Chapter 3

Investment pattern in mutual funds by the bank employees in Tripura

Introduction

Mutual fund is a kind of investment under the supervision of expert fund managers. Lynch and Musto (2003) revealed that the primary reason for investment in mutual fund is because the common investors do not have time, experience, expertise and knowledge to make investment decision independently.

The individual investor is playing a vital role in the capital market. Individual's behaviour is different that of depicted in the modern financial theories for rational human behaviours (Fernandes, Pena, and Benjamin, 2009). In order to get the best out of investment, an understanding of outlook of human nature with respect to finance is required. Moreover, investors need to develop a positive vision, insight, patience and drive (Ansari and Moid, 2013). The answers to many issues in respect of investment behaviour by human being is tried to be explained in behavioural finance which is relatively new field that tries to find to combine behavioural and cognitive psychological theory with conventional economics and finance to provide explanations for why people make irrational financial decisions (Shafi, 2014). Two major psychological disciplines come into force when observing and trying to make clear investment behaviour. The first is cognitive psychology. Cognitive psychology is the study of mental related behaviours. The second psychological discipline has theories to give explanation of behaviours of the

individual (Mohanta, and Debasish, 2011). Mukhopadhyay (2004) revealed that investment behaviour of investors reflected weak nature of Indian financial market.

Nalini (1996) showed that during the early 1990s, when public sector banks had entered the mutual fund sector, it affected the deposit mobilization of commercial banks to a certain extent. Bank interest rate has been reduced significantly. In order to get a higher return, the alternative investment avenues were looked for by middle-class investors.

Bank employees are considered as financially highly literate. As most of the banks have also started offering mutual funds, so investor investment pattern of bank employees in the mutual fund is an emerging area of behavioural science. In the present study, the attempt is made to examine investors' investment pattern in the mutual fund with respect to time, volume, manner and mode of investment.

Every investor differs from the others in some way or other due to the difference in their demographic and socio-economic profile such as age, gender, income, marital status, education, and experience. Salaried individuals have different investment patterns according to their demographic and socioeconomic variables (Bashir et al, 2013). In this situation, the present chapter also examines the influence of demographic and socio-economic factors of bank employees on their investments in mutual funds.

Investment behaviour

Investment behaviour means priorities based on characteristics of investments, the period of investment, the frequency of investment and analytical abilities(Anitha and

Bhargavi,2014). Investment behaviour is the behaviour of the investors while investing in any investment avenues (Raheja and Lamba, 2013). Investment behaviour is defined as how the investors judge, predict, analyze and review the procedures for decision making, which includes investment psychology, information gathering, defining and understanding, research and analysis (Slovic, 1972; Alfredo and Vicente, 2010). Individual investments decision is concerned with choices about purchases of small amounts of securities in his or her own account (Nofsinger and Richard, 2002). The investor behaviour is the process by which investor tends to satisfy his needs by showing his/her preferences (Jani, and Jain, 2013). Benartzi and Thaler (1999) determine the influence of time horizon on investment behaviour. They work on taking different times i.e. one-year investment and thirty-year investment. Ajzen (1991) stated that past behaviour is the best judge of future behaviour. Though modern theories of finance are based on the assumption that investors behave rationally but it is observed that investors do not behave rationally. This irrational investor behaviour is mainly due to bias that generated from past experiences or heuristic (Nair, and Antony, 2015). The frequency of trading is driven by behavioural attributes for most of the investors (Ansari, and Moid, 2013). Singh and Bhowal (2009) revealed that the volume of future investment in equity shares is influenced by the present volume of equity investment provided the employees had invested a considerable proportion of their total investment in the equity shares in the past. Most of the employees would like to maintain the same proportion of equity investment out of the total investment over the period of time.

Impact of demographic and socio-economic variables on investment in mutual fund

Number of studies have been conducted regarding the impact of demographic and socio-economic variables on investment. There are a number of factors which influence people's investment decisions in equity shares and mutual funds. Demographic and socio-economic factors of investors such as gender, age, education, family size, annual income, and savings have a significant impact on the investment decisions (Shindeand Zanvar,2015). Jain and Mandot (2012) found that demographic factors have a significant impact on investment decisions of investors in Rajasthan, India. Walia and Kiran (2012) highlight that investors psychology on investment decision is strongly influenced by demographic variables. Bhushan and Medury (2013) analyzed that gender has an impact on investment behaviour of employees working in various universities of Himachal Pradesh, India. Socio-demographic variables such as gender and age influence investors' decision-making (Graham, Harvey and Huang, 2009). Income and investment decision are positively correlated and there is a strong relationship between income and investment decisions (Ramanathan and Meenakshi Sundaram, 2015). Demographic variables such as age, gender and education play a very important role in investment decisions (Jamshidinavid et. al., 2012; Geetha and Ramesh, 2011). Socio-demographic variables such as gender, age, for the underlying psychological processes, drive investors' decision-making (Graham, Harvey, and Huang, 2009). Anderson and Bhattacharya (2011) found that demographic variables like gender, qualification and age are important in guiding investment decision. Girdhari and Satya (2011) analyzed that investment decisions of investors depend on their age, sex, income, marital status and education.

Investment behaviour of individual is significantly influenced by their demographic and socio-economic variables such as gender (Jianakoplos and Bernasek, 1998; Sunden and Surette,1998; Prince ,1993; Powell and Ansic,1997; Bajtelsmit and Bernasek,1996).age (Alexander et al. 1998; Higgins, 1998; Singh and Bhattacharjee, 2010) income (Walia and Kiran,2009; Hallahanet al., 2004; Watson and McNaughton, 2007) marital status (Arano et al., 2010; Grable and Roszkowski, 2007; Lazzarone, 1996), education level (Das ,2011; Bellante and Green, 2004; Al-Ajmi, 2008; Gilliam and Chatterjee, 2011) and experience (Corter and Chen,2006; Wilcox, 2003; Engström,2007).

From the above literature, it is clear that different demographic and socio-economic variables such as age, gender, income, marital status, education, and experience have an influence on investment decision of investors. Therefore, all these variables have been taken in the present study to investigate whether the above-mentioned variables also have an impact on investment of bank employees in Tripura in mutual fund. Moreover, there is a paucity of research in the context of Tripura in India. Therefore, there exists a research gap to study the impact of demographic and socio economic variables on investment pattern of the bank employees in Tripura.

Objective

The objective of the present chapter is as follows:

- To investigate the investment pattern in a mutual fund by the bank employees in Tripura**.**

Hypotheses

The following hypotheses are tested in this chapter

- H_{01}: There is no significant association between select demographic variables and investment in mutual funds by the bank employees in Tripura;

- H_{02}: There is no significant association between select socioeconomic variables and investment in mutual funds by the bank employees in Tripura.

The following corollary hypotheses are tested in this chapter

- H_{0a}: There is no significant association between 'age' and investment in mutual funds by the bank employees in Tripura;

- H_{0b}: There is no significant association between 'gender' and investment in mutual funds by the bank employees in Tripura;

- H_{0c}: There is no significant association between 'marital status' and investment in mutual funds by the bank employees in Tripura;

- H_{0d}: There is no significant association between 'family income' and investment in mutual funds by the bank employees in Tripura;

- H_{0e}: There is no significant association between 'education' and investment in mutual funds by the bank employees in Tripura;

- H_{0f}: There is no significant association between 'experience of employees' and investment in mutual funds by the bank employees in Tripura;

- H_{0g}: There is no significant difference in proportion of investment by the bank employees in Tripura in mutual fund over different time period, i.e. past, present and future;

- H_{0h}: There is no significant difference in respect of investment in mutual fund sponsored by the bank where the employee is working and other mutual funds.

Research questions

The answer to the following research question is attempted to be found out in this chapter:

a. What kind of investment shown by bank employees in Tripura with respect to mutual fund?

To dig the question in detail, following corollary research questions are framed based on the main research question:

1. Is there any specific trend regarding investment in mutual fund among the bank employees in Tripura?

2. What is the volume of investment in mutual fund at different time period, i.e., past, present and future?

3. What are the modes of investment in mutual fund?

4. How frequently are investors investing in mutual fund in different time period?

Analysis and Findings

Analysis and findings of the study are given in the following paragraphs:

Assessment of investment of bank employees in Tripura over different time period

Table 3.1: Investment in mutual fund of bank employees

		Investment in past		Investment at present		Investment in future	
		No. of employees	Percent	No. of employees	Percent	No. of employees	Percent
Investment in mutual Fund	Yes	134	51.1	120	45.8	206	78.6
	No	128	48.9	142	54.2	56	21.4
	Total	262	100.0	262	100.0	262	100.0

Source: Compiled from questionnaire

Table 3.1 shows that majority of employees' invest in mutual fund in past. This trend declines a little at present but large proportion of investors express their willingness to invest in future.

This data is further segregated on the basis of employees investment in mutual funds sponsored by their own bank vis a vis others mutual fund.

Table3.2: Investment in mutual fund sponsored by their own bank vis a vis others mutual fund

	Investment in past		Investment at present		Investment in future	
	No. of employees	Percent	No. of employees	Percent	No. of employees	Percent
Only own bank sponsored mutual fund	99	37.8	90	34.4	132	50.4
Other mutual funds than own bank	11	4.2	7	2.7	4	1.5
Investment in both	35	13.4	36	13.7	74	28.2
No investment in any bank	117	44.7	129	49.2	52	19.8
Total	262	100.0	262	100.0	262	100.0

Source: Compiled from questionnaire

Table 3.2 shows that employees' actual investment in mutual fund sponsored by their own bank is relatively high as compared to other mutual funds. This phenomenon is visible for their past investment in mutual funds, the same trend is continuing at present and same pattern is expected for their willingness to invest in future as well.

To test whether these difference is statistically significant or nor, Z test is applied and shown in table 3.3.The employees who only invest in mutual funds either sponsored by their own bank or other mutual funds are considered for the study. The employees who do not invest in mutual fund and those who invest in both kinds of mutual funds are not considered for the study.

Table3.3: Proportion test

Time	Hypotheses	Z statistic	P value	Conclusion
Past	H_o: P_{own} =P_{other} H_1: P_{own} > P_{other}	6.5519	0.00	Significant
Present	H_o: P_{own} =P_{other} H_1: P_{own} > P_{other}	6.4737	0.00	Significant
Future	H_o: P_{own} =P_{other} H_1: P_{own} > P_{other}	7.9466	0.00	Significant

Source: Compiled from questionnaire

In the table 3.3:

P_{own}= Proportion of investment in mutual fund sponsored by their own bank;

P_{others}= Proportion of investment in mutual fund sponsored by other banks.

From Table 3.3, it is found that employees' investment is different in different time period for selection of Asset Management Company (AMC). It is seen that they invest relatively more in their own bank sponsored mutual fund in different time periods as proportion test is found significant at 5% level of significant. So, they are exhibiting familiarity biased to select the AMC. They are familiar with their own bank products and believe that it is better than any other AMC products. Investors generally prefer to the

investment avenue which is familiar to them (Huberman, 2001, Singh and Bhowal, 2010).

Assessment of trend of investment in mutual fund

From table 3.4, it is found that investment in mutual funds has declined at present as compared to their past investment in mutual fund, but interestingly it is found that their willingness to invest in mutual fund in future is relatively high. For other mutual fund, employees are less interested but changing pattern is same as earlier case. In following table, it is shown that whether above results are statistically significant or not.

Table 3.4: Trend of investment in mutual fund of bank employees in Tripura

AMC		Investment in past		Investment at present		Investment in future	
		Frequency	Percent	Frequency	Percent	Frequency	Percent
Own bank sponsored mutual fund	Yes	134	51.1	120	45.8	206	78.6
	No	128	48.9	142	54.2	56	21.4
	Total	262	100.0	262	100.0	262	100.0
Other mutual funds than own bank	Yes	44	16.8	37	14.1	78	29.8
	No	218	83.2	225	85.9	184	70.2
Total		262	100.0	262	100.0	262	100.0

Source: Compiled from questionnaire

Investment pattern for mutual fund sponsored by the bank where employees are working

First of all, it is required to see if the employees' investment pattern is changing significantly or not across the different time. In that case Cochran's Q test has been applied. In this test:

- P_{past}=Proportion of investment in mutual fund in past;

- $P_{present}$= Proportion of investment in mutual fund in present;

- P_{future}= Proportion of investment in mutual fund in future.

Table 3.5: Cochran Q Test (Investment in mutual funds sponsored by their own bank)

	No. of employees		Cochran Test statistic	
	Yes	**No**	**N**	**262**
Investment of bank employees in mutual fund in past.	134	128	Cochran's Q	104.721
Investment of bank employees in mutual fund atpresent.	120	142	Df	2
Investment of bank employees in mutual fund in future	206	56	Asymp. Sig.	.000

Source: Compiled from questionnaire

From table 3.5, Cochran test statistic shows that hypothesis is significant. It indicates investment trend is not same across the different time period.

Finally, it is to be seen that if employees' investment pattern in mutual fund sponsored by their own bank is changing significantly or not from past to present. To test this, McNemar test has been applied as it is related samples in two different periods.

Table 3.6: McNemar test (Investment in mutual funds sponsored by their own bank)

Investment in mutual fund bank employees in the past	Investment in mutual fund of bank employees at present.		McNemar Test Statistics	
			Investment in mutual fund bank employees in the past and investment in mutual fund of bank employees at present.	
	Yes	No	N	262
Yes	106	28	Chi-Square	4.024
No	14	114	Asymp. Sig.	0.045

Source: Compiled from questionnaire

Table 3.6 shows that McNemar test statistic is significant at 5% level of significance. Employees' investment pattern is not same from the past to present.

Investment pattern of bank employees in Tripura for mutual funds other than those sponsored by their own bank

First of all, it is required to see if the employees' investment pattern in mutual fund other than those sponsored by their own bank is changing significantly or not across the different time. In that case, Cochran's Q test has been applied.

Table 3.7: Cochran Q Test (Investment in mutual funds other than those sponsored by their own bank)

	No. of Employees		Cochran Test statistic	
	Yes	No	N	262
Investment of bank employees in mutual fund in past.	134	128	Cochran's Q	104.721
Investment of bank employees in mutual fund at present.	120	142	Df	2
Investment of bank employees in mutual fund in future	206	56	Asymp. Sig.	.000

Source: Compiled from questionnaire

From table 3.7, Cochran test statistic shows that hypothesis is significant. It indicates investor's investment trend is not same across the different time period for investment in mutual funds other than those sponsored by their own bank.

Finally, it is to be seen that if employees' investment pattern in mutual funds other than those sponsored by their own bank is changing significantly or not from the past to present. To test this, McNemar test has been applied as it is related samples in two different periods.

Table 3.8: McNemar test (Investment in mutual funds other than those sponsored by their own bank)

Investment of bank employees toward mutual fund in past.	Investment of bank employees toward mutual fund at present		McNemar Test Statistics	
			Investment of bank employees toward mutual fund in past and investment of bank employees toward mutual fund at present	
	Yes	No	N	262
Yes	31	13	Exact Sig.	0.167
No	6	212	(2-tailed)	

Source: Compiled from questionnaire

Table3.8 shows p-value is not significant at 5% level of significant as p-value is more than 0.05. So, it is concluded that proportion of investment in mutual fund by the bank employees in Tripura is same in past and present.

Volume of investment in mutual fund by bank employees in Tripura in different time periods

Table 3.9: Volume of investment in mutual fund of bank employees in different time

	Proportion of investment in mutual fund out of total investment	Investment in past		Investment at present		Investment in future	
		No. of employee	Percent	No. of employee	Percent	No. of employee	Percent
Investment in own bank sponsored mutual fund	Non-responsive respondent	128	48.9	142	54.2	56	21.4
	Less than 25%	101	38.5	61	23.3	103	39.3
	25%-50%	23	8.8	46	17.6	85	32.4
	More than 50%	10	3.8	13	5.0	18	6.9
	Total	262	100.0	262	100.0	262	100.0
Investment in mutual funds other than those sponsored by own bank	Non-responsive respondent	214	81.7	224	85.5	177	67.6
	Less than 25%	37	14.1	27	10.3	60	22.9
	25%-50%	5	1.9	6	2.3	17	6.5
	More than 50%	6	2.3	5	1.9	8	3.1
	Total	262	100.0	262	100.0	262	100.0

Source: Compiled from questionnaire

From the table 3.9 shows the volume of investment in mutual fund in different time period. It is found that those who invested in mutual fund, majority of them has invested less than 25% in such mutual fund out of their total investment followed by another group of employees who invested 25%-50% in mutual funds out of their total investment. The same pattern is visible for their present investment as well as their willingness to invest in mutual funds in future.

High volume (25%-50%) of investment in present has been increased as compared to their past. In future, it is expected that high volume of investment in mutual fund will be increased.

Association between past and present volume of investment in mutual fund

Table 3.10: Investment in mutual fund in past and present

Proportionate volume of Investment in mutual fund at Present out of total investment						
		Not Invested	**Less than 25%**	**25%-50%**	**More than 50%**	**Total**
Proportionate volume of investment in mutual fund in past out of total investment	Not Invested	114	9	5	0	128
	Less Than 25%	23	51	27	0	101
	25%-50%	5	1	11	6	23
	More than 50%	0	0	3	7	10
	Total	142	61	46	13	262

Source: Compiled from questionnaire

Table 3.11: Chi-Square Tests

	Value	**Df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	258.127[a]	9	.000
Likelihood Ratio	208.184	9	.000
Linear-by-Linear Association	138.016	1	.000
N of Valid Cases	262		

Source: Compiled from questionnaire

Table 3.11 indicates that there is an association between volume of investment in mutual fund at present and volume of investment in mutual fund in past as p-value is less than 0.05. The volume of investment in mutual funds at present is influenced by their proportionate investment in mutual funds in past.

Table3.12: Symmetric Measures

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Gamma	0.866	.035	14.201	.000
	N of Valid Cases	262			

Source: Compiled from questionnaire

Table3.12 also indicates that there is strong positive relationship between volume of investment in mutual fund in present and volume of investment in mutual fund in past. Knowledge of the past investment proportion can improve the ability to predict the proportion of investment in present by 86.6%.

Association between investment in mutual fund at present and investment in mutual fund in future

Table 3.13: Volume of investment in mutual fund at present and future

Proportionate volume of investment in mutual fund in future out of total investment						
		Not Invested	Less than 25%	25%-50%	More than 50%	Total
Proportionate volume of Investment in mutual fund in present	Not Invested	50	68	23	1	142
	Less Than 25%	5	31	25	0	61
	25%-50%	1	4	33	8	46
	More than 50%	0	0	4	9	13
	Total	56	103	85	18	262

Source: Compiled from questionnaire

Table 3.14: Chi-Square Tests

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	177.053[a]	9	.000
Likelihood Ratio	150.014	9	.000
Linear-by-Linear Association	108.157	1	.000
N of Valid Cases	262		

Source: Compiled from questionnaire

Table3.14exhibits that there is an association between volume of investment in mutual fund in present and volume of investment in mutual fund in future as p-value is less than 0.05.The proposed volume of investment in mutual funds in future is influenced by their volume of investment in mutual funds at present

Table 3.15: Symmetric Measures

		Value	Asymp. Std.Error[a]	Approx. T[b]	Approx. Sig.
Ordinal by Ordinal	Gamma	.793	0.043	12.292	.000
	N of Valid Cases	262			

Source: Compiled from questionnaire

Table3.15 also indicates that there is strong positive relationship between volume of investment in mutual fund in future and volume of investment in mutual fund in present. Knowledge of the present investment proportion in mutual fund can improve the ability to predict the investment in mutual fund in future by 79.3%.

Frequency of investment in mutual fund by bank employees in Tripura

Table 3.16: Frequency of investment in mutual fund

Time	Frequency of investment in past		Frequency of investment at present		Frequency of investment in future	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Yearly	16	6.1	7	2.7	22	8.4
Half yearly	3	1.1	2	.8	5	1.9
Quarterly	4	1.5	4	1.5	10	3.8
Monthly	107	40.8	102	38.9	123	46.9
As and when	12	4.6	9	3.4	19	7.3
Non-responsive respondent	120	45.8	138	52.7	83	31.7
Total	262	100.0	262	100.0	262	100.0

Source: Compiled from questionnaire

Table 3.16 exhibits that most of the investors want to invest in mutual fund monthly. This result is almost consistent with present and future.

Mode of investment in mutual fund

Table 3.17: Mode of investment in mutual fund by bank employees in Tripura

	Investment in past		Investment at present		Investment in future	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Certificate	17	6.5	4	1.5	10	3.8
Demat	8	3.1	10	3.8	13	5.0
SIP	118	45.0	110	42.0	162	61.8
Non- responsive respondent	119	45.4	138	52.7	77	29.4
Total	262	100.0	262	100.0	262	100.0

Source: Compiled from questionnaire

Table 3.17 shows that most of the employees prefer to invest in mutual fund through SIP mode across the different time.

Impact of demographic and socio-economic variables on investment in mutual fund

To ascertain the impact demographic and socio-economic variables on investment decision in mutual fund, binary logistic regression is used. Investment in mutual fund is considered as dependent variable and demographic and socio-economic variables are the predictor variables. Dependent variable is mutual fund invested Y=0(invested in mutual fund), Y=1(Not invested in mutual fund). Predictor variable is demographic and socio-economic variables.

As dependent variable is nominal scale and dichotomous, linear regression model cannot be used as a good model in order to find the impact of demographic and socio economic variables on investment in mutual fund. In linear regression model, dependent variable is metric scale (Interval or Ratio) (Hair et al., 2009). So, binary logistic regression is suitable for this case. Moreover, it does not require normality assumption.

In this study, P(Y=1) is the probability of not investing in mutual fund and P(Y=0) is the probability of investing in mutual fund.

P(Y=1)=1-P(Y=0)

Here P(Y=1) must lie between 0 and 1.

A. Regression model predicting the logit at past investment in mutual fund is given below

ln(ODD)=ln{P(Y=1)/(1-P(Y=1)}= a +b1(Age) +b2(Gender) +b3(Marital Status) + b4

(Family income) +b5 (Education) + b6 (Experience).

Table 3.18: Omnibus Tests of Model Coefficients for the past

	Chi-square	Df	Sig.
Step	82.547	6	.000
Block	82.547	6	.000
Model	82.547	6	.000

Source: Compiled from questionnaire

From the table 3.18, Omnibus tests of model coefficients give us significant as p-value is less than 0.05. This indicates that adding demographic and socio-economic variables to the model have significantly increased ability to predict the decisions made by investors.

Table 3.19: Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	280.647[a]	0.270	0.360

Source: Compiled from questionnaire

From the table3.19, the Cox and Snell R^2 value for the fitted binomial logistic regression is 0.270 which does indicate a good fit.

Table 3.20: Hosmer and Lemeshow Test

Step	Chi-square	Df	Sig.
1	8.015	8	0.432

Source: Compiled from questionnaire

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The Hosmer-Lemeshow tests the null hypothesis that predictions made by the model fit perfectly with observed group memberships. A chi-square statistic is computed comparing the observed frequencies with those expected under the linear model. The result shows the chi-square statistic is not significant as p-value is higher than 0.05 which indicates that the data fit the model well.

Table 3.21: Variables in the equation at past

	B	S.E.	Wald	Df	Sig.	Exp(B)
Age	.130	.246	.281	1	.596	1.139
Gender	1.027	.387	7.046	1	.008*	2. 792
Marital status	-.159	.364	.191	1	.662	0.853
Family income	-.263	.175	2.271	1	.132	0.769
Education	-.012	.279	.002	1	.967	0.988
Experience	-.952	.196	23.665	1	.000*	0.386
Constant	2.406	1.221	3.881	1	.049*	11.085

Source: Compiled from questionnaire

Variable(s) entered on step 1: Age, Gender, MaritalStatus, FamilyIncome, Education, and Experience

*Significant at 5% level of significant.

The Variables in the equation output shows us that the regression equation in(ODD)=ln{P(Y=1)/(1-P(Y=1)}= 2.406 +1.036(Gender) +.490(Experience)

Table 3.21 investigates the estimated parameter at past. These are the ordered log-odds (logit) regression coefficients. It indicates that one unit increase in (demographic and socio economic variables), the dependent variable is expected to change from 'yes' to 'no' by its respective regression coefficient in the ordered log-odds scale while the other variables in the model are held constant.

It is seen that among the all demographic and socio-economic variables, gender and experience of bank employees have significant impact on investment decision in mutual fund at 5 % level of significance. Education, marital status and family income are found not to have any impact on investment decision. Beta coefficient of gender is positive which indicates female investor has higher chance of not investing in mutual fund as compared to their male counterpart. Beta coefficient of experience is negative which imply that higher experience of bank employees are having higher chance to invest in mutual fund.

B. Regression model predicting the logit, at present investment in mutual fund is given below

ln(ODD)=ln{P(Y=1)/(1-P(Y=1)}= a +b1(Age) +b2(Gender) +b3(Marital Status) $_+$ b4 (Family income$_)$ +b5 (Education) + b6 (Experience).

Table 3.22: Omnibus Tests of Model Coefficients for present

	Chi-square	Df	Sig.
Step	45.939	6	.000
Block	45.939	6	.000
Model	45.939	6	.000

Source: Compiled from questionnaire

From the table3.22, Omnibus tests of model coefficients give us significant as p-value is less than 0.05. This indicates that adding demographic and socio-economic variables to the model have significantly increased the ability to predict the decisions made by investors.

Table 3.23: Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	313.827	.161	.215

Source: Compiled from questionnaire

From the table 3.23, the Cox and Snell R^2 value for the fitted binomial logistic regression is 0.161 which does indicate a good fit.

Table 3.24: Hosmer and Lemeshow Test

Step	Chi-square	Df	Sig.
1	7.146	8	.521

Source: Compiled from questionnaire

The Hosmer-Lemeshow tests the null hypothesis that predictions made by the model fit perfectly with observed group memberships. A chi-square statistic is computed comparing the observed frequencies with those expected under the linear model. Result shows the chi-square statistic is not significant as p value is higher than 0.05 which indicates that the data fit the model well.

Table 3.25: Variables in the Equation at present

	B	S.E.	Wald	Df	Sig.	Exp(B)
Age	.284	.215	1.738	1	.187	1.328
Gender	.987	.366	7.291	1	.007*	2.683
Marital status	-.218	.356	.375	1	.540	.804
Family income	-.438	.168	6.797	1	.009*	.645
Education	-.349	.258	1.831	1	.176	.705
Experience	-.623	.180	11.933	1	.001*	.536
Constant	2.630	1.175	5.006	1	.025*	13.874

Source: Compiled from questionnaire

Variable(s) entered on step 1: Age, Gender, Marital Status, Family Income, Education, Experience

*Significant at 5% level of significant.

The Variables in the equation output shows us that the regression equation is

$\ln$ (ODD) = $\ln$ {P(Y=1) / (1-P(Y=1)}=2.630 + .987(Gender) –.438 (Family income)-.623 (Experience).

Table 3.25 investigates the estimated parameter at present. These are the ordered log-odds (logit) regression coefficients. It indicates that one unit increase in (demographic and socio economic variables), the dependent variable is expected to change from 'yes' to 'no' by its respective regression coefficient in the ordered log-odds scale while the other variables in the model are held constant. It is seen that among the all demographic and socio-economic variables, gender, family income and experience of bank employees have significant impact on investment decision on in mutual fund at present. Education and marital status are found no impact on investment decision

C. Regression model predicting the logit, at future investment in mutual fund is given below

$Ln(ODD)=ln\{P(Y=1)/(1-P(Y=1))\}=$ a $+b1(Age)$ $+b2(Gender)$ $+b3(Marital\ Status)$ $+$ b4 (Family income) + b5 (Education) + b6 (Experience).

Table 3.26: Omnibus Tests of Model Coefficients for future

	Chi-square	Df	Sig.
Step	20.910	6	.002
Block	20.910	6	.002
Model	20.910	6	.002

Source: Compiled from questionnaire

From the table3.26, Omnibus Tests of Model Coefficients gives us significant as p-value is less than 0.05. This indicates that adding demographic and socio-economic variables to the model have significantly increased ability to predict the decisions made by investors.

Table 3.27: Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	253.560	.077	.118

Source: Compiled from questionnaire

From the table 3.27, the Cox and Snell R^2 value for the fitted binomial logistic regression is .077which is low.

Table 3.28: Hosmer and Lemeshow Test

Step	Chi-square	Df	Sig.
1	8.132	8	.421

Source: Compiled from questionnaire

The Hosmer-Lemeshow tests the null hypothesis that predictions made by the model fit perfectly with observed group memberships. A chi-square statistic is computed comparing the observed frequencies with those expected under the linear model. The result shows the chi-square statistic is not significant as p-value is higher than 0.05 which indicates that the data fit the model well.

Table 3.29: Variables in the equation at future

	B	S.E.	Wald	Df	Sig.	Exp(B)
Age	.681	.236	8.345	1	.004*	1.977
Gender	.817	.370	4.878	1	.027*	2.263
Marital status	-.022	.412	.003	1	.957	.978
Family income	-.459	.211	4.723	1	.030*	.632
Education	-.408	.299	1.865	1	.172	.665
Experience	-.141	.209	.451	1	.502	.869
Constant	-1.459	1.266	1.330	1	.249	.232

Source: Compiled from questionnaire

Variable(s) entered on step 1: Age, Gender, Marital Status, Family Income, Education, Experience

*Significant at 5% level of significant.

The Variables in the equation output shows us that the regression equation is

$\ln(ODD) = \ln\{P(Y=1)/(1-P(Y=1))\} = .681(Age) + .817(Gender) - .459(Family\ income)$

Table 3.29, investigates the estimated parameter at future. These are the ordered log-odds (logit) regression coefficients. It indicates that one unit increase in (demographic and socio economic variables), the dependent variable is expected to change from 'yes' to 'no' by its respective regression coefficient in the ordered log-odds scale while the other variables in the model are held constant.

It is seen that among the all demographic and socio-economic variables, age gender and family income of bank employees have significant impact on investment decision on in mutual fund at future. Education and marital status and experience are found no impact on investment decision. Beta coefficient of age is positive which indicates higher age groups are having higher chance not to invest in mutual fund.

Conclusion

The objective of the chapter is to investigate investment pattern of bank employees towards mutual fund. The study focus on investment choice of own bank sponsored mutual fund with others. It is concluded that employees want to invest in own bank sponsored mutual fund as compared to others. The same picture is visible in different time period. Brennan and Cao (1997) indicate that investors prefer familiar asset due to asymmetric information. Doskeland and Hvide (2011) revealed that individual investors in Norway give more weight to the stocks in the industry in which they are employed despite the diversification disadvantages of doing so and earn negative abnormal returns on the stocks.

The study shows that proportions of investment of mutual fund in different time period are not the same. As compared to the past, popularity of mutual fund has declined

at present but fairly large number of investors is expected to invest in future. In respect of volume of investment, most of the employees are seen to invest less than 25% in mutual fund out of total investment. This result is consistent with different time period.

At present, volume of investment in mutual fund is influenced by their investment proportion in past and future investment volume is also influenced by their present proportion of investment in mutual fund.

Maximum employees prefer to invest in mutual fund monthly and most preferred mode is systematic investment plan (SIP). With the increasing regulatory role of SEBI, growth of financial institutions and investor education is needed in order to change the mindset of individual investors (Jasmeen, 2009).

It was found that in the past, female employees were less interested to invest in mutual fund as compared to their male counterparts and higher experience employees were having high chance to invest. In the present context also gender and experience are found to have an impact on investment in mutual fund. Employees with higher family income were found to have more chance to invest in mutual fund. In the future, different age groups are expected to play significant role to invest in mutual fund apart from gender and family income of bank employees. Higher age group employees were not found interested in investing in mutual fund as compared to younger employees. So it can be concluded that the demographic and socio-economic variables have really influenced the mutual fund investment decisions, given the test and methodology of this study. It explains that investment decisions of investors depend on age, sex, income, marital status, education (Giridhari and Sathya, 2011). Among all demographic and

socio-economic variables, only gender is found to have significant impact on investment decision in the past, present as well as future. Experience of bank employees is seen to bear significant influence in the past and present but not in future. Family income is significant at the present and future but not in the past. Educational level and marital status of bank employees have no role to play in investment decision in mutual fund either in the past, present or future as per the study.

Deb (2012) found that in the past, only annual income and educational qualification of investors were significant on investment in mutual fund but in the present and future, none of the demographic variables were found significant impact on investment in mutual fund. The study revealed that demographic variable such as age; gender and education have no significant relations with the period of investments made by the investors (Panda and Panda, 2013). Kandavel (2011) found that demographic variables such as age, gender; educations are not significant towards motivating factors for investment in mutual funds.