested that it is imperative to measure customer satisfaction in the context of e-commerce since this will define the success of the vendors. Besides, the increasing use of internet by the younger generation in India provides an emerging prospect for online retailers. Chi et al. (2005) reviewed several studies that identified different influences on the formation of belief regarding the usefulness, ease of use, innovativeness and security, and suggested that additional work is necessary to integrate these theories.

For the internet to expand as a retail channel, it is important to understand the consumer's attitude, intent and behaviour in light of the online buying experience. i.e., why they use or hesitate to use it for making purchases. If online retailers know the factors affecting Indian consumers' satisfaction related to online shopping, and the contribution level of these factors, then they can further develop their marketing strategies to convert potential customers into active ones, while retaining

existing online customers. Online sales will increase if more attractive online stores are developed. This raises the issue of examining what factors affect consumers to shop online. Therefore, a frame work is needed to structure the complex system of effects to these different factors, and develop an in-depth understanding of consumers, perception towards internet shopping and their intentions to shop online. In this study, a pioneering effort is taken to identify the seven key dimensions of online shopping as perceived by consumers.

Objective

1. To study the pre purchase behaviour of the respondents

Scope of the study:

The study has been made broadly in the area of marketing of online product and its future trend with particular reference to Aruppukotti Town.

Research Methodology:

- The study has mainly depended on primary data which was collected through a structured questionnaire
- Quota sampling method is used to contact 100 respondents
- Relevant statistical tools such as percentage calculation, chi-square analysis and Friedman test are used for the analysis of survey data.

Review of Literature

Elisabeta Ioanãs and Ivona Stoica(2014) Technology gives consumer the power to investigate products to label them and criticize them in equal measure, and more. Therefore many companies today have pages on social networks to complement the information held about products, held by the feedback of consumers about products and tend to relate more to a company after reading various reviews. social networks have a role in influencing the behavior of consumers in the virtual environment, particularly when the degree of exposure of messages and the relation created between the variety of information given and the consumer who is about to make a purchase.

Based on the company's size and on the products and services which they promote, they may use niche marketing for unique products or to respond to the demand of an increasingly large consumer pool.

Sanjay Kumar (2015) Online Shopping play a great importance in the modern business environment. Online shopping has opened the door of opportunity and advantage to the firms. most of the consumers want to purchase the product from online. In the present environment the people have not so much time that they will visit in the stores and purchase the product. Online shop plays a greater role for those types of consumers who have no time and want to avoid the crowd. Online consumers are rapidly increasing and if consumers increase than online shop will increase

Dr. M. M. Goyal (2016) Indian shoppers have discovered a new market which is open 24X7, offers great discounts and deals and delivers the goods at their doorsteps. These online retailers are selling their products through various e-commerce portals. Mobile apps are the latest channel to reach to the consumers. Myntra, Flipkart, Jabong, etc., have launched their own mobile apps. Use of mobiles is also

catching up fast keeping in view the technology friendly consumers and their lifestyle. From the survey it is clear that more and more people are going online. However it is a common trend that consumers find out deals online but purchase offline. Reverse trend has also started wherein consumers get the feel and touch of the product in the stores but purchase online. With increasing number of people making online purchases, retailers feel they might not be able to survive as they are not able to give the discounts e-tailers are offering. Online shopping industry in India is growing rapidly and will continue to see exponential growth.

ANALYSIS AND INTERPRETATION OF DATA

Weighted Average

Weighted average is a mean calculated by giving values in a data set more influence according to some attribute of the data. It is an average in which each quantity to be averaged is assigned a weight, and these weightings determine the relative importance of each quantity on the average. Weightings are the equivalent of having that many like items with the same value involved in the average.

Table -1 Preference on buying products in computer accessories

S. No	Variable	Level of agreement					Total	Weighted Average	Rank
		5	4	3	2	1			
1.	Pen drive	580	316	237	4	24	1161	3.87	1
2.	Card reader	340	364	330	32	15	1081	3.60	2
3.	Pink and ink	255	340	303	18	54	970	3.23	7
4.	Keyboard	255	360	294	62	30	1001	3.34	5
5.	Network devices	305	492	207	48	23	1075	3.58	3
6.	Software	245	352	267	50	49	963	3.21	6
7.	Laptop	340	348	237	50	41	1016	3.39	4

Inference

It is clear that about the table shows that pen drive got first rank with the mean score at 3.87; card reader got second rank with the mean score at 3.60.

Table - 2 Preference on buying products in Mobiles and Tablets

S. No.	Products	Level of agreement					Total	Weighted average	Rank
		5	4	3	2	1			
1.	Mobiles	745	316	162	4	16	1243	4.14	1
2.	Tablets	510	384	183	44	19	1140	3.8	5
3.	Memory card	610	368	225	8	7	1218	4.06	3
4.	Covers	420	380	210	54	24	1088	3.63	6
5.	Power banks	710	308	183	14	13	1228	4.09	2
6.	Headsets	630	256	231	20	23	1160	3.87	4
7.	Mobile accessories	370	320	369	2	22	1083	3.61	7
8.	Tablet accessories	325	360	351	30	13	1079	3.60	8
9.	Screen protectors	325	372	243	26	48	1014	3.38	9

Inference

It is clear that about the table shows that Mobiles got first rank with the mean score at 4.41; power banks got second rank with the mean score at 4.09.

Table -3 Preferences on buying products in Fashion Accessories

S. No.	Products	Level of agreement					Total	Weighted average	Rank
		5	4	3	2	1			
1.	Clothing	680	228	228	14	24	1174	3.91	1
2.	Shoes	410	448	297	10	2	1167	3.89	2
3.	Watches	495	364	246	14	21	1140	3.8	3
4.	Bags	445	404	201	18	34	1102	3.67	5
5.	Jewellery	465	372	222	18	31	1108	3.69	4
6.	Sunglasses	285	280	252	100	39	956	3.19	8
7.	Beauty products	315	188	270	96	52	921	3.07	10
8.	Grooming kits	275	304	225	92	48	944	3.15	9
9.	Baby products	475	228	195	70	48	1016	3.39	6
10.	Toys	385	252	246	64	46	993	3.31	7

Inference

It is clear that about the table shows that Clothing got first rank with the mean score at 3.91; Shoes got second rank with the mean score at 3.89.

Table -4 Pre purchase behaviour affect/support online shopping

S.No	Variable	Total	Weighted average	Rank
1.	Product Variety	1324	4.41	1
2.	Brand value	1174	3.91	3
3.	New technology and low Price	1151	3.84	4
4.	Offers/Discount	1172	3.91	3
5.	Redeem offers	1073	3.58	9
6.	Price Variation	1106	3.69	7
7.	Easy to buy	1226	4.09	2
8.	Easy exchange	1141	3.80	5
9.	New trend	1135	3.78	6
10.	Status Quo	1079	3.60	8

Inference

It is clear that about the table shows that product variety got first rank with the mean score at 4.41; Easy to buy got second rank with the mean score at 3.80.

Weighted Average

- ❖ Mobiles got first rank with the mean score at 4.41; power banks got second rank with the mean score at 4.09.
- ❖ Clothing got first rank with the mean score at 3.91; Shoes got second rank with the mean score at 3.89.
- ❖ Product variety got first rank with the mean score at 4.41; Easy to buy got second rank with the mean score at 3.80.

SUGGESTIONS

- ❖ Most of the respondents purchase the low price and variety of products through online. Hence, the online shopping companies may focus keenly on price with a new variety of goods to attract customers.
- ❖ Most of the respondents are using Airtel network. It shows other cellular network providers may focus on creating and supporting mobile apps to increase the number of customers and may compete with Airtel network.

- ❖ Some of the respondents preferred Kitchen appliances, books, Electronics and furniture through online. So, the online shopping companies may increase sales promotion tools to sell more products on this category.
- ❖ Most of the respondents have felt that easy to exchange of fashion goods and mobile phone return policy. Obviously the exchange of goods methods determine the buyer behaviour in online shopping. Hence, it must be feasible and applicable to users' at all convenient levels.
- ❖ Most of the respondents are satisfied with buying cosmetics products through the way of buying mobile apps on online shopping. Online shopping companies may create a demo video to exhibit the application and usage of cosmetics to enhance the value and sale of the product

Conclusion

The researcher concludes that Indian economy is at a developing stage and there is still more to come in every stage of its development. Therefore it is necessary to know the progress done in this genre of online shopping in India. The study revealed that all the six factors (Peace of mind, Redeem offers, Status quo, Product variety, Exchange options and convenient) are good predictors of online

shopping. Studies have shown that people tend to use online shopping as it is more convenient and quicker than traditional way of shopping. Every year there has been a substantial increase in the use of online shopping. Technologies have made the system more user-friendly in terms of ease-of-use, appealing user interface, and smooth navigation.

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Data Analytics in Profitability Aspects of Banks using Fuzzy Logic Decision Making Technique and Forecasting Techniques

Abstract:

Analytics plays a pivotal role in generating professional validated reports that aid in the smooth functioning with reduced operation costs. In fact, while retrieving the data for the customized reports generation, the application of an appropriate multi criteria decision making (MCDM) tool gives fruitful results which are of much useful in corporate decision making. Every organization has to accomplish its goal and banks are nowadays struggling and starving to make profit by effectively trying to utilize all the resources. Banks, being an important service sector, employ people, assign role and utilize properly to accomplish the overall objective. This paper has attempted to evaluate , analyse and rank the Indian banks using an MCDM technique named fuzzy logic decision making method with a specific focus/objective of maximizing the profit and considering many parameters/criteria and moreover a comparative study on the financial performance of the Indian banks is made between the year 2011 and 2015 as this seems out to be the period where there was a rapid growth in the banking sector of India and revolutionary change in the financial performance of the banks . The paper also highlights interesting findings regarding the profit maximization over the years and analysis about the current marketing challenges. Thus the paper has set an objective of identifying the best performing bank using an optimization technique and puts forth the comparative analysis on the banking performance over the period of past 5 year , followed by findings regarding the profit maximization and analysis about the marketing challenges in current marketing scenario. After ranking the top performing banks with Fuzzy Logic, the paper has vividly carried out the Data Analytics using statistical tools to forecast the profitability factors.

Keywords : *Fuzzy logic ; Income ; NII (Non interest income) ; Profit ; Bell curves ; skew.*

I. INTRODUCTION

In recent years, the banking industry is undergoing a rapid transformation in the global economy. Internationally accepted prudential norms have been adopted, with higher disclosures and transparency. Indian banking industry is gradually moving towards adopting the best practices in accounting, corporate governance and risk management. The deepening of information technology has facilitated better tracking and fulfilment of commitments with multiple delivery channels for online customers.

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The Indian banking has welcomed this change. The country witnessed branch expansion in public sector banks, private sector banks and foreign banks in absolute term during the period 2010-2011. The basic principle of branch expansion is to tap deposit and culminate saving habit among the community. Tapping of potential savings and uses them for a productive purpose in particular, is the main objective. Up gradation of technology, innovation and modernization are the key factors of having excellence in banking sector. But still the banking sector faces the issues like consolidation, management of costs, credit delivery systems, and management of sticky assets.

i. Banking Sector

The banking sector is the section of the economy devoted to the holding of financial assets for others, investing those financial assets as leverage to create more wealth, and the regulation of those activities by government agencies.

Banking in India in the modern sense originated in the last decades of the 18th century. Among the first banks were the Bank of Hindustan, which was established in 1770 and liquidated in 1829-32; and the General Bank of India, established in 1786 but failed in 1791. In the early 1990s, the then government embarked on a policy of liberalisation, licensing a small number of private banks. These came to be known as *New Generation tech-savvy banks*, and included Global Trust Bank (the first of such new generation banks to be set up), which later amalgamated with Oriental Bank of Commerce, UTI Bank (since renamed Axis Bank), ICICI Bank and HDFC Bank. Since then the performance of the banks improved.

Initially pioneered by financial institutions during the 1970s as interest rates became increasingly volatile, asset and liability management (often abbreviated ALM) is the practice of managing risks that arise due to mismatches between the assets and liabilities. The process is at the crossroads between risk management and strategic planning. It is not just about offering solutions to mitigate or hedge the

risks arising from the interaction of assets and liabilities but is focused on a long-term perspective: success in the process of maximizing assets to meet complex liabilities may increase profitability.

ii. Advancement in Banking Sector :

The IT revolution has had a great impact on the Indian banking system. The use of computers has led to the introduction of online banking in India. The total number of automated teller machines (ATMs) installed in India by various banks as of end June 2012 was 99,218. The new private sector banks in India have the most ATMs, followed by off-site ATMs belonging to SBI and its subsidiaries and then by nationalized banks and foreign banks, while on-site is highest for the nationalized banks of India.

Physical as well as virtual expansion of banking through mobile banking, internet banking, tele banking, bio-metric and mobile ATMs is taking place since last decade and has gained momentum in last few years.

Most of these advancements came into use only after the privatisation of banks, which led to the increase in efficiency, growth rate, performance, and profitability of banks .

In the previous studies, In time series models, the auto regressive integrated moving average (ARIMA, [4]) is extensively utilized for constructing a forecasting model. However ,many statistical methods only deal with linear forecasting model and variables must obey statistical normal distribution [12]. In order to overcome the limitation, many researchers have proposed computational intelligence techniques for financial forecasting. Kimoto et al. [27] developed a prediction system for stock market by using neural network, Roh. [38] integrated neural network into time-series model for forecasting the volatility of stock price index. Chen et al. [11] proposed a comprehensive fuzzy time-series, in which variables have linear relationships between recent periods of stock prices and fuzzy logical relationships (nonlinear relationships) mined from time-series into forecasting processes.

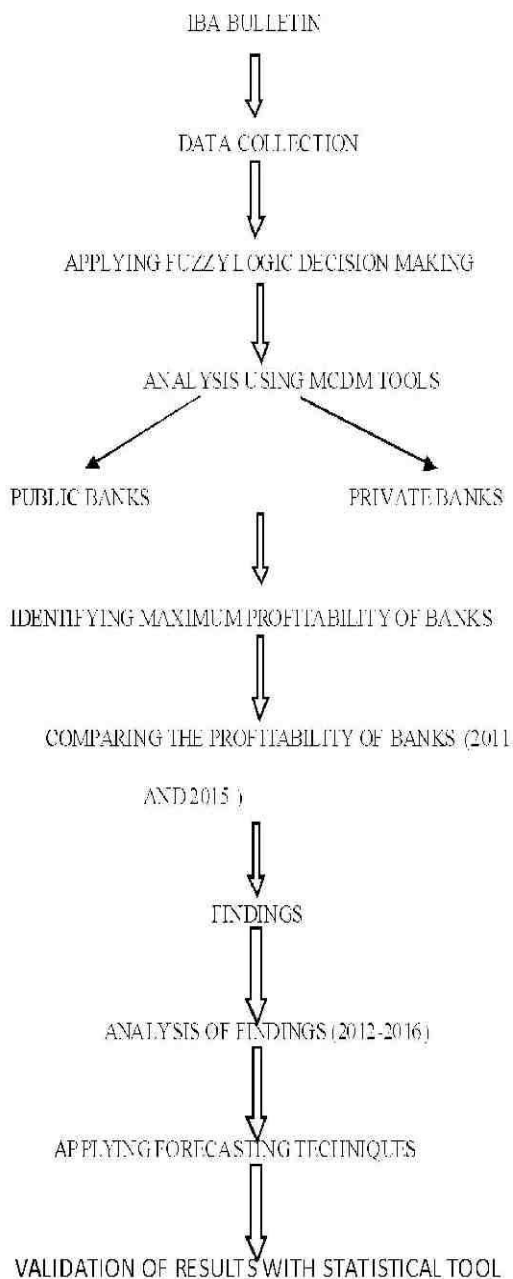
In the past decades, artificial neural networks (ANN) have been explored by many researchers to develop a nonlinear model for stock forecast [11,31,38] and other applications. Even though ANN showed a great deal of experimental result in many studies, the applicable input variables of ANN are hard to define and select [48] and the generated rules from ANN are not easily understandable [11]. In recent years, ANFIS system has been used widely to generate nonlinear models of processes to determine input–output relationships. Therefore, ANFIS is appropriate for forecasting nonlinear financial time series and generating meaningful rules forecasting investment tactics. Many researchers also have applied prediction techniques for financial analysis [20,39,5]. Further, many hybrid forecasting techniques have been published recently [25,30,33,35,46]. Wei [46] proposed a hybrid time series adaptive network-based fuzzy inference system (ANFIS) model to forecast stock prices.

In recent years, many fuzzy time series methods have been proposed such as literature [10,11,49]. Some of these methods used fuzzy set theory, which needed complex matrix operations in fuzzy time series methods. In literature, many fuzzy time series forecasting methods were based on high-order fuzzy time series model, bivariate fuzzy time series model, and multivariate fuzzy time series model. Chen [10] presented a new method to forecast university enrollments based on fuzzy time series. Chen et al. [11] proposed a comprehensive fuzzy time-series, in which variables have linear relationships between recent periods of stock prices and fuzzy logical relationships (nonlinear relationships) mined from

time-series into forecasting processes. The further study by Chung-Ho Su proposes a novel ANFIS (Adaptive Neuro Fuzzy Inference System) time series model based on integrated nonlinear feature selection (INFS) method for stock forecasting. The results show that the proposed method out performs the listing models in accuracy, profit evaluation and statistical test. V.N. Livina introduce a technique of time series analysis, potential forecasting and tested on artificial data, used for hind casting observed climate data, and then applied to forecast Arctic sea-ice time series. Kamlesh Bisht proposes a fuzzy time series forecasting method based on hesitant fuzzy sets for forecasting in the environment of hesitant information Statistical validation and performance analysis is also carried out to validate the proposed forecasting method. Ioannis P. Panapakidis used clustering methodology, the forecasting accuracy of the ANNs is enhanced leading to the formulation of hybrid forecasting models that are characterized by high level of parameterization and efficiency. The developed models are tested on a set of buses covering urban, sub-urban and industrial loads. Hassan B. Ghassan used time series methods, he concluded that individual heterogeneity may matter more than either the conventional or Islamic nature of the banks. Concentrating on the largest banks, we find the Islamic banks contribute positively to the stability of the system. Wojciech Charemza Through empirical analysis this paper shows that inflation forecasts produced for monetary policy councils in inflation targeting countries may be subject to bias towards the target. Using a discrete time inter temporal model, we examine the distortions resulting from such manipulation under a three-way voting system.

II. METHODOLOGY:

The methodology of the paper is as below.



III. PROPOSED MODEL

Fuzzy Logic :

The concept of fuzzy logic was coined by Lofti Zadeh in 1965. It helps us to unravel the quantum of uncertainty associated with events. It is essential to realize that fuzzy logic uses truth degrees as a mathematical model of the vagueness phenomenon while probability is a mathematical model of ignorance.

Fuzzy decision making method :

Fuzzy Multicriteria Decision-Making addresses theoretical and practical gaps in considering uncertainty and multicriteria factors encountered in the design, planning, and control of complex systems. Fuzzy Multicriteria Decision-Making will appeal to a wide audience of researchers and practitioners in disciplines where decision-making is paramount, including various branches of engineering, operations research, economics and management.

Most decisions that people make are logical decisions, they look at the situation and make a decision based on the situation. The generalized form of such a decision is called a generalized modus ponens. If we knew about the states of future with certainty there is no problem. But in most cases it is not so. So we use of classical Bayesian decision method.

Fuzzy logic decision making is based on the following equation,

$$\mu = \sum w_i \mu_i$$

where $i = 1$ to n

W_i - weightings

μ_i - Membership grade for each individual input

μ - Output membership grade

Summary of findings :

1. State Bank of India stands at the top, based on the fact of high profitability compared to other public sector banks right from 2011 to 2015.
2. Federal Bank Ltd occupies first position, on the fact of high profitability compared to other private sector banks from 2011 to 2015.

3. Axis bank is the highly profitable among the new private sector banks identified from 2011 till 2015

ANALYSIS OF FINDINGS:

From the findings we came to know that the three banks have highest profitability among various banks right from 2012 to 2016. later these banks are analysed with various trends

1. TREND ON INTEREST INCOME
2. TREND ON NON INTEREST INCOME
3. OPERATING EXPENDITURE /TOTAL FUNDS
4. EARNING RETENTION RATIO

IV. APPLYING FORECASTING TECHNIQUES

1. STATE BANK OF INDIA

TABLE 1

Year	INTEREST INCOME	NON INTEREST INCOME	OPERATING EXPENDITURE/TOTAL FUNDS	EARNING RETENTION RATIO	NET PROFIT
2011	116321.45	14391.45	1.58	79.94	131712.90
2012	111655.3	19079.81	1.47	79.80	141230.11
2013	136930.81	18531.5	1.45	79.44	155462.31
2014	152387.07	22975.5	1.36	80.48	175362.57
2015	155111.1	28138.4	1.35	79.72	183249.50
2016	167941.1	25367.15			
2017	180806	26762.8			

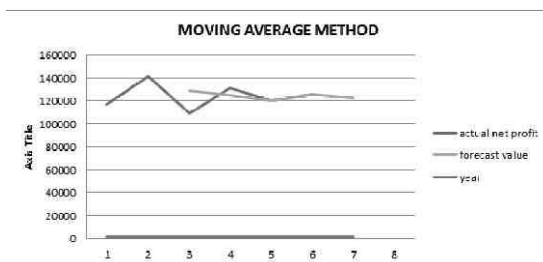


Fig 1. Moving average method to interest income and net profit for SBI

From this fig:1, it is observed that the net profit of SBI shows deviation in the sequential years and it also shows that there would be a slight decrement in the net profit value over the 2018 which is expected to be ¹ 122727

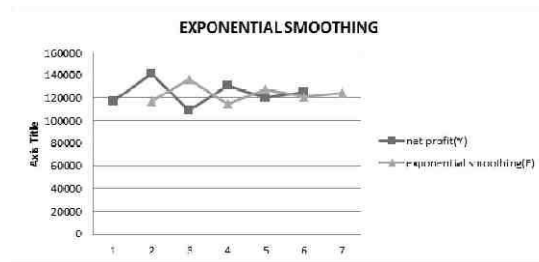


Fig 2. Exponential smoothing method to interest income and net profit for SBI

From this fig:2, it is concluded that the net profit of SBI shows deviation over the years and there was an very slight increment in the year 2018 which is expected to be ¹ 124694.

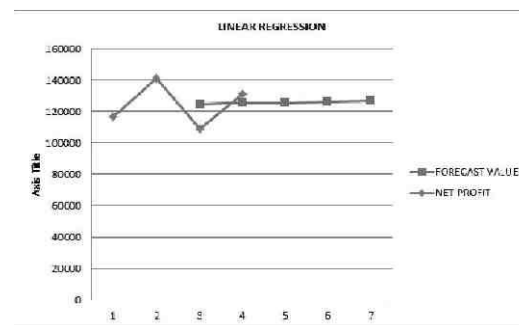


Fig 3. Linear regression method to interest income and net profit for SBI

This fig:3 has inferred that the net profit of SBI is almost equal between the year 2015 and 2018 but there was very small increment 2018 which is expected to be ¹ 126702

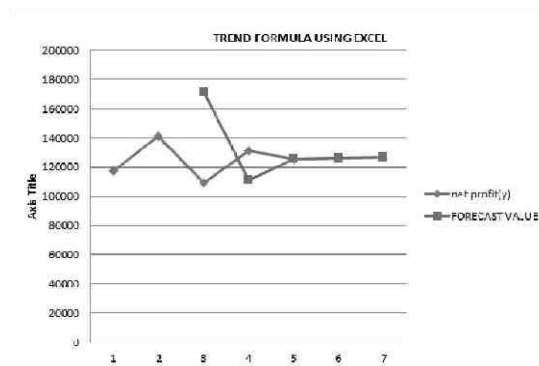


Fig 4. Trend formula using excel to interest income and net profit for SBI

From this fig:4, it is viewed that there is very little variation in net profit over the year 2015 to 2018 and the expected net profit in 2018 is ' 126702.

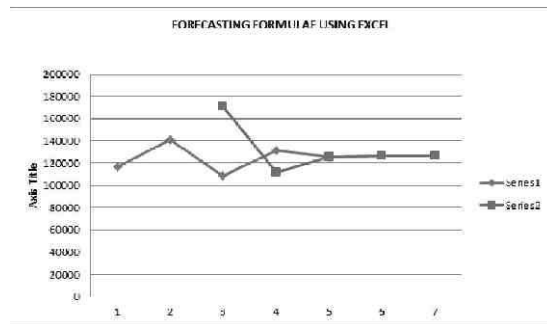


Fig 5. Forecasting method to interest income and net profit for SBI

From this fig:5, it is further evident that there will be very small increment 2018 which is expected to be ' 126702.

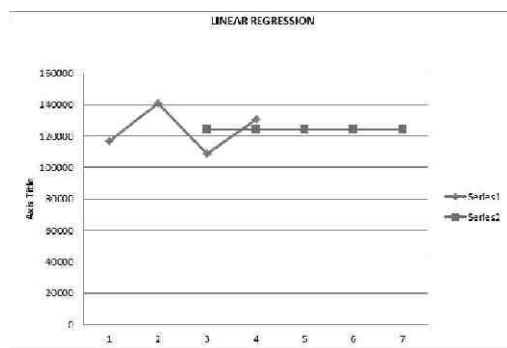


Fig 6. Linear regression method to noninterest income and net profit for SBI

Through this fig:6 it is identified that there was an uniformity in net profit value between the year 2014-2018 in which the expected net profit in 2018 is ' 124549.

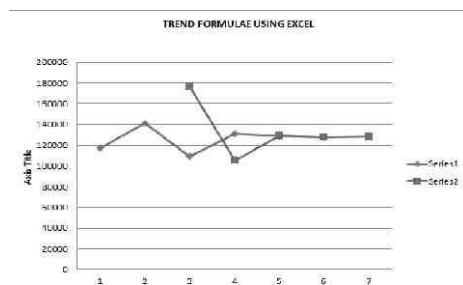


Fig 7. Trend method to non interest income and net profit for SBI

The fig: 7 has showed that the net profit value is almost consistent and the expected net profit in 2018 is ' 128175.

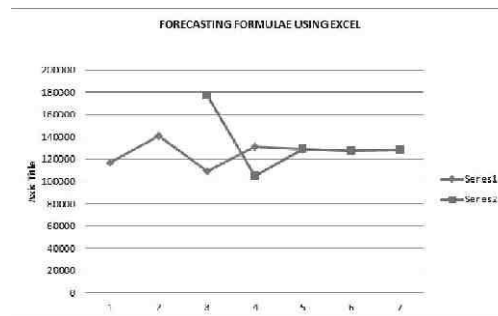


Fig 8. Forecasting method to noninterest income and net profit for SBI

This fig:8 is similar to previous chart where the expected net profit in 2018 is ' 128175.

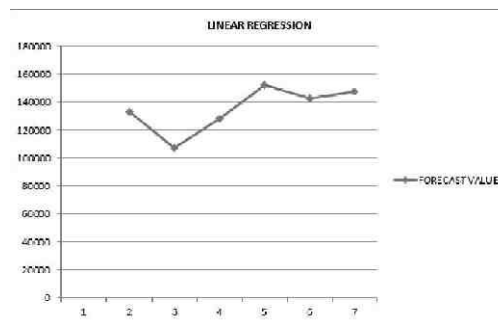


Fig 9. Linear regression method to operating expenditure/total funds and net profit for SBI

From this fig:9 it is viewed that there is a slight linearity in net profit over the year which results in increment during the year 2018 and the expected value is ' 147763.

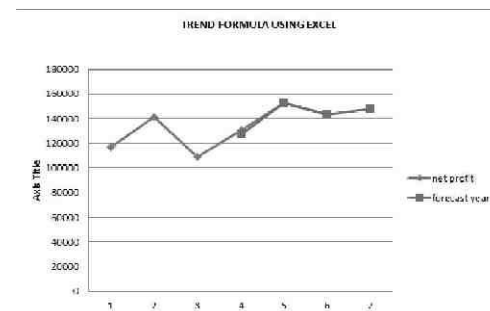


Fig 10. Trend method to operating expenditure/total funds and net profit for SBI

Through this fig:10, it is noticed that there is a hire in net profit value and the anticipated net profit value in 2018 is ' 147763.

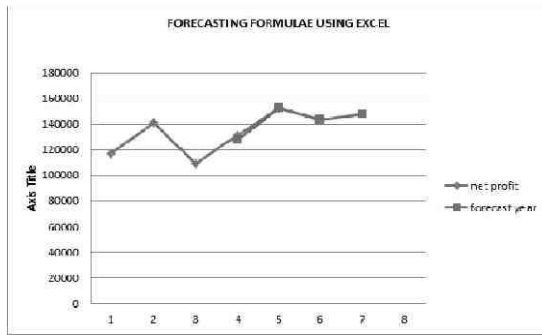


Fig 11. Forecasting method to operating expenditure/total funds and net profit for SBI

This fig: 11 is similar to previous figure where the expected net profit in 2018 is ¹ 147763.

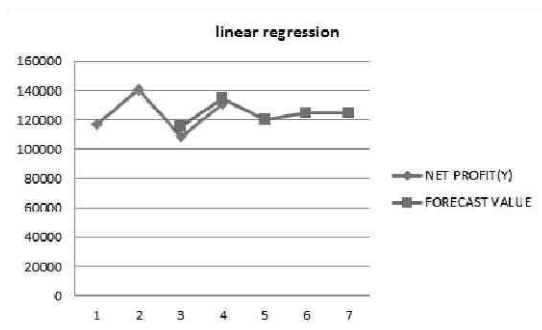


Fig 12. Linear regression method to earning retention ratio and net profit for SBI

From this fig: 12, it is observed that there was an increase in net profit between the years 2016 and 2018 and the anticipated outcome of net profit in 2018 is ¹ 124969.

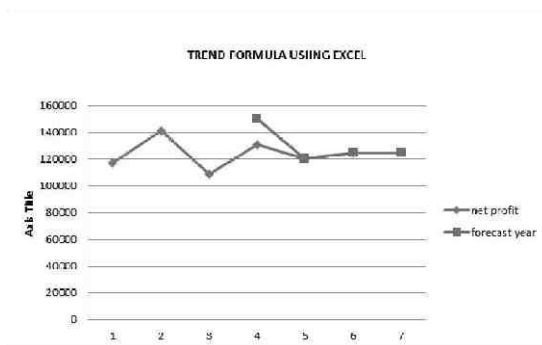


Fig 13. Trend method to earning retention ratio and net profit for SBI

fig: 13 has inferred that there was a small abrupt change in net profit and further there was a slight decrement in 2018 which is expected to be ¹ 124932.

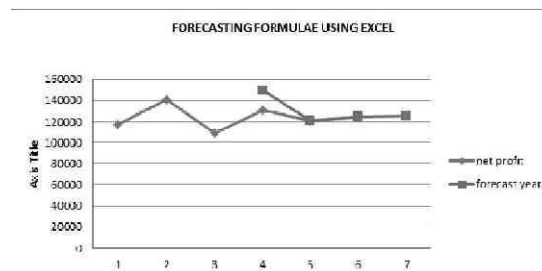


Fig 14. Forecasting method to earning retention ratio and net profit for SBI

Fig: 14 has showed an similar inference of fig:13 and hence the expected net profit in 2018 is ¹ 124932

TABLE 2

FORECASTING METHODS	2016	2017	2018
moving average method	119964	125490	122727
exponential smoothening method	122150.37	128743.1	136586.7
linear regression method	125621.6	126161.6	126701.5
forecasting method	125621.3	126161.58	126701.54
trend method	125621.3	126161.58	126701.54

OBSERVATION: BASED ON INTEREST INCOME

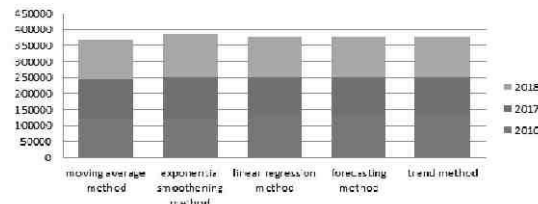


Fig 15. Observation on interest income for SBI

From this Fig 15 we can conclude that based on the interest income, the net profit in the year 2018 will have a slight upraise. Apart from this almost all forecasting methods shows similar outcomes with slight deviation.

TABLE 3

FORECASTING METHODS	2016	2017	2018
linear regression method	124555.2	124555.2	124549.4
trend method	128750.6	127600	128175
forecasting method	128750.6	127600	128175

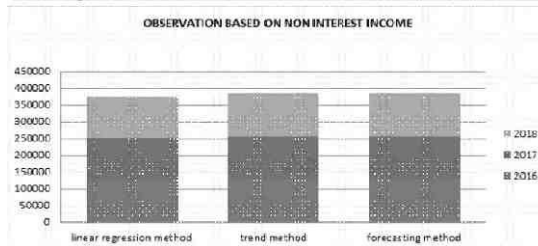


Fig 16. Observation on non interest income for SBI

Through this Fig 16 we can identify that based on the non interest income, expected net profit the year 2018 will have gradual increment but linear regression method shows slight deviation

FORECASTING METHODS	2016	2017	2018
linear regression method	152532.38	142993.9	147762.14
trend method	152532.0584	142993.5903	147762.8108
forecasting method	152532.0584	142993.5903	147762.8108

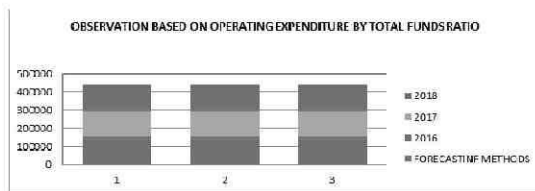


Fig 17. Observation on operating expenditure/total funds for SBI

From the observation based on earning retention ratio, it is inferred that there is uniformity in net profit with very slight deviations for all forecasting methods.

TABLE 5

FORECASTING METHODS	2016	2017	2018
linear regression method	120449.888	124651.653	124969.3348
trend method	120450.8483	124652.8119	124932.9444
forecasting method	120450.8483	124652.8065	124932.9368

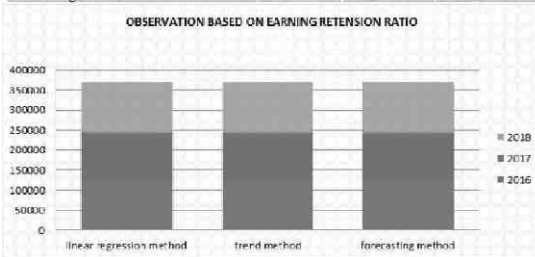


Fig 18. Observation on earning retention ratio for SBI

While taking into account off operating expenditure by total funds ratio, we can analyse that there is a drastic variation in net profit between the years 2016 and 2018.

Overall conclusion for SBI:

Thus from the above provided comparison charts we identified that all parameters such as interest income, non-interest income, earning retention ratio and operating expenditure by total funds gives an result of incremental profit value in the year 2018 and thus we can expect that the net profit of SBI in the year 2018 will shows gradual raise.

2. FEDERAL BANK

TABLE 6

year	INTEREST INCOME	NON-INTEREST INCOME	OPERATING EXPENDITURE/ TOTAL FUNDS	EARNING RETENTION RATIO	NET PROFIT
2012	4052.03	878.31	1.65	80.19	7767.9
2013	5558.39	693.85	1.7	81.64	8381.7
2014	6157.57	664.4	1.85	79.61	8388.9
2015	6916.08	693.9	1.98	81.27	10057.5
2016	7419.47	878.3	2.02	97.9	
2017	8454.2	761.7	2.08		
2018	9276.4	843.31	2.146		

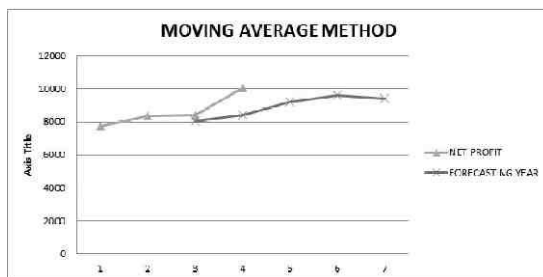


Fig 19. Moving average method to interest income and net profit for FBI.

From this fig:19, it is observed that the net profit of FBI shows drastic increment however there was an small decrement in 2018 an the expected value is ¹ 9431.

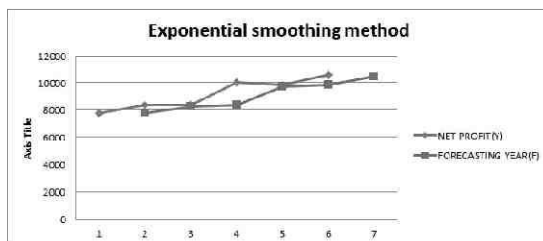


Fig 20. Exponential smoothing method to interest income and net profit for FBI

From this fig:20, it is concluded that the net profit of FBI shows linear increment over the years in which the anticipated result in 2018 is ¹ 9431.

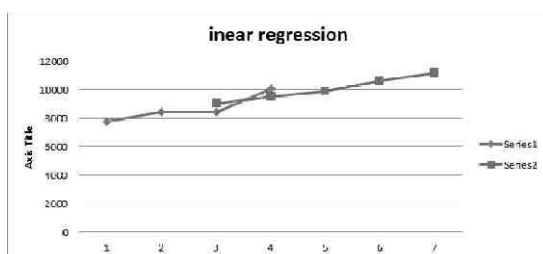


Fig 21. . Linear regression method to interest income and net profit for FBI

This fig:21 has inferred that the net profit of FBI has consistent increment between the year 2012 and 2018 and hence the expected incremental net profit is ' 11141.

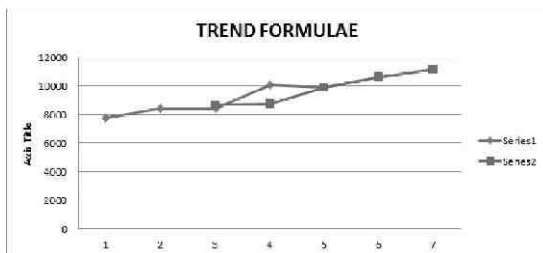


Fig 22. Trend formula using excel to interest income and net profit for FBI

From this fig:22, it is viewed that there is no variation in increment of net profit over the year 2014 to 2018 and the expected net profit in 2018 is ' 110578.

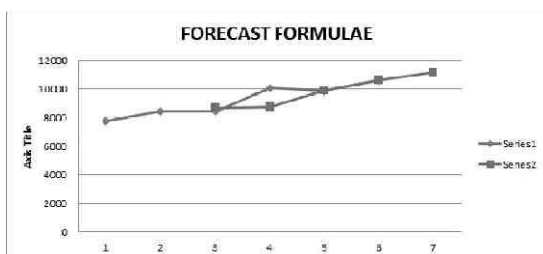


Fig 23. . Forecasting method to interest income and net profit for FBI

From this fig:23, it is further evident that there will be drastic increment of net profit in 2018 which is expected to be ' 110578.

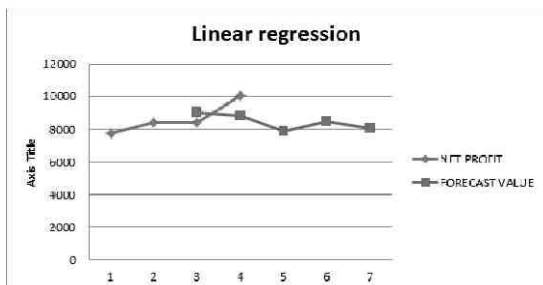


Fig 24. Linear regression method to noninterest income and net profit for FBI

From this fig:24, it is further evident that there will be drastic increment of net profit in 2018 which is expected to be ' 110578.

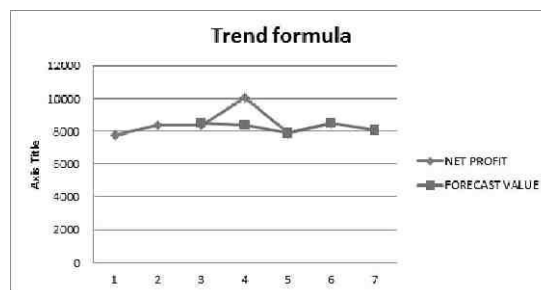


Fig 25. Trend method to noninterest income and net profit for FBI

The fig: 25 has showed that the net profit value is almost identical with few deviations and the expected net profit in 2018 is ' 8056.

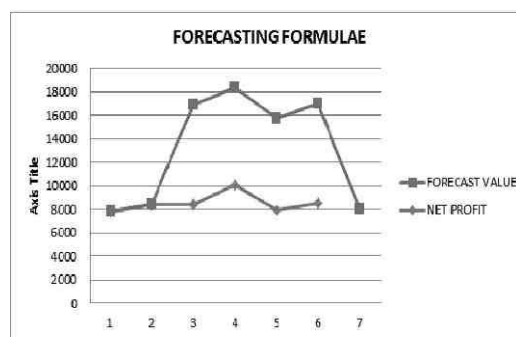


Fig 26. Forecasting method to noninterest income and net profit for FBI

Fig 26. Forecasting method to noninterest income and net pfofit for FBI

This fig:26 is similar to previous chart where the expected net profit in 2018 is ' 8056.

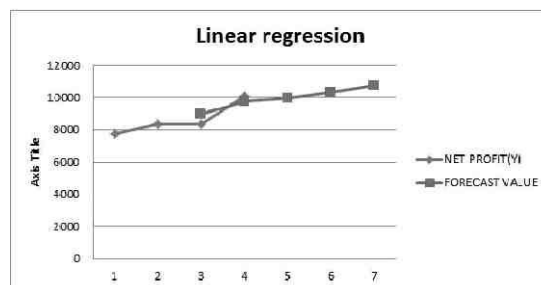


Fig 27. . Linear regression method to operating expenditure/total funds and net profit for FBI

From this fig:27 it is viewed that there is an consistent raise in net profit over the year which results in increment during the year 2018 and the expected value is ' 10755.8

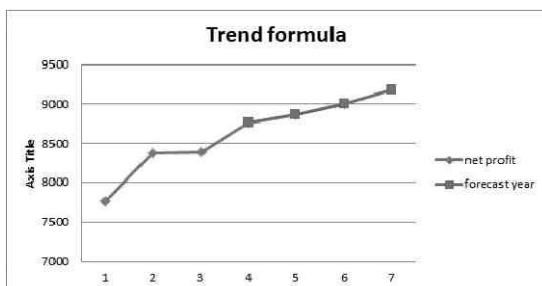


Fig 28. Trend method to operating expenditure/total funds and net profit for FBI

Through this fig:28, it is noticed that there is a hire in net profit value and the anticipated net profit value in 2018 is ' 9179.

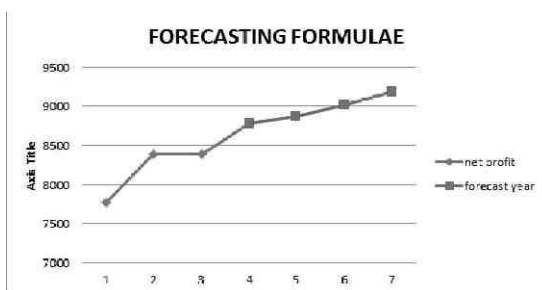


Fig 29. Forecasting method to operating expenditure/total funds and net profit for FBI

This fig:29 is similar to previous figure where the expected net profit in 2018 is ' 9179.

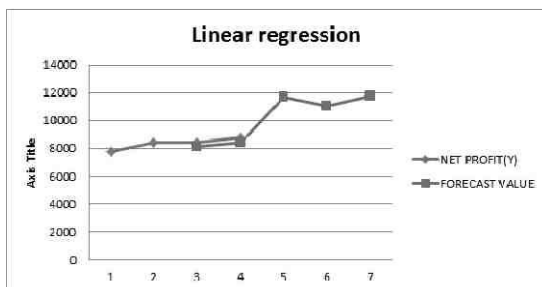


Fig 30. Linear regression method to earning retention ratio and net profit for FBI

From this fig:30, it is observed that there was an sudden upraise in net profit between the year 2015 and 2016 and there is an slight deviation behind it. The anticipated outcome of net profit in 2018 is ' 11765.

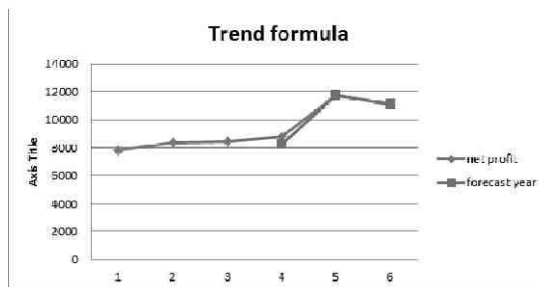


Fig 31. Trend method to earning retention ratio and net profit for FBI

fig: 31 has inferred that there was an rapid increase in net profit I 2016 but there was an slight decrement in 2018 which is expected to be ' 11764.

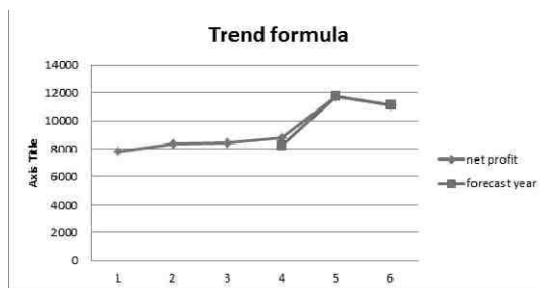


Fig 32 Forecasting method to earning retention ratio and net profit for FBI.

Fig:32 has showed an similar inference of fig:27 and hence the expected net profit in 2018 is ' 11764

TABLE 7

FORECASTING METHODS	2016	2017	2018
moving average method	9224.2	9240.8	9420.7
exponential smoothing method	9718.6	9322.3	9576.7
linear regression method	8669.01	8671.4	8678
forecasting method	9854.1	10578.3	11141.3
trend method	9854.1	10578.3	11141.3
linear regression method	8669.01	8671.4	8678

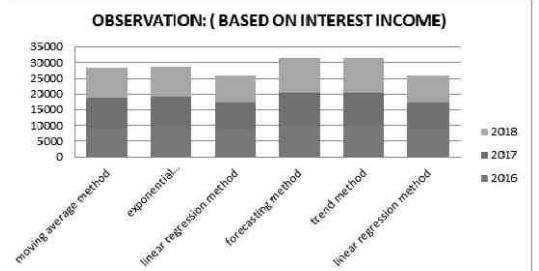


Fig 33. . Observation on interest income for FBI

From this bar chart we can conclude that based on the interest income, the net profit in the year 2018 will have a slight upraise but there is slight variation in overall forecasting methods

TABLE 8

FORECASTING METHODS	2016	2017	2018
linear regression method	7868.2	8493.1	8055.7
trend method	7868.2	8493.1	8055.7
forecasting method	7868.2	8493.1	8055.7

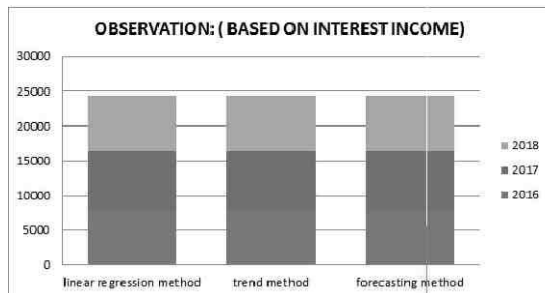


Fig 34. Observation on non interest income for FBI

Through this bar chart we can identify that based on the non interest income, expected net profit the year 2018 will have gradual decrement in the year 2018 which shows negative impact.

TABLE 9

FORECASTING METHODS	2016	2017	2018
linear regression method	9984.30894	10848.43449	10755.87815
trend method	8867.57043	9011.843254	9179.302944
forecasting method	8867.561348	9011.83223	9179.297305

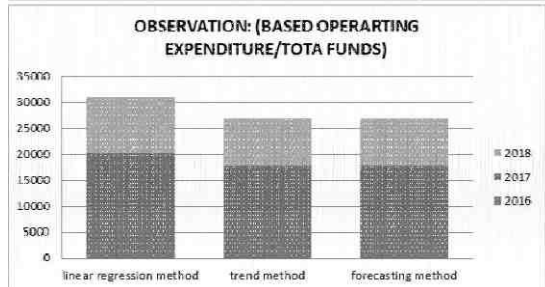


Fig 35. Observation on operating expenditure/total funds for FBI

From the observation based on earning retention ratio, it is inferred that there is an linear increment in net profit without any deviations for all forecasting methods.

TABLE 10

FORECASTING METHODS	2016	2017	2018
linear regression method	11717.08	11074.9216	11764.7086
trend method	11716.81363	11073.28361	11764.08956
forecasting method	11716.77273	11073.25073	11764.00044

OBSERVATION: (BASED ON EARNING RETENTION RATIO):

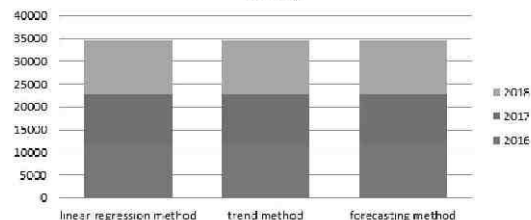


Fig 36. . Observation on earning retention ratio for FBI

While taking into account off operating expenditure by total funds ratio , we can analyse that there is an drastic variation in net profit between the years 2016 and 2018 with upraise in 2018.

Overall conclusion for FBI:

Thus from the above provided comparison charts we identified that all parameters except non-interest income gives an result of incremental profit value in the year 2018 and thus by considering majority of remaining the parameters we can expect that the net profit of FBI in the year 2018 will shows gradual raise.

3. AXIS BANK

TABLE 11

year	INTEREST INCOME	NON-INTEREST INCOME	OPERATING EXPENDITURE	EARNING RETENTION RATIO	net profit
2012	21994.7	5420.2	2.12	83.09	139169
2013	27182.5	6551.1	2.14	84.49	175163
2014	30641.6	7405.2	2.1	83.71	186895
2015	35478.6	8305.05	2.08	84.89	212545
2016	40988.04	9371.46	2.08	85.72	
2017	45141.9	10337.5			
2018	49770.19	11309.16			

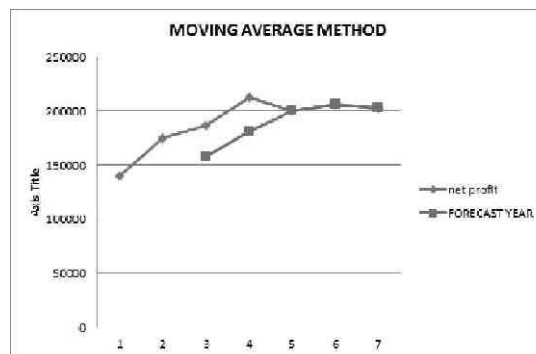


Fig 39. Moving average method for interest income and net profit for AXIS

From this fig:39, it is observed that the net profit of axis bank shows gradual increment however there was an small decrement in 2018 an the expected value is ¹ 202926.

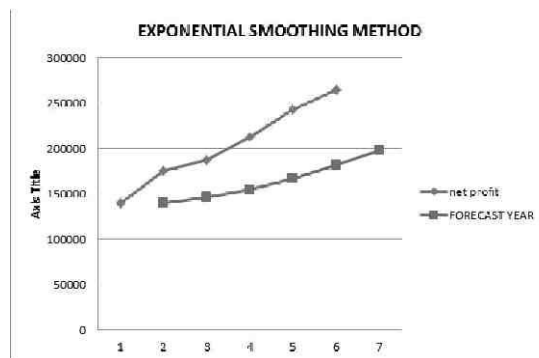


Fig 40. Exponential smoothing method to interest income and net profit for AXIS

From this fig:30, it is concluded that the net profit of axis bank shows linear increment over the years in which the anticipated result in 2018 is ¹ 198295.

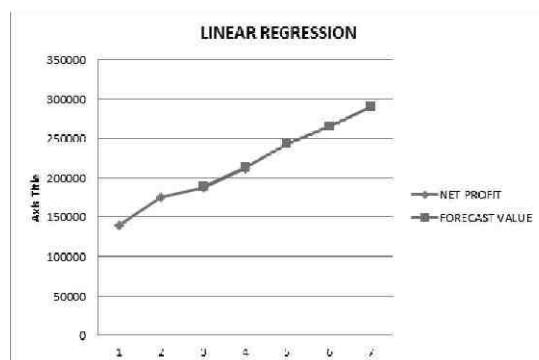


Fig 41. . Linear regression method to interest income and net profit for AXIS

This fig:41 has inferred that the net profit of axis bank has consistent and uniform increment between the year 2012 and 2018 and hence the expected incremental net profit is ¹ 289195.

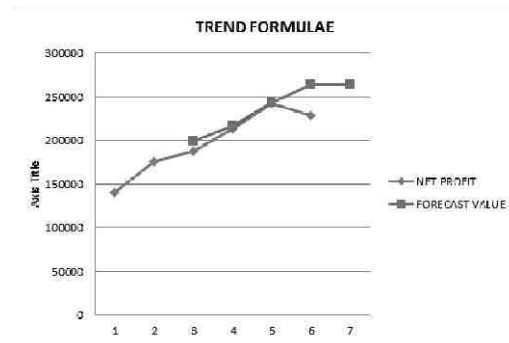


Fig 42. Trend formula using excel to interest income and net profit for AXIS

From this fig:42, it is viewed that there is linear upraise in increment of net profit over the year 2014 to 2018 and the expected net profit in 2018 is ¹ 264048.

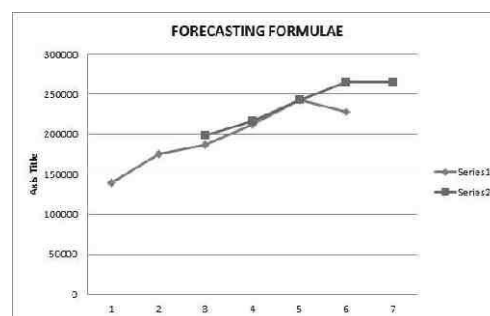


Fig 43. . Forecasting method to interest income and net profit for AXIS

From this fig:43, it is further evident that there will be drastic increment of net profit in 2018 which is expected to be ¹ 264930.

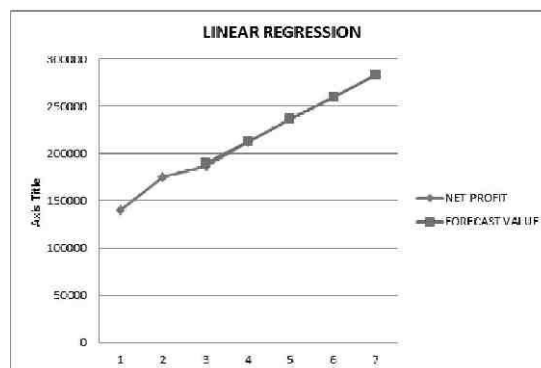


Fig 44. Linear regression method to noninterest income and net profit for AXIS

Through this fig:44 it is identified that there was continuous increase in net profit value between the year 2014-2018 in which the expected net profit in 2018 is ¹ 283151.

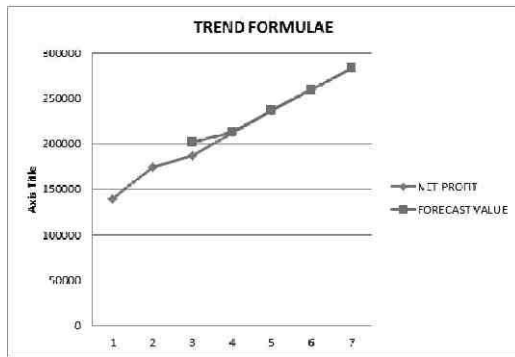


Fig 45. Trend method to noninterest income and net profit for AXIS

The fig: 45 has showed that there was almost linear improvement in net profit value and the expected net profit in 2018 is ' 283181.

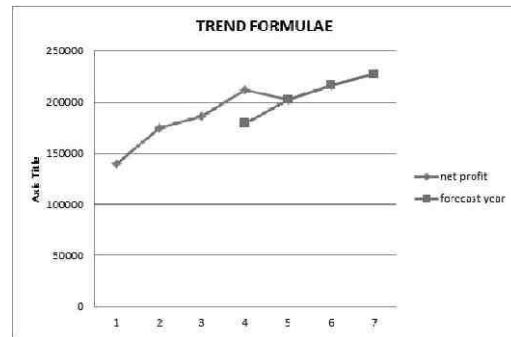


Fig 48. Trend method to operating expenditure/total funds and net profit for AXIS

Through this fig:48, it is noticed that there is a hire in net profit value and the anticipated net profit value in 2018 is ' 227967.

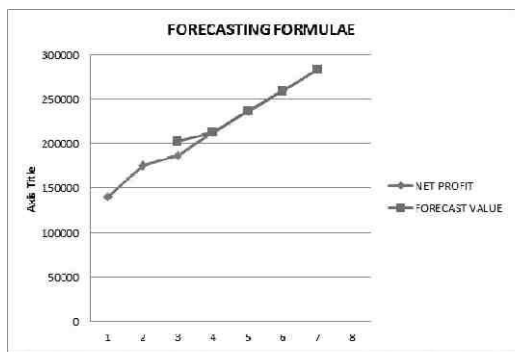


Fig 46. Forecasting method to noninterest income and net profit for AXIS

Fig 46. Forecasting method to noninterest income and net profit for AXIS

This fig:46 is similar to previous chart where the expected net profit in 2018 is ' 283188.

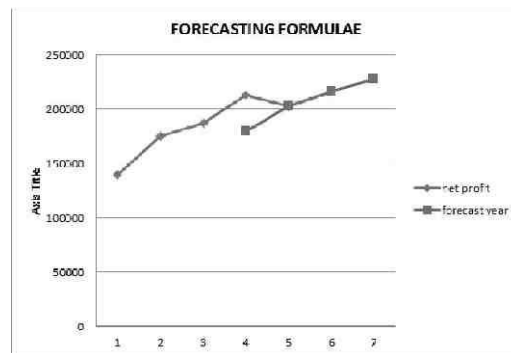


Fig 49. Forecasting method to operating expenditure/total funds and net profit for AXIS

This fig:49 is similar to previous figure where the expected net profit in 2018 is ' 227967.

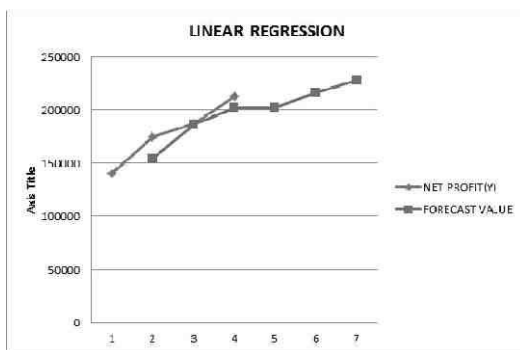


Fig 47. Linear regression method to operating expenditure/total funds and net profit for AXIS

From this fig:47 it is viewed that there was an raise in net profit over the years which results in increment during the year 2018 and the expected value is ' 227961.

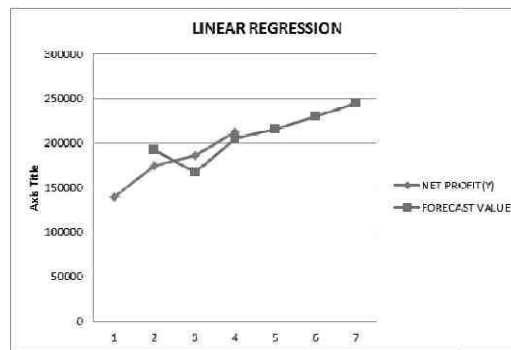


Fig 50. Linear regression method to earning retention ratio and net profit for AXIS

From this fig:50, it is observed that the was an sudden upraise in net profit between the year 2013 and 2014 and there is an gradual increment behind it. The anticipated outcome of net profit in 2018 is ' 245215.

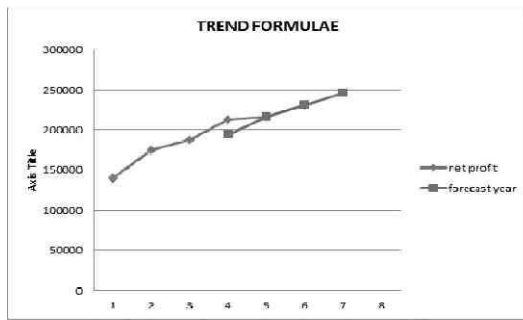


Fig 51. Trend method to earning retention ratio and net profit for AXIS

Fig 51. Trend method to earning retention ratio and net profit for AXIS

fig: 51 has inferred that there was an constant improvement in net profit over the years and hence the incremental outcome in 2018 is ' 245089.

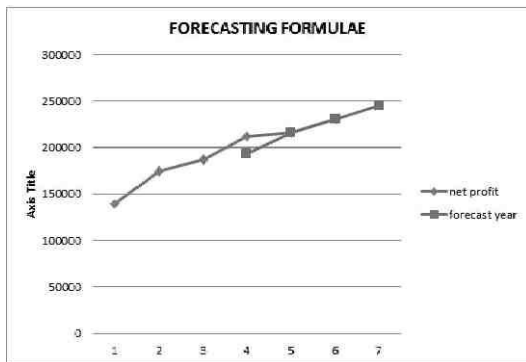


Fig 52. Forecasting method to earning retention ratio and net profit for AXIS

Fig:52 has showed an similar inference of fig:41 and hence the expected net profit in 2018 is ' 245089

TABLE 12

FORECASTING METHOD	2016	2017	2018
moving average method	199720	206132.5	202926.3
exponential smoothing	166394	173059.8	179674.4
linear regression method	242821.8	264756.3	289196
trend method	242824	263878.9	264048.7
forecasting method	242824	264758.8	264930

Fig 53. . Observation on interest income for AXIS

From this bar chart we can conclude that based on the interest income, the net profit in the year 2018 will have a slight upraise but there is an deviation in moving average method and exponential method.

TABLE 13

FORECASTING METHOD	2016	2017	2018
linear regression method	236820.8	259918.82	283151.21
trend method	236846.05	259946.7	283181.71
forecasting method	236846.05	259946.7	283181.71

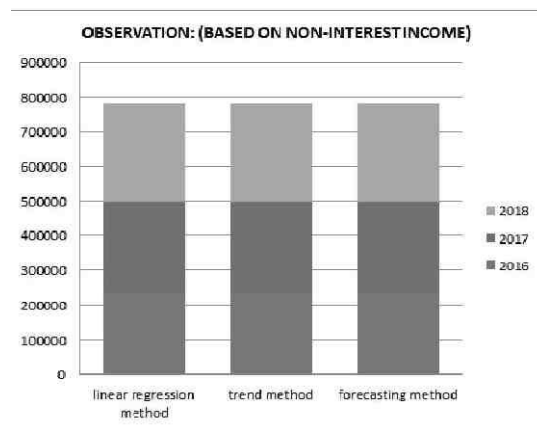


Fig 54. Observation on non interest income for AXIS

Through this bar chart we can identify that based on the non interest income, expected net profit the year 2018 will have an sudden increment

TABLE 14

FORECASTING METHOD	2016	2017	2018
linear regression method	202484.2	216818.68	227967.72
trend method	202483.8	216818.28	227967.32
forecasting method	202483.8	216818.28	227967.32

Fig 55. Observation on operating expenditure/total funds for AXIS

From the observation based on earning retention ratio, it is inferred that there is an linear increment in net profit without any deviations for all forecasting methods

TABLE 15

FORECASTING METHOD	2016	2017	2018
linear regression method	215887.627	230424.7073	245215.7104
trend method	215887.9114	230488.4653	245089.0217
forecasting method	215887.9114	230488.4716	245089.0315

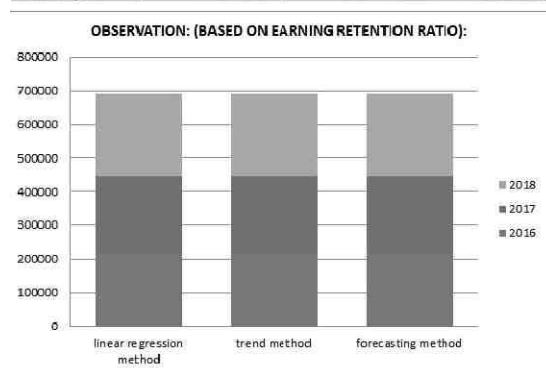


Fig 56. Observation on earning retention ratio for AXIS

While considering operating expenditure by total funds ratio, we can analyse that there is an drastic variation in net profit between the years 2016 and 2018 with upraise in 2018.

Overall conclusion for axis:

Thus from the above provided comparison charts we identified that all parameters such as interest income, non-interest income, earning retention ratio and operating expenditure by total funds gives an result of incremental profit value in the year 2018 and thus we can expect that there will be an hike in net profit of axis bank by the year 2018.

V. CONCLUSION

Our paper has scientifically ranked and compared the performance of the banks considering the profitability and using noninterest income (NII) and an attempt has been made to analyse the current marketing challenges in banking scenario. Besides, the data analytics, future work of forecasting techniques are applied to forecast the net profit of 2018 for the best performing banks.

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