Turkish Online Journal of Qualitative Inquiry (TOJQI)
ISSN 1309-6591, Volume 12, Issue 9, August 2021:
387 – 395

Influence of Demographic Factors on Risk Tolerance of Individual Investors- An Empirical Analysis

Esha Bansal[1], Prof (Dr) H. P Singh[2]
[1] Research Scholar, Faculty of Management Studies, The ICFAI University, Himachal Pradesh
[2] Professor, Faculty of Management Studies, The ICFAI University, Himachal Pradesh

ABSTRACT:

Financial risk tolerance can be defined as the level of risk an investor is willing to undertake. Every individual has their own risk tolerance. Some individuals are risk-takers and some are risk-averse. Evidences are available which suggested the risk takers investors are risk tolerant and risk-averse investors are generally risk intolerant. Many factors influence risk tolerance like demographicfactors, personality, perception, and attitude of the individual. There are number of studies whichfavor the positive association of demographic factors with the risk tolerance of individual investors.Wang has suggested that age and risk tolerance are associated while Grable has suggested thatgender influences the risk tolerance of an individual. Financial analyst analyses the level of risk an investor can assume to determine the investment preferences of an individual. The present research paper explores the relationship between demographic factors and the risk tolerance of an individual. Data has been collected from 732 respondents. Chi square method was used to determine the association among demographic variable and risk tolerance. Present study shows that most of the demographic factors of individual investors are strongly associated with the financial risk tolerance. Further, risk appetite of investors is also determined and it is discovered that individuals are moderate risk takers.

Keywords: Risk tolerance, Behaviour, Risk-averse, Risk appetite, demographic

INTRODUCTION:

A person who expects financial returns upon investment in securities is known as an investor. Every individual is facing risk in their life. There are many factors which impose risk on human life. Some

individuals are willing to take risk and some individuals avoid taking risk. In finance, financial risk is an important matter to achieve investment goals. To understand investment behavior, it is important to study risk tolerance behavior and financial behavior of investors. Risk tolerance is the variations in returns which an investor expects during its financial planning. Every investor needs to analyze their risk tolerance before investing. Investors having aggressive risk tolerance would want to focus in risky securities like equity and preference shares while conservative investors would like to invest in bonds and other fixed-income investments. Various traits of demographic variables are to be taken into consideration while calculating financial risk tolerance such as gender, age, marital status, age to retirement, family responsibilities, education level and level of employment. Anbar et al. [14] suggested that financial risk tolerance is the important aspect to be considered before taking investment decision. In Modern investment decision model, some other aspects were mentioned that is to be considered before investment-goals, time duration-short term, medium term or long term, stability of finance-stable or unstable and financial risk tolerance-risk averse, moderate risk takers or high risk takers.. Financial risk tolerance is found to be less in risk averse investors. Wang et al. [3] discovered that age and financial risk tolerance are positively related signifies that with advancement of age, tolerance of an investor declines.Grable et al[4] discovered that age of the investor and gender of investor are the important variables which influences financial risk tolerance in conjunction with different traits together with marital reputation, occupation, self-employment, income, race and training. Callan et al.[6] demonstrated risk tolerance is a complex psychological concept that is a key feature of financial attitudes and planning which is the risk level that an individual willing to accept. They also explained that values, beliefs goals of an investor is affected by risk tolerance. Jain et al[17] stated that the risk tolerance of an individual is dependent on factors such as age of individual, preferred time period, liquidity, size of the portfolio, income, financial knowledge etc. Tversky [1] determined many factors which have a direct impact on risk tolerance during investment .Hence. Risk tolerance is dependent upon age, gender, marital status which are independent variables. Nguyen [22] analyzed that there are psychological, demographic and socio-economic factors which have a direct impact on financial return variability. Finke et al [7], Bernaseket al [8], and Yao et al. [14] stated that an inverse relationship exists within age and financial risk tolerance. According to Strydom[18], age of individual and financial risk tolerance are negatively correlated. Education is another demographic that is impacts financial risk tolerance. Education status of an investor is another demographic which has an impact on the financial risk tolerance. Sung et al. [2] stated that highly educated individuals are generally more risk tolerant. However, Cole et al.[12] explained that people with an financial educational background are more

risk tolerant than people of different educational background. On the other hand, Bashir et al. [19] stated that education level and risk tolerance have no relationship. Faff et al. [10] stated that there is a no correlation between risk tolerance and income level because investors having lower income tolerate high risk in order to become wealthy.[19] Anbar et al. [14] mentioned that as income of an investor increases, risk tolerance increases. Mandot et al [17] stated that the income and the risk tolerance of an investor are significantly related to each other.

Several researches were conducted to investigate the relationship between gender and personal risk tolerance. Mujahid et al.[20], found that males were more risk-averse than females. McNaughton et al. [9] discovered that the females are less willing to tolerate high risk compared to males. Riley et al. [16] found that the males are less financial risk tolerant than females. However, Mandot et al. [17] explained that there was no significant correlation between the investors' gender and the level of risk undertaken by the investor. Guiso et al.[11] used household survey data to determine the risk aversion of investors and concluded that investors who have unstable income are risk-averse.

METHODOLOGY

The purpose of this paper is to determine the relationship between selected demographic factors and financial risk tolerance level. The research question that this paper attempt to answer is whether these characteristics of age, education, occupation, gender, marital status, annual income, housing ownership have any relationship with financial risk tolerance. This study also focuses on developing risk appetite score of investors and then agglomerate them according to risk appetite score of investor.

OBJECTIVES OF THE STUDY:

1. To determine the relationship between demographic factors (age, gender, education level and income level) and financial risk tolerance.

2. To calculate risk appetite scores for individual investors and agglomerate them according to their risk appetite score.

The data were collected from the investors in India using risk tolerance questionnaire. The samples of 732 investors chosen for the inclusion were randomly selected. The risk tolerance score of each respondent's used as a dependent variable calculated by summing up the score of twelve risks tolerance questions. The demographic characteristics like age, education, occupation, gender, marital status, annual income, housing ownership are used as independent variable.

Table 1 Reliability Statistics

Cronbach alpha	No of items
0.97	12

Source: SPSS output

For testing the reliability of scale, Cronbach's alpha was used. The Cronbach's alpha of .70 or larger is taken into account reliable and is deemed helpful for more analysis as a part of a selected variable. Since the Cronbach's alpha is 0.97, the variables are considered valid and reliable.

STATISTICAL ANALYSIS:

H_0(1): Demographic Factors does not have influence the risk tolerance of investors.

H_0 (2): Weighted risk tolerance score(WRTS) of respondent are not moderate.

Table 2 Demographic profile of investors.

Sr No.	Variables	Particulars	Frequency	%
1	Gender	Male	350	47.81
		Female	382	52.19
2	Age	Below 25	189	25.82
		26-30	123	16.80
		31-35	234	31.97
		36-40	112	15.30
		41 and above	74	10.11
3	Domicile	Rural	147	20.08
		Urban	239	32.65
		Semi-Urban	346	47.27
4	Type of Residence	Own	389	53.14
		Rented	343	46.86
5	Marital Status	Married	456	62.30
		Unmarried	276	37.70
6	Education	Up to Schooling	167	22.81
		UG	167	22.81
		PG	167	22.81
		Professionals	231	31.56
7	Family size	Two	203	27.73
		Three	134	18.31
		Four	214	29.23
		More than Four	181	24.73
8	Earning members	One	168	22.95
		Two	349	47.68

		More than Two	215	29.37
9	Occupation	Government	367	50.13
		Private	181	24.72
		Self employed	184	25.13
10	Wealth	Wealthy	236	32.24
		Middle Class(Upper)	231	31.56
		Middle Class(Lower)	134	18.31
		Meager	131	17.90
11	Family Type	Joint	412	56.28
		Nuclear	320	43.72

HYPOTHESIS ANALYSIS:

Hypothesis 1.

$H_0(1)$: Demographic Factors does not influence the risk tolerance of investors.

Chi Square test is used to study the association among demographic factors and Risk tolerance.

Table 3 Determination of association between demographic factors and Risk tolerance

Factors	**Chi square value**	**p-value**	**Significant/Not significant**
Gender	6.6733	.154195	Not Significant
Age	42.2953	.000356	Significant
Occupation	3.6965	.448633	Not Significant
Marital Status	14.0876	.007021	Significant
Type of Residence	7.5541	.109348	Not Significant
Education	25.3775	.013132	Significant
Income	41.6486	.000038	Significant

Table 3 depicts the relationship between demographic factors and investors risk tolerance.From the above table it is found that gender and risk tolerances have no significant relationship. Age and risk tolerance are associated. As age advances, risk tolerance reduces. Investor may be self-employed or employee at private or government employee, Occupation and risk tolerance are not associated.

Marital status and risk tolerance are associated. Young and unmarried are more risk tolerant in comparison to Married investors. Housing Ownership is not associated with risk tolerance. Education has an impact on risk tolerance. Awareness about various investment avenues advances the risk tolerance. Income is also associated with risk tolerance. Lower income group investors are conservative and investors with high income are generally moderate or aggressive investors.

Hypothesis 2

H_0 (2): Weighted Risk tolerance Scores (WRTS) of the respondents are not moderate

Computation of risk appetite score-

A systematic Questionnaire is administered on 732 investors to calculate their risk tolerance .This was done by assigning a score to them so as to know whether their risk appetite is high or low or moderate. On each question, five options were given and risk tolerance score was assigned to each of the option. If Score obtained is 0 , it will be considered as risk free; If Score obtained is 25, lower amount of risk is involved in the option; If Score obtained is 50, moderate risk is involved; If Score obtained is 75, the risk involved is high and If Score obtained is 100, risk involved is highest.

=1

Average Weighted RTS for an investor = $\sum_{10} RTSwi \,/\, \Sigma W$

Table 4 Average Weighted RTS

Range of Weighted Average RTS	No of respondents	% of respondents
60.01-83.45	112	15.30%
40.01-60.00	345	47.13%
2.03-40.00	275	37.56%

It is found from the Table 4 that the average weighted RTS of all the respondents is 42.74. Whereas the minimum weighted RTS is 2.03 and the maximum RTS is 83.45.With the available scores, if we agglomerate them on the basis of their risk tolerance score, we may have the following three clusters;

1) Agglomerate-A (High risk tolerance): Score Range; 60.01-83.45,

2) Agglomerate -B (Moderate risk tolerance): Score Range; 40.01-60.00 and

3) Agglomerate -C (Low risk tolerance): Score Range; 2.03-40.00.

Agglomerate -wise findings are presented below.

Agglomerate -A**:** The investors in this agglomerate belong to low income group. These investors prefer corpus security more than wealth maximization. Such investors prefer to invest their money in securities which doesn't fluctuate much like debt securities, post office saving accounts etc.

Agglomerate -B: The investors in this agglomerate belong to middle income group. The investors are well educated and have stable income. This investor is willing to take moderate risks to achieve higher long-term returns. As investor approaches towards retirement age, their risk tolerance reduces. But lack of awareness has insisted them to invest in low risk avenues like bank fixed deposits instead of investment in high return investment avenues.

Agglomerate -C: These investors emphasize capital appreciation as their primary objective rather than income or safety of principal. These investors are young in age and have profound knowledge about various investment avenues and ready to take risk.

Since maximum number of respondents, i.e., 47.13% are having ARTSw of 40.01-60, we reject the null hypothesis i.e., Weighted Risk Appetite Scores of the respondents is moderately high

Discussion:

Risk is an important variable to be considered while investing savings into a productive avenue. Every individual is different in the context of behavior, personality, values, and beliefs. The risk behavior of an individual is also dependent upon the perception of risk. The study was conducted to determine the association between risk tolerance and demographic factors. It is found that demographic characteristics, such as age, monthly personal income, education, marital status are associated with risk tolerance whereas gender, occupation, and type of residence are not associated with the risk tolerance of an individual. This study further helps to determine the risk appetite score of individual investors and cluster them according to their risk appetite score. The average Risk tolerance score is found out to be 42.74. The minimum average risk tolerance score is 2.03 and the maximum risk tolerance score is 83.45. Most of the respondents found out to behave a moderate risk appetite. This study will help financial institutions to devise strategies for investors of different clusters.

Conclusion:

It is believed that demographic factors are associated with the risk tolerance of an investor. There are other factors also which influences the risk tolerance of an individual like environmental factors, psychographic factors, and biophysical factors. Further studies can be conducted on the influence of

the psychographic behavior of investors. It is concluded that some demographic factors influence the risk behavior of an individual and most of the individuals are moderate risk-takers.

References:

[1] Tversky, A., & Kahneman, D. (1981). The framing of decisions and the psychology of choice. science, 211(4481), 453-458.
[2] Sung, J., & Hanna, S. D. (1996). Factors related to risk tolerance. Financial counseling and planning, 7.
[3] Wang, H., & Hanna, S. (1997). Does risk tolerance decrease with age? Financial Counseling and Planning, 8 (2), 27-31.
[4]Grable, J. E. & Lytton, R. H. (1998). Investor risk tolerance: testing the efficacy of demographics as differentiating and classifying factors, Financial Counseling and Planning, 9 (1), 61-73.
[5]Bernard, H. R. (2000). Social research methods: Qualitative and quantitative approaches. Thousand Oaks, CA: Sage.
[6] Callan, Victor & Faicd, Ph.D. (2002). Some Guidelines For Financial Planners In Measuring And Advising Clients About Their Levels Of Risk Tolerance. Journal of Personal Finance.
[7] Finke, Michael. (2005). The Brighter Side of Financial Risk: Financial Risk Tolerance and Wealth. Journal of Family and Economic Issues. 24. 10.1023/A:1025443204681.
[8] Jianakoplos, N. A., & Bernasek, A. (2006). Financial risk-taking by age and birth cohort. Southern Economic Journal, 981-1001.
[9] McNaughton, M., & Watson, J. (2007). Superannuation investment choice-gender difference. Journal of Superannuation Management, The, 1(1), 41.
[10]Faff, R., Mulino, D., & Chai, D. (2008). On the linkage between financial risk tolerance and risk aversion. Journal of financial research, 31(1), 1-23.
[11] Guiso, L., & Paiella, M. (2008). Risk aversion, wealth, and background risk. Journal of the European Economic Association, 6(6), 1109-1150.
[12] Cole, Shawn & Shastry, Gauri & Angrist, Josh & Baker, Malcolm & Bergstresser, Daniel & Bertaut, Carol & Cutler, David & Greenwood, Robin & Harvey, Campbell & Hoxby, Caroline &
[13] Kremer, Michael & Lusardi, Annamaria & Sta¤ord, Erik & Tobacman, Jeremy & Topalova, Petia & Tufano, Peter. (2009). Smart money: The effect of education, cognitive ability, and financial literacy on financial market participation.
[14] Anbar, A., & Eker, M. (2010). An empirical investigation for determining of the relation between personal financial risk tolerance and demographic characteristic. Ege Academic Review, 10(2), 503-523.
[15] Yao, R., Sharpe, D. L., & Wang, F. (2011). Decomposing the age effect on risk tolerance. The Journal of Socio-Economics, 40(6), 879-887.
[16] Riley, Neil & Russon, Manuel. (2011). Individual asset allocation and indicators of perceived client risk tolerance.
[17] Jain, D., & Mandot, N. (2012). Impact of demographic factors on investment decision of investors in Rajasthan. Researchers World, 3(2), 81.
[18] Strydom, B., & Metherell, C. (2012). Demographic factors affecting subjective financial risk tolerance: South African evidence (No. 01-2012). Working Paper.

[19] Bashir, T., Azam, N., Butt, A. A., Javed, A., & Tanvir, A. (2013). Are behavioral biases influenced by demographic characteristics & personality traits? Evidence from Pakistan. European Scientific Journal, 9(29).
[20] Mujahid, M., Zuberi, M. A., Rafiq, M. Q., & Sameen, S. N.(2014) Investor's Risk Preference and Tolerance Behaviors about Their Investment Decisions of Highly Risky Investment.
[21] Ramudzuli, P. M., & Muzindutsi, P. F. (2015). Financial knowledge and subjective financial risk tolerance among students at a South African University. Risk Governance & Control: Financial Markets & Institutions, 5(2-3), 180-185.
[22] Nguyen, Linh & Gallery, G. & Newton, Cameron. (2016). The Influence of Financial Risk Tolerance on Investment Decision-Making in a Financial Advice Context. Australasian Accounting, Business and Finance Journal. 10. 3-22. 10.14453/aabfj.v10i3.2.