DOES SAVINGS INFLUENCE INVESTOR BEHAVIOR IN THE SECONDARY EQUITY MARKET?

[1]Dr.Renu Isidore. R, [2]Dr. P. Christie,

[1]Research Associate at LIBA, [2]Director of LIBA
[1]Loyola Institute of Business Administration,
[1]Loyola College Campus, Chennai, India

Abstract : Investors' savings which stem out of the income play an important role in the investment behavior of the investor. This study ventures into an area which is less researched about. The relationship between the savings and investor behavior in terms of the biases exhibited is tested in this study. The study found through a questionnaire survey of 436 secondary equity investors residing in Chennai that the savings do influence the investor behavior in the secondary equity market. Analysis of Variance test was used to test if the investors who save more/less are more/less prone to exhibit the behavioral biases. Eight biases namely, mental accounting, anchoring, gambler's fallacy, availability, loss aversion, regret aversion, representativeness and overconfidence measured on a Likert scale were normalised and then employed in the tests. Using cross tabulation, the majority of the high savings level investors in each category were identified. Finally, the biases likely exhibited by the investors with high savings level were identified. Financial advisors and wealth managers could employ the results of this study to guide investors in various savings levels based on the biases they are likely to exhibit.

IndexTerms **- Mental Accounting, Anchoring, Gambler's fallacy, Availability, Loss Aversion, Regret Aversion, Representativeness, Overconfidence, Investors' Savings, Investor Behavior, Indian Secondary Equity Market.**

I. INTRODUCTION

Investors' savings which stem out of the income play an important role in the investment behavior of the investor. Income of the investor and the expenses incurred determine the saving level of the individual. The savings level is found to determine the behavior of the investor in terms of the biases exhibited. Higher the savings, more confident would be the attitude of the investor and less would be his propensity to exhibit the biases. This hypothesis is tested in this study using a sample of secondary equity investors residing in the Chennai region of India.

The Indian equity market has recorded several anomalies in the recent past like long term reversal, short run momentum, weekend anomaly, etc. The classical finance theories were unable to explain these anomalies and hence psychology was adopted to explain the anomalous patterns in the stock market. Behavioral biases exhibited by the investors in the unpredictable stock market environment were explained as the cause of the irrationality in the market. Several demographics and financial variables have been used to categorise the investors exhibiting several behavioral biases. Savings of the investors have however not been studied in this angle. This study bridges that research gap and shows the various biases exhibited by investors with various savings levels.

II. LITERATURE REVIEW

In India, savings has followed different trends over the years. The years 1950 to 1969 were marked by a low savings phase, following which the years 1970 to 1976 had an increasing savings phase with the savings rate increasing from 13.9% to 16.9%. The years 1977 to 1979 marked the high saving phase with the savings rate peaking at 21.2%, the following years 1980 to 1985 reached a stagnation phase with the savings rate reducing to an average of 18.2%. The years 1986 to 1993 was the recovery phase with the savings rate increasing to a high of 22.8%. The following years 1994 to 2008 were the new-high savings phase with the savings rate reaching new highs of 37.7% (Budhedeo, 2010).

Among the sources of the Gross Domestic Savings (GDS), the household sector is the most important source contributing to around 70% followed by the public sector and then by the private corporate sector which has been having a very fluctuating savings. Also over the years, compared to the physical assets, the financial assets have taken a larger portion of the household savings. The most important household financial saving assets include life funds, pension and provident funds, currency and deposits (Budhedeo, 2010).

Curtis et al. (2017) showed that in India as the family size reduced, the savings rate increased. And in the future as the Indian households would have fewer working age children to support them post the retirement, the savings tendency was more now. In the beginning of the 1970s, nearly half of the Indian population was under 20, compared to less than 25% now. This growing share of the working population also contributed to the high household saving rates in India.

Sinha and Sinha (2008) studied the relationship between the various savings like, corporate savings, public savings and household savings and the economic growth in India using a five decade annual data during the period 1950 to 2001. They documented that it was economic growth that resulted in higher savings and not the other way around. Higher savings was only the consequence of higher economic growth and not the cause in India.

Verma (2011) documented empirically that savings determine the investments in India by studying annual data during the period 1950 to 2005. Both in the short run and in the long run, household savings determine both the private and public investment, whereas private savings determine same sector investments in the short run.

Brookins et al. (2015) evaluated the impact of age on the household saving behavior in India. They documented empirically that when the dependents are young, it has a significant negative influence on saving whereas on the other hand, the older dependents

have an insignificant negative influence on saving. GDP per capita was found to have a significant positive influence on household saving whereas the inflation has an inverse relation with household saving.

Horioka and Terada-Hagiwara (2017) employed time series data for the period 1975 to 2010 for both India and Korea and developed the household savings rate equation. The study documented that the gender ratio of males to females, before marriage had a significant influence on the household savings rate in both India and Korea after controlling the income and the dependency ratios of the aged and the youth. Deolalikar and Rose (1998) employed Village Level Studies panel data to study the role of gender shock on savings behavior. Gender shock was defined as the impact of the birth of a boy relative to the birth of a girl child. Savings tended to decrease and consumption tended to increase after the birth of a boy child as the boy child was regarded as an asset and the girl child as a liability.

Nayak et al. (2016) analysed the saving pattern of the people in the rural Odisha region of India and found that the marginal propensity to save was very low among the rural population as the income was low and the consumption was high. Higher dependency ratios also reduce the propensity to save as expenses pile up. Increased awareness about financial security for unforeseen emergencies would help to increase the saving attitude.

Agrawal et al. (2010) examined the determinants of saving behavior in India and documented that higher per capita income and better access to banking facilities tend to increase the savings significantly in India. Hence, a high GDP growth would boost the per capita income which in turn would improve the savings rate in India. Thus, it is growth that determines the savings rate and not vice versa. On the other hand, the availability of foreign savings decreases the savings.

Chakraborty (2012) investigated the saving behavior of investors in the Orissa region of India through a questionnaire survey and found that the saving objective was influenced by several demographic factors like age, occupation and income level of the investors. The study also found that the female investors had a higher propensity to save compared to the male investors. The younger investors were found to be less inclined to saving when compared to the older investors. Self employed and salaried individuals were found to save more compared to entrepreneur class of investors.

Bhabha et al. (2015) explored the factors influencing the saving behavior of working women in Pakistan and showed that the critical factors include return on investment, financial security and income. Return on investment does influence people to save more as higher interest rates lure more savings in order to invest. Financial security is another important factor which protects the investments through legal bindings and hence encourages people to save more. Income is the key to savings as only those who earn well could afford to save more. Ahmad et al. (2006) employed time series data of Pakistan to understand the relationship between household savings and several other variables. It was found that the per capita income had a positive effect on the savings rate whereas the demographic variables had a negative effect on the savings rate. The inflation rate was also found to affect the household savings rate negatively and the real interest rate had a significant positive effect on the savings rate. Rehman et al. (2010) examined the determinants of household savings in the Multan region of Pakistan. The study documented that the size of landholdings, total household income, total dependency rate and spouse participation significantly increases the savings. On the other hand, the value of the house, marital status, liabilities, size of the family, educational expenditures of the children and education of the household head significantly decreases the savings level of households.

III. Objective of the Study

The main focus of this study is to determine if the savings of the investor played an important role with respect to the behavioral biases namely, mental accounting, anchoring, gambler's fallacy, availability, loss aversion, regret aversion, representativeness and overconfidence exhibited by the secondary equity investors residing in Chennai.

IV. Sample and Methodology

The present research was carried out in the Chennai city of Tamil Nadu. The secondary equity investors chosen were the members of the Tamil Nadu Investors Association (TIA) and the clients of a popular financial services company, Integrated. TIA was selected as it was the only formal body which allowed access to collect data from its members. Integrated was selected as it was the only company which allowed access to collect data from its clients. Questionnaire surveys were used to collect data from 436 secondary equity investors. Analysis of Variance test was used to test the difference in the means of the behavioral biases among the groups divided on the basis of the monthly savings of the respondents.

V. Results and Discussion

The data was collected from the secondary equity investors residing in Chennai using the questionnaire survey method. The monthly savings measured in the study was the proportion of monthly savings out of the monthly income of the respondents. The distribution of the monthly savings proportion is given in Table 5.1.

Table 5.1: Distribution of the monthly savings proportion

Dimension		Count	Percentage	Cumulative%	Mean	S.D
Proportion of monthly savings out of monthly income	5% and less	155	35.6	35.6	10.29	7.43
	6% - 10%	122	28	63.5		
	11% - 15%	39	8.9	72.5		
	16% - 20%	44	10.1	82.6		
	More than 20%	76	17.4	100		

5.1 ANOVA results of Behavioral Biases versus Savings

The eight behavioral biases namely Mental Accounting, Anchoring, Gambler's fallacy, Availability, Loss Aversion, Regret Aversion, Representativeness and Overconfidence measured on a Likert scale were normalised and tested against the monthly savings proportion using ANOVA. The results shown in Table 5.2 showed that all the tests were significant except for Gambler's

Fallacy. The respondents with higher savings had a lower mean on most of the biases and the respondents with lower savings had a higher mean on most of the biases.

Table 5.2: ANOVA results of Behavioral Bias vs Savings

S.No	Behavioral Bias	F- value	p-value
1	Mental Accounting	**8.018**	**0.000**
2	Anchoring	**4.021**	**0.003**
3	Gambler's Fallacy	1.102	0.355
4	Availability	**3.004**	**0.018**
5	Loss Aversion	**3.833**	**0.004**
6	Regret Aversion	**3.175**	**0.014**
7	Representativeness	**4.216**	**0.002**
8	Overconfidence	**6.326**	**0.000**

5.1.1 Mental Accounting bias

The respondents in the low savings level of 5% and less had the highest mean of 16.1772 and the respondents in the high savings level of more than 20% had the lowest mean of 13.5402 (based on the descriptives in Table 5.3).

Table 5.3: Descriptives of Mental Accounting

Mental Accounting	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
5% and less	155	**16.1772**	3.45749	.27771	15.6286	16.7258
6% - 10%	122	15.7425	3.30483	.29921	15.1501	16.3348
11% - 15%	39	15.8827	4.11232	.65850	14.5496	17.2157
16% - 20%	44	15.2993	3.01226	.45411	14.3835	16.2151
More than 20%	76	**13.5402**	3.42068	.39238	12.7585	14.3218
Total	436	15.4810	3.53972	.16952	15.1478	15.8141

5.1.2 Anchoring bias

The respondents in the savings level of 16% - 20% had the highest mean of 17.2189 and the respondents in the high savings level of more than 20% had the lowest mean of 15.0919 (based on the descriptives in Table 5.4).

Table 5.4: Descriptives of Anchoring

Anchoring	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
5% and less	155	17.0151	3.42806	.27535	16.4711	17.5590
6% - 10%	122	16.8427	3.47584	.31469	16.2197	17.4658
11% - 15%	39	16.9371	4.52453	.72451	15.4705	18.4038
16% - 20%	44	**17.2189**	3.99679	.60254	16.0037	18.4340
More than 20%	76	**15.0919**	4.24278	.48668	14.1224	16.0614
Total	436	16.6452	3.80974	.18245	16.2866	17.0038

5.1.3 Availability bias

The respondents in the low savings level of 5% and less had the highest mean of 15.6805 and the respondents in the high savings level of more than 20% had the lowest mean of 14.2752 (based on the descriptives in Table 5.5).

Table 5.5: Descriptives of Availability

Availability	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
5% and less	155	**15.6805**	2.86774	.23034	15.2255	16.1355
6% - 10%	122	15.2650	2.60385	.23574	14.7983	15.7317

11% - 15%	39	15.1062	2.60156	.41658	14.2629	15.9496
16% - 20%	43	15.1557	3.30376	.50382	14.1389	16.1724
More than 20%	76	**14.2752**	3.33449	.38249	13.5133	15.0372
Total	435	15.2151	2.93478	.14071	14.9385	15.4916

5.1.4 Loss Aversion bias

The respondents in the low savings level of 5% and less had the highest mean of 16.9627 and the respondents in the high savings level of more than 20% had the lowest mean of 15.0207 (based on the descriptives in Table 5.6).

Table 5.6: Descriptives of Loss Aversion

Loss Aversion	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
5% and less	155	**16.9627**	3.18211	.25559	16.4578	17.4676
6% - 10%	122	16.7408	3.92125	.35501	16.0380	17.4436
11% - 15%	39	16.5953	3.66397	.58670	15.4075	17.7830
16% - 20%	44	16.3132	3.46788	.52280	15.2589	17.3676
More than 20%	76	**15.0207**	4.31384	.49483	14.0350	16.0065
Total	436	16.4637	3.72957	.17861	16.1126	16.8147

5.1.5 Regret Aversion bias

The respondents in the low savings level of 6% to 10% had the highest mean of 17.6389 and the respondents in the high savings level of more than 20% had the lowest mean of 15.8348 (based on the descriptives in Table 5.7).

Table 5.7: Descriptives of Regret Aversion

Regret Aversion	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
5% and less	155	16.7678	3.59573	.28882	16.1972	17.3383
6% - 10%	122	**17.6389**	3.33406	.30185	17.0413	18.2365
11% - 15%	39	16.4508	4.28501	.68615	15.0618	17.8399
16% - 20%	44	16.8313	3.09506	.46660	15.8903	17.7723
More than 20%	76	**15.8348**	3.70088	.42452	14.9891	16.6805
Total	436	16.8270	3.59895	.17236	16.4882	17.1657

5.1.6 Representativeness bias

The respondents in the low savings level of 5% and less had the highest mean of 16.4553 and the respondents in the high savings level of more than 20% had the lowest mean of 14.6241 (based on the descriptives in Table 5.8).

Table 5.8: Descriptives of Representativeness

Representativeness	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
5% and less	155	**16.4553**	3.78524	.30404	15.8547	17.0559
6% - 10%	122	16.4195	3.26935	.29599	15.8335	17.0055
11% - 15%	39	15.6928	4.61444	.73890	14.1969	17.1886
16% - 20%	44	15.0949	3.38956	.51100	14.0644	16.1254

More than 20%	76	**14.6241**	3.98186	.45675	13.7142	15.5340
Total	436	15.9206	3.78339	.18119	15.5644	16.2767

5.1.7 Overconfidence bias

The respondents in the low savings level of 5% and less had the lowest mean of 16.2034 and the respondents in the high savings level of more than 20% had the highest mean of 18.8338 (based on the descriptives in Table 5.9).

Table 5.9: Descriptives of Overconfidence

Overconfidence	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
5% and less	155	**16.2034**	3.66572	.29444	15.6217	16.7851
6% - 10%	122	17.0590	3.92485	.35534	16.3555	17.7625
11% - 15%	39	17.1204	4.75303	.76109	15.5796	18.6611
16% - 20%	44	16.3038	3.74089	.56396	15.1665	17.4412
More than 20%	76	**18.8338**	3.67841	.42194	17.9932	19.6743
Total	436	16.9935	3.94926	.18914	16.6217	17.3652

Hence, the ANOVA results found that in most of the behavioral biases except for the Overconfidence bias, the respondents who save more, that is, with a higher proportion of monthly savings out of the monthly income are least likely to exhibit behavioral biases. On the other hand, with respect to the Overconfidence bias alone, the respondents who save more, that is, with a higher proportion of monthly savings out of the monthly income are more likely to exhibit the Overconfidence bias.

5.2 Cross tabulation results of the Savings level

The savings proportion was divided into low savings level, average savings level and high savings level. The respondents with a savings proportion of 5% and less fell in the Low Savings level category whereas the respondents with a savings proportion of 6% to 15% fell in the Average Savings level category and the respondents with a savings proportion of more than 15% fell in the High Savings level category. The frequency distribution of the respondents in the various savings levels are given below in Table 5.10.

Table 5.10: Frequency Distribution of the Different Savings levels

Savings Level	Frequency	Percent	Valid Percent	Cumulative Percent
Low Savings Level	155	35.6	35.6	35.6
Average Savings Level	161	36.9	36.9	72.5
High Savings Level	120	27.5	27.5	100.0
Total	436	100.0	100.0	

Cross tabulation between Savings level and Gender shown in Table 5.11 showed that the male respondents have the highest savings level with nearly 90.83% of the investors with high savings level were male.

Table 5.11: Cross Tabulation of Savings level vs Gender

Cross tabulation Savings Level * gender of the respondent		Gender of the respondent		Total
		Male	Female	
Savings Level	Low Savings Level	97	58	155
	Average Savings Level	116	45	161
	High Savings Level	**109**	11	120
Total		322	114	436

Cross tabulation between Savings level and Age shown in Table 5.12 showed that the middle aged respondents and the senior respondents have the highest savings level with nearly 36.67% of the investors with high savings level were either in the middle aged category or senior category.

Table 5.12: Cross Tabulation of Savings level vs Age

Cross tabulation Savings Level * Age Categories		Age Categories			Total
		Young Investors	Middle Aged Investors	Senior Investors	
Savings Level	Low Savings Level	77	33	45	155
	Average Savings Level	59	60	42	161
	High Savings Level	32	**44**	**44**	120
Total		168	137	131	436

Cross tabulation between Savings level and Annual Income shown in Table 5.13 showed that the high income respondents have the highest savings level with nearly 55.83% of the investors with high savings level were in the high income group.

Table 5.13: Cross Tabulation of Savings level vs Annual Income

Cross tabulation Savings Level * Annual Income		Annual Income			Total
		Low Income Group	Middle Income Group	High Income Group	
Savings Level	Low Savings Level	100	38	17	155
	Average Savings Level	44	87	30	161
	High Savings Level	11	42	**67**	120
Total		155	167	114	436

5.3 Characteristics of the high savings level investors

The respondents with high savings level were analyzed in depth in order to understand their characteristics. Table 5.14 showed the mean and standard deviation of the behavioral biases of the respondents with high savings level. The biases are arranged in descending order of their mean values. The high savings level investors were more likely to exhibit overconfidence bias the most, followed by gambler's fallacy, regret aversion, anchoring, loss aversion, representativeness, availability and mental accounting.

Table 5.14: Means of the biases of the high savings level investors (in descending order)

Descriptive Statistics	Mean	Std. Deviation
Overconfidence	17.9061	3.88373
Gambler's Fallacy	16.2357	2.95694
Regret Aversion	16.2002	3.51088
Anchoring	15.8718	4.26345
Loss Aversion	15.4947	4.05774
Representativeness	14.7967	3.76779
Availability	14.5934	3.33653
Mental Accounting	14.1852	3.37313

VI. Managerial Implications

Financial managers come across several clients for financial advice. Advising each of them uniquely based on their requirements and personality is a huge challenge. Savings is an important financial characteristic that determine the spending ability and the affordability to seek the right financial advice. This study would help the financial managers advise their clients according to the savings level they belong to and hence keep them aware of the biases they are likely to exhibit.

VII. Conclusion

This study has ventured to find relations between investor behavior in terms of the behavioral biases exhibited and the savings of the investor which has been less researched about in the past. The study has brought to light some interesting findings through a questionnaire survey of 436 secondary equity investors residing in Chennai. ANOVA results revealed that in most of the behavioral biases except for the overconfidence bias, the investors who saved more were least likely to exhibit the behavioral biases. On the other hand, with respect to the overconfidence bias alone, the respondents who saved more were more likely to exhibit the overconfidence bias. Investors with high savings level were found to be predominately male, in the middle aged/senior age category and in the high annual income group. The high savings level investors were more likely to exhibit overconfidence bias the

most, followed by gambler's fallacy, regret aversion, anchoring, loss aversion, representativeness, availability and mental accounting. This study would help the financial advisors and wealth managers to plan customized investment plans for their clients depending on their financial profile and the biases they are more likely to exhibit.

REFERENCES

Ali, A. 2001.Macroeconomic variables as common pervasive risk factors and the empirical content of the Arbitrage Pricing Theory. Journal of Empirical finance, 5(3): 221–240.

[1] Agrawal, P., Pravakar, S., & Dash, R. K. 2010. Savings behavior in India: Co-integration and causality evidence. The Singapore Economic Review, 55(2): 273-295. DOI: 10.1142/S0217590810003717

[2] Ahmad, M. H., Atiq, Z., Alam, S., & Butt, M. S. 2006. The impact of demography, growth and public policy on household saving: a case study of Pakistan. Asia Pacific Development Journal, 13(2): 57-72.

[3] Bhabha, J. I., Kundi, G. M., Qureshi, Q. A., Khan, S., & Nawaz, A. 2015. Factors Affecting the Attitude of Working-Women towards Saving-Investment in Developing Countries. Journal of Economics and Sustainable Development, 5(11): 36-41.

[4] Brookins, O. T., Ahmad, M. H., Ahmad, N., & Saeed, N. 2015. The Impact of Age Structure on Household Saving: An Empirical Investigation in Three South Asian Economies. International Journal of Economic Perspectives, 9(3): 47-56.

[5] Budhedeo, S. H. 2010. An Analysis of the Behavior and Composition of Savings in India. IUP Journal of Managerial Economics, 8(3): 7-25.

[6] Chakraborty, S. 2012. A Study of Saving and Investment Behaviour of Individual Households: An Empirical Evidence from Orissa, TIJ's Research Journal of Economics & Business Studies, 2(1): 24-34.

[7] Curtis, C. C., Lugauer, S., & Mark, N. C. 2017. Demographics and aggregate household saving in Japan, China, and India. Journal of Macroeconomics, 51: 175-191.

[8] Deolalikar, A., & Rose, E. 1998. Gender and savings in rural India. Journal of Population Economics, 11(4): 453-470.

[9] Horioka, C. Y., & Terada-Hagiwara, A. 2017. The impact of sex ratios before marriage on household saving in two Asian countries: The competitive saving motive revisited. Review of Economics of the Household, 15(3): 739-757.

[10] Nayak, S., Sethi, N., Bhujabal, P., & Mallick, A. 2016. Determinants and Pattern of Saving Behavior in Rural Households of Western Odisha: A Micro Level Analysis. Journal of Economic Policy and Research, 12(1): 50-61.

[11] Rehman, H., Faridi, M. Z., & Bashir, F. 2010. Households Saving Behaviour in Pakistan: A Case of Multan District. Pakistan Journal of Social Sciences (PJSS), 30(1): 17-29.

[12] Sinha, D., & Sinha, T. 2008. Relationships among household saving, public saving, corporate saving and economic growth in India. Journal of International Development: The Journal of the Development Studies Association, 20(2): 181-186.

[13] Verma, R. 2011. Disaggregate Analysis of Savings and Investment, Foreign Capital Inflows and Growth in India. The Asia Pacific Journal of Economics & Business, 15(1): 27-42.