Financial Risk Tolerance and the influence of Socio-demographic Characteristics of Retail Investors

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Abstract

Risk is inevitable in human life. Every investor takes considerable amount of risk within a comfortable zone. The level of risk taking capacity varies from individual to individual, time to time depending on various other factors. There are various determinants influencing the investment pattern of an individual, but this study aims to determine the factors influencing the financial risk tolerance profile. This paper focuses to understand the influence of socio-demographic factors that influence the risk tolerance level of individual investors.

Keywords: Investment decision, Investment preference, financial risk tolerance, internal factors, External factors, Investment motive, determinants.

JEL Classification: G240, G32, G31.

Introduction:

Indian economy in its fast growing phase has given us enormous growth opportunities in terms of income, expenses, savings and investments. Investors today are more educated and have wide knowledge of investment and have easy access to financial information. The key step in planning for one's investment planning is to keep in mind their risk Profile. Risk profile is made up of two components – risk appetite and risk tolerance. Risk appetite is the amount of risk one is willing to take, while risk tolerance is the amount of risk one's finances can handle. Risk tolerance and

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appetite determines their investment decisions and appropriate asset allocation. It is always wise to select the investment avenues, based on one's comfortable risk zone. This study helps in understand the influence of socio-demographic factors over the Investor's risk tolerance level.

Literature Review

Nearly all researchers and financial services practitioners working in the personal and household finance field acknowledge that financial risk tolerance, which is generally defined as a person's willingness to engage in a financial behavior in which the outcomes are uncertain (Grable, 2008).

Although there is an ongoing debate regarding the risk tolerance-age relationship, with some arguing that there is no age-risk tolerance association (Chaulk, Johnson, & Bulcroft, 2003) or that risk tolerance increases with age, very few studies have addressed the issue of differential prediction associated with the risk tolerance-age association. Hinz *et al.* (1997), Byrnes *et al.* (1999), and Bernasek and Shwiff (2001) highlighted that women are more risk-averse than men. Hibbert *et al.* (2008) revealed that gender risk aversion is related to age, income, wealth, marital status, race/ethnicity and the number of children under 18 in the household. Bajtelsmit and Bernasek (1996) found that women are more risk-averse and invest their pensions more conservatively than men. Gender differences in investing and risk-taking can be attributed to many possible causes, but ultimately, it can be shown that all the explanations have their roots in discrimination and/or differences in individual preferences. Mittal and Vyas (2007) noted that traditional economics describes human beings as rational decision makers, but it has been observed that investors do not always act rationally. Hibbert *et al.* (2008) measuring the gender difference in risk aversion, suggested that given the same level of education, irrespective of their knowledge of finance, women's risk aversion is same as that of men.

Objectives of the study:

- To determine the risk tolerance level of the individual investors and classify them based on their risk profile.

- To analyse the relationship between various socio-demographic factors such as age, gender, marital status, income, life cycle stage, family type of Individual Investors on their risk tolerance profile.

- To assess the level of influence of socio-demographic factors on financial risk tolerance level of individual investors.

Research Methodology

A sample design is a definite plan for obtaining a sample from a given population. Population of the study is the employees who work in a Bank, an NBFC, Insurance, Mutual Fund, Educational Institutions and an IT/IT enabled Services Company. In this study multi stage random sampling method, for which 405 samples were considered. samples based on various parameters like economic status, ease of access, geography, occupation, income level etc.

The risk profile of the respondents is studied using Investment risk tolerance 13 point scale questionnaire developed by Grable, J. E., & Lytton, R. H. (1999). Based on the responses and the scores earned, the respondents are categorised into five profile namely low risk tolerance profile, below average risk tolerance profile, average/moderate risk tolerance profile, above average risk tolerance profile, high risk tolerance profile.

Hypothesis of the study

Ha_0: There is no significant association between the risk tolerance level and age of retail investors.

Hb_0: There is no significant association between the risk tolerance level and gender of retail investors.

Hc_0: There is no significant association between the risk tolerance level and Individual annual Income of retail investors.

Hd_0: There is no significant association between the risk tolerance level and marital Status of retail investors.

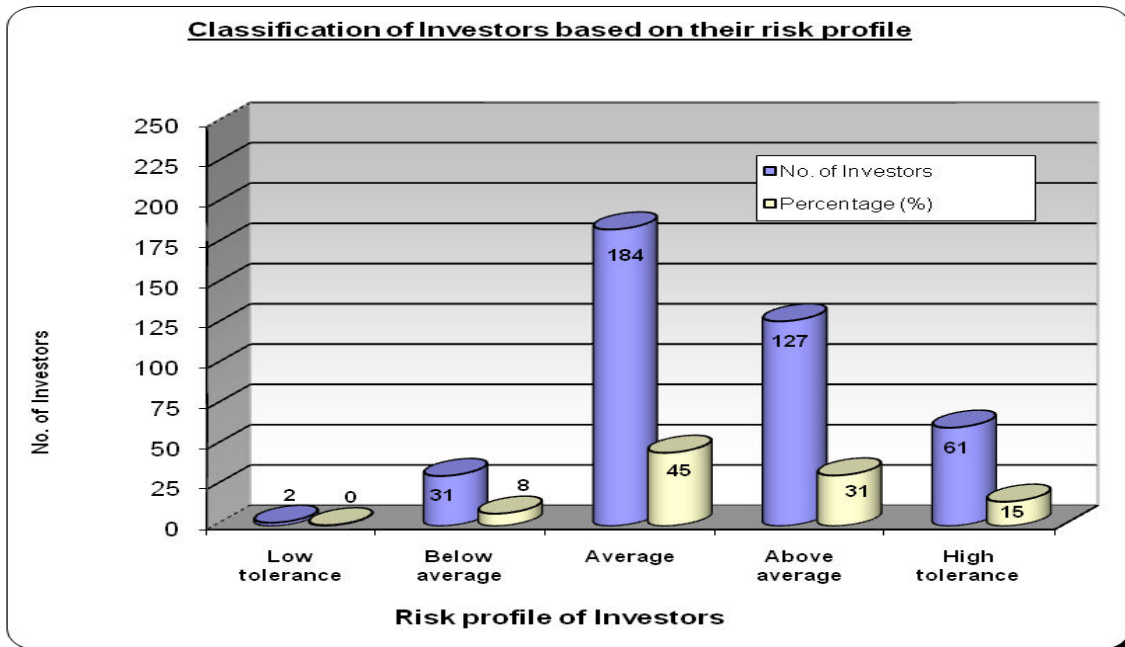He_0: There is no significant association between the risk tolerance level and Life cycle stage of retail investors.

Hf_0: There is no significant association between the risk tolerance level and family type of retail investors.

Analysis and Interpretation

This section aims to study the risk tolerance of the Investors and also to study the impact of socio-demographic factors such as age, gender, marital status, family type, Life cycle stage and income of investors on their risk profile.

Risk profile of investors

Figure 6.1: Classification of Investors based on their risk profile

Source: Computed from Primary data

It is observed from the figure No. 6.1 that 15 per cent of the Investors fall under high risk tolerance category and 31 per cent under above average risk category whereas majority of the

Investors i.e., 45 per cent of the Investors fall under average risk tolerance category. Only 8 per cent are categorised under below average risk category.

Ha_0: There is no significant association between the risk tolerance level and age of retail investors.

Table No. 6.1: Evaluation of risk profile based on age of Investors

Age group		Risk Profile of investors					Total
		Low tolerance	Below average	Average	Above average	High tolerance	
20 to 25	No	0	10	55	38	20	123
	%	0%	8%	45%	31%	16%	100%
26 - 30	No	1	9	58	45	24	137
	%	1%	7%	42%	33%	18%	100%
31 - 35	No	0	6	29	21	9	65
	%	0%	9%	45%	32%	14%	100%
> 35	No	1	6	42	23	8	80
	%	1%	8%	53%	29%	10%	100%
Total	No	2	31	184	127	61	405
	%	0%	8%	45%	31%	15%	100%
Chi Square Value		6.05	Sig Value				0.914

Source: Computed from Primary data

From the table no. 6.1, it is inferred that 45 per cent of the Investors whose age is below or equal to 25 years fall under average risk profile category. 18 per cent of the Investors whose age is between 26 and 30 years fall under high risk tolerance profile. The Friedman's Chi Square test is performed to study the association between preferred investment avenue and individual investors' annual income. It is inferred that the p value: 0.914 > 0.05. Hence the null hypothesis

is accepted and therefore it is concluded that there is no significant association between age and risk profile of investors.

Hb$_0$: There is no significant association between the risk tolerance level and gender of retail investors.

Table No. 6.2: Evaluation of risk profile based on gender of Investors

Gender		Risk Profile of investors					Total
		Low tolerance	Below average	Average	Above average	High tolerance	
Male	No	2	14	91	84	45	236
	%	1%	6%	39%	36%	19%	100%
Female	No	0	17	93	43	16	169
	%	0%	10%	55%	25%	9%	100%
Total	No	2	31	184	127	61	405
	%	0%	8%	45%	31%	15%	100%
Chi Square Value		**18.765**	**Sig Value**				**0.001***

* Significant association between the variables   Source: Computed from Primary data

It is inferred from the Table No. 6.2 that 19 per cent of male Investors fall under high risk tolerance profile category, whereas 55 per cent of female Investors fall under average risk tolerance profile category. It is inferred that the p value is 0.001 is lesser than 0.05 (5 per cent

level of significance) hence the null hypothesis is rejected. Therefore there is significant association between gender and the risk tolerance of the investors. Hence it is clearly evident that men are high risk tolerant than women.

Hc$_0$: There is no significant association between the risk tolerance level and Individual annual Income of retail investors.

Table No. 6.3: Evaluation of risk profile based on individual annual income of Investors

Individual Annual Income Group (Rs)		Risk Profile of investors					Total
		Low tolerance	Below average	Average	Above average	High tolerance	
0 - 100000	No		4	16	15	7	42
	%		10%	38%	36%	17%	100%
100001 - 200000	No	1	11	60	36	13	121
	%	1%	9%	50%	30%	11%	100%
200001 - 300000	No	1	7	43	27	14	92
	%	1%	8%	47%	29%	15%	100%
300001 - 400000	No		3	24	17	8	52
	%		6%	46%	33%	15%	100%
400001 - 500000	No			19	14	6	39
	%			49%	36%	15%	100%
500001 - 600000	No		2	11	6	2	21
	%		10%	52%	29%	10%	100%
> 600000	No		4	11	12	11	38
	%		11%	29%	32%	29%	100%
Total	No	2	31	184	127	61	405
	%	0%	8%	45%	31%	15%	100%
Chi Square Value			17.392	Sig Value			0.831

Source: Computed from Primary data

It is inferred from the Table No. 6.3 that 17 per cent of Investors whose income is lesser than Rs 1.00 Lakh per annum and 29 per cent of Investors whose annual income is greater than Rs 6.00 Lakhs fall under high risk tolerance profile category, whereas 50 per cent of Investors whose annual income is between Rs 1.00 Lakh and Rs 2.00 Lakhs and 52 per cent of Investors whose annual income is between Rs 5.00 Lakhs and Rs 6.00 Lakhs fall under average risk tolerance profile category. It is inferred that the p value is 0.831 which is greater than 0.05 (5 per cent level of significance) hence the null hypothesis is accepted. Therefore there is no significant association between annual individual income and the risk tolerance level of the investors.

Hd$_0$: There is no significant association between the risk tolerance level and marital Status of retail investors.

Table No. 6.4: Evaluation of risk profile based on marital status of Investors

Marital status		Risk Profile of investors					Total
		Low tolerance	Below average	Average	Above average	High tolerance	
Single	No	1	14	69	62	36	182
	%	1%	8%	38%	34%	20%	100%
Married	No	1	17	114	62	25	219
	%	0%	8%	52%	28%	11%	100%
Divorcee	No	0	0	0	3	0	3
	%	0%	0%	0%	100%	0%	100%
Widow	No	0	0	1	0	0	1
	%	0%	0%	100%	0%	0%	100%
Total	No	2	31	184	127	61	405
	%	0%	8%	45%	31%	15%	100%
Chi Square Value		17.866	Sig Value				0.120

Source: Computed from Primary data

It is inferred from the Table No. 6.4 that 20 per cent of Investors who are single by marital status fall under high risk tolerance profile category, whereas 52 per cent of Investors who are married fall under average risk tolerance level, and 100 per cent of Divorcee Investors fall under above average risk profile. It is inferred that the p value is 0.120 which is greater than 0.05 (5 per cent level of significance) hence the null hypothesis is accepted.

He$_0$: There is no significant association between the risk tolerance level and Life cycle stage of retail investors.

Table No. 6.5: Evaluation of risk profile based on Life cycle stage of Investors

Life cycle stage		Risk Profile of investors					Total
		Low tolerance	Below average	Average	Above average	High tolerance	
Single with financial burden	No	1	14	69	66	33	183
	%	1%	8%	38%	36%	18%	100%
Young couple without children	No	0	4	25	18	9	56
	%	0%	7%	45%	32%	16%	100%
Young family with childcare/ mortgage cost	No	0	9	62	31	12	114
	%	0%	8%	54%	27%	11%	100%
Mature family with peak earnings	No	0	3	19	9	4	35
	%	0%	9%	54%	26%	11%	100%
Preparing for retirement	No	1	1	9	3	3	17
	%	6%	6%	53%	18%	18%	100%
Total	No	2	31	184	127	61	405

	%	0%	8%	45%	31%	15%	100%
Chi Square Value			**22.753**	**Sig Value**			**0.121**

Source: Computed from Primary data

It is inferred from the Table No. 6.5 that 38 per cent of Investors who are in the Life cycle stage - single with financial burden and also those preparing for retirement fall under high risk tolerance profile category. It is inferred that the p value is 0.12 which is greater than 0.05 (5 per cent level of significance) hence the null hypothesis is accepted.

Hf_0: There is no significant association between the risk tolerance level and family type of retail investors.

Table No. 6.6: Evaluation of risk profile based on family type of Investors

Family type		Risk Profile of investors					Total
		Low tolerance	**Below average**	**Average**	**Above average**	**High tolerance**	
Nuclear	No	1	17	121	73	43	255
	%	0%	7%	47%	29%	17%	100%
Joint	No	1	14	63	54	18	150
	%	1%	9%	42%	36%	12%	100%
Total	No	2	31	184	127	61	405
	%	0%	8%	45%	31%	15%	100%
Chi Square Value		**13.1**		**Sig Value**		**0.108**	

Source: Computed from Primary data

It is inferred from the Table No. 6.6 that 47 per cent of Investors who are in nuclear family type fall under average risk tolerance profile category, whereas 36 per cent of Investors who in joint

family type fall under above average risk tolerance level. It is inferred that the p value is 0.120 which is greater than 0.05 (5 per cent level of significance) hence the null hypothesis is accepted.

Table No. 6.7: Regression analysis of investor's risk profile and its determining factors

Regression

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.316[a]	.100	.080	.829
a. Predictors: (Constant), Investors Age, Investor's Gender, Investor's Annual Individual Income, Investor's Marital status, Investor's life cycle, Investor's Family type				

As shown in the model summary, R^2 = .100, and adjusted R^2 = .0.80, that suggests the explain degree of impact on investor risk profile by 6 variables: Investors age, gender, annual Individual Income, marital status, life cycle stage and family type is 100%, which is to say these 6 variables have 100% level of influence on investor's risk profile.

Table No. 6.7.1: F Table analysis of Investor's Risk profile and its factors

ANOVA[b]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	27.052	8	3.382	4.924	.000[a]
	Residual	243.118	354	.687		
	Total	270.171	362			
a. Predictors: (Constant), Age, Marital status, Gender, Annual Individual income, Family Type, Life cycle						
b. Dependent Variable: Risk profile						

Impact on investor Risk profile and the factors influencing the risk profile is shown in Table No.6.7.1. It is noticed from ANOVA analysis summary table, when F=4.924, significance is .000, which means this model is acceptable.

Table No. 6.7.2: Coefficients Analysis of Investor's Risk Profile and its factors

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	4.997	.451		11.091	.000
	Age	-.032	.016	-.336	-2.054	.041
	Gender	-.360	.097	-.205	-3.689	.000
	Annual Individual Income	.000	.000	.135	2.374	.018
	Marital status	-.032	.103	-.019	-.307	.759
	Family type	.061	.038	.083	1.602	.110
	Life cycle	.016	.016	.156	.993	.322

Coefficients[a]

a. Dependent Variable: Risk profile

The regression model coefficient of impacts on Investor's Risk Profile and the influencing factors of Risk profile is shown in Table No. 6.7.2. According to the result of regression coefficient, we built a regression formula with non-standardized coefficient, where beta values of regression coefficient are 0.83, -0.83,-0.336, 0.156, -0.205, 0.135, -0.19. The process continues with addition of a third and more variables if it still adds up to the explanation of 'Y'. The steps used in conducting the regression analysis on the above sample are as follows:

Y = A + B1X1 + B2 X2 + B3 X3+ B4X4 +B5X5 + B6X6+B7X7+B8X8............................... (1)

Y = dependent variable representing the Investor's Risk Profile. B1, B2, B3, B4, B5, B6, B7 and B8 are the coefficients of the regression equation. X1 = Investor's age, X2 = Investor's gender, X3 = Investor's Annual Individual Income, X4 = Investor's Marital status, X5= Investor's family type, X6 = Investor's life cycle, and A = Constant term. From the above table we can analyze that the regression co-efficient (r) = 0.316 which shows that the independent factors do have a significant impact on the Investor's Risk profile.

Hence the regression formula is:

Investor's Risk Profile (Y) = 4.997 - 0.336 Investor's Age - 0.205 Investor's Gender + 0.135 Investor's Annual Individual Income - 0.19 Investor's Marital status + 0.83 Investor's family type + 0.156 Investor's Life cycle.………………………………… (2)

Findings

- It is inferred that only 15 per cent of the investors fall under high risk tolerance category and 31 per cent under above average risk category whereas majority of the retail investors i.e., 45 per cent of the investors fall under average risk tolerance category.

- There is no significant association between age and risk profile of the retail investors. 45 per cent of the respondent whose age is between 20-25 years fall under average risk profile category. 18 per cent of the investors whose age is between 26 and 30 years fall under high risk tolerance profile of individual investors.

- There is significant relationship between gender and Risk tolerance Profile of the retail investors. It is clearly evident that men are high risk tolerant than women.

- Out of 6 independent variables, it is evident that three independent variables such as Investor's Age, Investor's Gender and Investor's Annual Individual Income have an impact on Investor's Risk Profile. Investor's family type, Investor's Life cycle and Investor's marital status are not significant on their financial risk tolerance level.

Conclusion

The aim of the paper is to investigate the association between the socio-demographic factors and the financial risk tolerance level of individual investors. It is evident from the study that majority of the retail Indian Investors i.e., 45 per cent of the investors fall under average risk tolerance category. The analysis reveals that among the six socio-demographic factors included in the study, age, gender, income has significant association with the financial risk tolerance of individual investors. The findings of the study give an insight of the influence of socio-demographic factors of the investors. The investors should understand their risk profile before their investment decisions that best suits their investment goals. This study provides information and implications for investment managers to understand the risk profile and socio-demographic profile of investors. The investment products should be designed in such a way that it is catered to select individual investors with varying risk profile of Individual Indian Investors.

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