



The Effect of Demographic Factors on the Behavior of Investors during the Choice of Investment: Evidence from Twin Cities of Pakistan

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100 investors from twin cities of Pakistan (Rawalpindi and Islamabad) were selected as sample, chi square test and correlation was conducted to explore the effect of demographic factors on investor's level of risk tolerance regarding the choice of investment. Result of the paper showed that demographic factors of investors such as academic education, income level, investment knowledge, and investment experience effect the investors level of risk tolerance, while investors gender, marital status, occupation, and family size showed no effect on investors level of risk tolerance. These results are important for managers to advise their clients about better area of investment and risk level according to their demographic profile.

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The Effect of Demographic Factors on the Behavior of Investors during the Choice of Investment: Evidence from Twin Cities of Pakistan

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100 investors from twin cities of Pakistan (Rawalpindi and Islamabad) were selected as sample, chi square test and correlation was conducted to explore the effect of demographic factors on investor's level of risk tolerance regarding the choice of investment. Result of the paper showed that demographic factors of investors such as academic education, income level, investment knowledge, and investment experience effect the investors level of risk tolerance, while investors gender, marital status, occupation, and family size showed no effect on investors level of risk tolerance. These results are important for managers to advise their clients about better area of investment and risk level according to their demographic profile.

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I. INTRODUCTION

Behaviour of investors in derivative markets is influence by many personal and situational factors during the choice of investment. Different researches are conducted to determine the behaviour influencing factors and attempt to understand and explain the degree to which these factors influence the decision- making process.

Investment involves the utilization of funds at present with the hope of better return in future. Traditional financial theories presume that investors are rational. People rationally choose between alternatives, they act rationally while making their investment decisions (Von Neumann, and Morgenstern, 1944). Later on it is explored by many researchers that Individual investor sometime make irrational decisions about their investments (Barberis, and Thaler, 2003). Different factors affect the investors behaviour during personal financial management process. Among others factors investor behaviour is also affected by

demographic characteristics. Different research papers are conducted to identify the effect of demographic factors on investment decision and shown contradictory results from country to country and area to area.

The aim of this paper is to investigate the extent to which demographic factors affect an investor's risk tolerance attitude during decision making with the context of Pakistan. This study is primary data based collected from various respondents through a questionnaire. The respondents who were interested in investment were interacted from twin cities of Pakistan i.e. Islamabad and Rawalpindi.

II. LITERATURE REVIEW

Many studies are conducted to examine the effect of demographic factors on investor's level of risk tolerance during investment decision making. People having different gender, ages, income level, knowledge, marital status and occupation shows different attitudes towards decision making, some are risk seeker and some adverse risk. Brief literature about the effect of demographic factors on investor's behaviour with international evidence is given below.

a) Gender

Among other demographic factors gender is the first effective differentiating and classifying factor (Bernasek et al. 1996) Because of the role of emotional Variables Risk attitudes differ between men and women (Loewenstein et al.2001) As compared to male investor female investors have wider risk aversion in different activities like financial decision making (Stendardi et al. 2002).

Male's investors are more confident in their investment decisions, they have more financial knowledge and wealth and ability to take risks (Bruce, 1995) (Barber and Odean 2001: 261).When males are investing in their assets due to large income they take greater risks (Parker, and Terry 2002).Some studies shown that there is no significant effect of gender on risk tolerance during financial decisions (Schubert et al. 1999: 384-385).

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b) *Age*

Investment performance or decision making process of individual investor is also based on his /her age. It is explored by researcher risk aversion relatively decreased with the age of people when other variable are held constant (Wang, H. & S. Hanna, 1997).

Older people tolerate more risk as compare to the young investors (Grable and Lytton, 1999b: 7) Young investor can not accurately assess about his work performance as compare to older one. Old people gain investment knowledge and experience, and make better investment Choices (Kumar, and Korniotis, 2011). In contrast some researchers found that increasing age of investors caused decrease in risk tolerance (Jiankopolos and Bernasek 2006). Further some researchers explored that investors age and financial risk tolerance have no significant relationship (Al-Ajmi, 2008: 21) (Anbar and Eker 2010: 505) Gumede (2009).

c) *Education*

Third demographic factor which caused a higher financial risk tolerance during decision making process is education i.e. formal attained academic training (sung, Hanna, 1996). Level of education obtained and risk tolerance have a positive relationship (Kimball et al 2007: 20) (Graham et al. 2009). Contradictory results are also shown by some researchers, which are exploring that no significant relationship is exist between education and risk tolerance whilst the Strydom et al (2009) Gumede (2009: 27).

d) *Marital Status*

Marital status is also an effective factor influencing the decision making of investor. Single individuals are more risk taker than married because married individuals have responsibilities for themselves and dependents (Roszkowski et al. 1993) (Lazzarone, 1996) Barber and Odean (2001: 285). Some studies failed to find significance association between marital status and financial risk tolerance (McInish, 1982).

e) *Income Level*

Income level of investor is also affects its behaviour toward investment. A person with greater wealth takes greater risk (Terry, and Parker, 2002). Persons with upper level of income and millionaires tend to take higher risk as than individual with lower level of income (MacCrimmon, and Wehrung, 1986). Researcher explored that level of risk tolerance increase with the increasing level of income (Blume et al.1994) Investors invest their funds in more volatile portfolio composed of more volatile stocks when they have higher level of income (Barber, and Odean , 2001).

Higher level of income creates the ability of bearing the losses, so wealthier people preferred higher level of risk (bernheim et al, 2001).

In contrast some researchers shown income level has no relationship with financial risk tolerance (Strydom et al (2009: 18)

f) *Occupation*

Occupation means the activity in which people engaged for pay. Those people who generate their income directly from their own business, trade, or profession leads to higher levels of risk taking as compare to the people of straight salary work for others (MacCrimmon & Wehrung, 1985). Occupational status is also affecting the level of risk taking ability; people with higher ranking occupational status are more risk seeker as compare to low ranking occupational status (Roszkowski et al., 1993). People having low risk taking ability choose low ranked professions (Barnewall, 1988).

g) *Family Size*

Investor's family size is also effects their financial risk taking behaviour. Investors having small family size are more risk taker, where increase in family size caused risk aversion (Lease, Lewellen, and Schlarbaum, 1977).

III. OBJECTIVES OF THE STUDY

Following objectives were framed from the present study:

- Find the effect of demographic factors on investor's decisions.
- Find the nature of association between demographic factors (Education, Age, Gender, Investment knowledge, investment experience, Occupation, marital status, Income level, and family size of investors) and investor's level of risk tolerance.

IV. RESEARCH METHODOLOGY

This study is primary data based involves to explored the effect of demographic factors on investors level of risk tolerance during investment decision making process. Data is collected from various respondents through a structured questionnaire. The Questionnaire contains open and close ended questions. Only those people were interacted who were interested in investment located in twin cities of Pakistan i.e. Islamabad and Rawalpindi. The total sample consisted of 100 respondents.

Males and females from different occupations and income levels are splits from different age groups and education levels. In this study Risk is consider as a dependent variable, while demographic factors individually checked as independent factors in relation with risk taking attitude of investors. In order to statistically check the results Chi- Square and correlation tests are used. These tests are also used by Jain, D.D. & Mandot, M.N. (2012) for similar study in Rajasthan. In

order to analyze the data statistical package SPSS is used.

H1: Demographic Characteristics have an effect on investor's level of financial risk tolerance.

V. HYPOTHESIS

H0: Demographic Characteristics do not have an effect on investor's level of financial risk tolerance.

Table 1: Profile of Investors

Variables	Number of Investors	%Age
Gender	Male	73
	Female	27
	Total	100
Age	Below 30 years	42
	30-40 years	26
	40-50 years	18
	50-60 years	12
	60 or Above 60 years	02
	Total	100
Marital Status	Single	38
	Married	62
	Widow	0
	Divorced	0
	Total	100
Academic Qualification level	Below Graduation	11
	Graduation	43
	Post Graduation	37
	Others	9
	Total	100
Income (Per annum)	Below Rs. 160,000	33
	Rs. 1,60,000-Rs.3,20,000	12
	Rs.3,20,000-Rs.4,80,000	25
	Rs.4,80,000-Rs.6,40,000	14
	Rs. 6,40,000 and Above	16
	Total	100
Occupation	Student	09
	Professional	18
	Business	14
	Service	46
	Others	13
	Total	100
Investment Experience	Below 1 year	30
	1-4 Years	40
	4-7 years	17
	7-10 years	08
	10 Years or Above	05
	Total	100

(DATA FROM QUESTIONNAIRE)

a) Association between investors gender and financial risk tolerance

H1: There is significant effect of gender on risk tolerance during financial decisions.

H0: There is no significant effect of gender on risk tolerance during financial decisions.

Table 2 : Investors Gender and Financial Risk Tolerance

		RISK				Total
		Below average	Average	Above average	Very high	
GENDER	Male	31	28	10	4	73
	Female	12	11	4	0	27
Total		43	39	14	4	100

Table 3 : CHI Square Test Summary

	Value	Df	Sig.(2 sided)
Pearson Chi-Square	1.544	3	.672

Table 4 : Summary of Correlation

		Gender	Risk
Gender	Pearson Correlation	1	-.063
	Sig. (2-tailed)		.531
	N	100	100
Risk	Pearson Correlation	-.063	1
	Sig. (2-tailed)	.531	
	N	100	100

From Table 3: It is evaluated that the computed value of chi –square is 1.544 .Where tabulated value using 5% level of significance is 7.815.Computed value is less than tabulated value so we accept our H0 (null hypothesis) and concluded that there is no significant effect of gender on risk tolerance during financial decisions. Both male and female have same response toward financial risk tolerance.

Table 4 is revealing that there is a negative correlation between gender and financial risk tolerance.

Increase in investor’s gender caused negative effect on investor’s ability of financial risk tolerance.

b) Association between investors age and *Financial risk tolerance*

H0: There is no significant effect of Age on risk tolerance during financial decisions.

H1: There is significant effect of Age on risk tolerance during financial decisions.

Table 5 : Investors Age and Financial Risk Tolerance

		RISK				Total
		Below Average	Average	Above Average	Very High	
Age	Below 30 years	19	18	5	0	42
	30-40 Years	8	9	7	2	26
	40-50 Years	6	10	2	0	18
	50-60 Years	8	2	0	2	12
	60 Years and above	2	0	0	0	2
Total		43	39	14	4	100

Table 6 : Chi Square Test Summary

	Value	Df	Sig. (2-sided)
Pearson Chi-Square	21.767	12	.040

Table 7 : Summary of Correlation

		Age	Risk
Age	Pearson Correlation	1	-.030
	Sig. (2-tailed)		.771
	N	100	100
Risk	Pearson Correlation	-.030	1
	Sig. (2-tailed)	.771	
	N	100	100

From Table 6: It is evaluated that the computed value of chi –square is 21.767 .Where tabulated value using 5% level of significance is 21.026.Computed value is greater than tabulated value so we reject our H0 (null hypothesis) and concluded that there is significant effect of Age on risk tolerance during financial decisions.

Table 7 is revealing that negative correlation is exist between Age of investors and financial risk tolerance. An Increase in age caused negative effect on investor’s ability of financial risk tolerance.

Table 8 : Investors Academic Qualification and Financial Risk Tolerance

		Risk				Total
		Below average	Average	Above average	Very high	
Qualification Level	Below graduation	11	0	0	0	11
	Graduation	20	19	3	1	43
	Post Graduation	9	18	7	3	37
	Others	3	2	4	0	9
Total		43	39	14	4	100

Table 9 : CHI Square Test Summary

	Value	Df	Sig. (2-sided)
Pearson Chi-Square	30.066	9	.000

Table 10 : Summary of Correlation

		Education	Risk
Education	Pearson Correlation	1	.394**
	Sig.(2tailed)		.000
	N	100	100
Risk	Pearson Correlation	.394**	1
	Sig.(2tailed)	.000	
	N	100	100

**Correlation is significant at the 0.01 level (2-tailed).

From Table 9: It is evaluated that the computed value of chi –square is 30.066.Where tabulated value using 5% level of significance is 16.919.Computed value is greater than tabulated value so we reject our H0 (null hypothesis) and concluded that there is significant effect of Academic qualification on risk tolerance during financial decisions.

Table 10 is revealing that positive correlation is exist between academic qualification and financial risk tolerance. An increase in Academic qualification caused

c) Association between investors academic qualification and financial risk tolerance

H0: There is no significant effect of Academic qualification on risk tolerance during financial decisions.

H1: There is significant effect of Academic qualification on risk tolerance during financial decisions.

a Positive effect on investor's ability of financial risk tolerance.

d) Association between investors annual income and financial risk tolerance

H0: There is no significant effect of income level on risk tolerance during financial decisions

H1: There is significant effect of income level on risk tolerance during financial decisions.

Table 11 : Investors Level of Income and Financial Risk Tolerance

		Risk				Total
		Below average	Average	Above average	Very high	
Income	Below Rs. 160,000	23	8	2	0	33
	Rs.1,60,000-Rs.3,20,000	6	6	0	0	12
	Rs.3,20,000-Rs.4,80,000	7	11	6	1	25
	Rs.4,80,000- Rs.6,40,000	3	10	1	0	14
	Rs. 6,40,000 and Above	4	4	5	3	16
Total		43	39	14	4	100

Table 12 : CHI Square Test Summary

	Value	Df	Sig. (2-sided)
Pearson Chi-Square	36.475	12	.000

Table 13 : Summary of Correlation

		Income	Risk
Income	Pearson Correlation	1	.442**
	Sig. (2-tailed)		.000
	N	100	100
Risk	Pearson Correlation	.442 **	1
	Sig. (2-tailed)	.000	
	N	100	100

** .Correlation is significant at the 0.01 level (2-tailed)

From Table 12: It is evaluated that the computed value of chi –square is 36.475, where tabulated value using 5% level of significance is 21.026. Computed value is greater than tabulated value so we reject our H0 (null hypothesis) and concluded there is significant effect of income level on risk tolerance during financial decisions.

Table 13 is revealing that Positive correlation is exist between income level of investors and financial risk tolerance. An increase in Level of income caused a

positive effect on investor’s ability of financial risk tolerance.

e) Association between marital status of investors and financial risk tolerance

H0: There is no significant effect of marital status on risk tolerance during financial decisions.

H1: There is significant effect of marital status on risk tolerance during financial decisions.

Table 14 : Marital Status of Investors and Financial Risk Tolerance

		Risk				Total
		Below average	Average	Above average	Very high	
Marital Status	Single	17	14	7	0	38
	Married	26	25	7	4	62
Total		43	39	14	4	100

Table 15 : CHI Square Test Summary

	Value	Df	Sig. (2-sided)
Pearson Chi-Square	3.423	3	.331

Table 16 : Summary of Correlation

		Marital Status	Risk
Marital Status	Pearson Correlation	1	.050
	Sig. (2-tailed)		.620
	N	100	100
Risk	Pearson Correlation	.050	1
	Sig. (2-tailed)	.620	
	N	100	100

From Table 15: It is evaluated that the computed value of chi–square is 3.423 .Where tabulated value using 5% level of significance is 7.815. Computed value is less than tabulated value so we accept our H0 (null hypothesis) and concluded that there is no significant effect of marital status on risk tolerance during financial decisions.

Table 16 is revealing that Positive correlation is exist between marital status and financial risk tolerance.

An increase in marital status caused a Positive effect on investor’s ability of financial risk tolerance.

f) Association between investors investment knowledge and financial risk tolerance

H0: There is no significant effect of investment knowledge on risk tolerance during financial decisions.

H1: There is significant effect of investment knowledge on risk tolerance during financial decisions.

Table 17 : Investors Investment Knowledge and Financial Risk Tolerance

		Risk				Total
		Below average	Average	Above average	Very high	
Knowledge	No knowledge	2	1	0	0	3
	Little knowledge	30	3	1	0	34
	Moderate knowledge	5	17	3	0	25
	Good knowledge	3	13	5	1	22
	Very good knowledge	3	5	5	3	16
Total		43	39	14	4	100

Table 18 : CHI-Square Test Summary

	Value	Df	Sig. (2-sided)
Pearson Chi-Square	61.381	12	.000

Table 19 : Summary of Correlation

		Knowledge	Risk
Knowledge	Pearson Correlation	1	.592**
	Sig.(2tailed)		.000
	N	100	100
Risk	Pearson Correlation	.592**	1
	Sig.(2tailed)	.000	
	N	100	100

** Correlation is significant at the 0.01 level (2-tailed).

From Table 18: It is evaluated that the computed value of chi –square is 61.381, where tabulated value using 5% level of significance is 21.026. Computed value is greater than tabulated value so we reject our H0 (null hypothesis) and concluded that there is significant effect of investment knowledge on risk tolerance during financial decisions.

Table 19 is revealing that Positive correlation is exist between investment knowledge of investors and financial risk tolerance. An increase in knowledge

caused a Positive effect on investor’s ability of financial risk tolerance.

g) Association between investors occupation and financial risk tolerance

H0: There is no significant effect of Occupation on risk tolerance during financial decisions.

H1: There is significant effect of Occupation on risk tolerance during financial decisions.

Table 20 : Investors Occupation and Financial Risk Tolerance

		Risk				Total
		Below average	Average	Above average	Very high	
Occupation	Student	5	3	1	0	9
	Professional	5	10	3	0	18
	Business	4	5	3	2	14
	Service	21	17	6	2	46
	Others	8	4	1	0	13
Total		43	39	14	4	100

Table 21 : CHI Square Test Summary

	Value	Df	Sig. (2-sided)
Pearson Chi-Square	11.158	12	.515

Table 22 : Summary of Correlation

		Occupation	Risk
Occupation	Pearson Correlation	1	-.076
	Sig.(2tailed)		.451
	N	100	100
Risk	Pearson Correlation	-.076	1
	Sig.(2tailed)	.451	
	N	100	100

From Table 21: It is evaluated that the computed value of chi –square is 11.158, Where tabulated value using 5% level of significance is 21.026. Computed value is less than tabulated value so we accept our H0 (null hypothesis) and concluded that there is no significant effect of occupation on risk tolerance during financial decisions.

Table 22 is revealing that negative correlation is exist between occupation and financial risk tolerance.

An increase in occupation caused a negative effect on investor’s ability of financial risk tolerance.

h) Association between investors investment experience and financial risk tolerance

H0: There is no significant effect of investment experience on risk tolerance during financial decisions.

H1: There is significant effect of investment experience on risk tolerance during financial decisions.

Table 23 : Investors Investment Experience and Financial Risk Tolerance

		Risk				Total
		Below average	Average	Above average	Very high	
Experience	Less than 1 Years	17	9	4	0	30
	1-4 Years	14	19	7	0	40
	4-7 Years	6	8	2	1	17
	7-10 Years	2	2	1	3	8
	10 years or Above	4	1	0	0	5
Total		43	39	14	4	100

Table 24 : CHI Square Test Summary

	Value	Df	Sig. (2-sided)
Pearson Chi-Square	33.569	12	.001

Table 25 : Summary Of Correlation

		Experience	Risk
Experience	Pearson Correlation	1	.140
	Sig. (2-tailed)		.023
	N	100	100
Risk	Pearson Correlation	.140	1
	Sig. (2-tailed)	.023	
	N	100	100

From Table 24: It is evaluated that the computed value of chi –square is 33.569, where tabulated value using 5% level of significance is 21.026. Computed value is greater than tabulated value so we reject our H0 (null hypothesis) and concluded that there is significant effect of investment experience on risk tolerance during financial decisions.

Table 25 is revealing that Positive correlation is exist between investment experience and financial risk tolerance. An increase in investment experience caused a Positive effect on investor’s ability of financial risk tolerance.

i) Association between investors family size and financial risk tolerance

H0: There is no significant effect of Family size on risk tolerance during financial decisions.

H1: There is no significant effect of Family size on risk tolerance during financial decisions.

Table 26 : Investors Family Size and Financial Risk Tolerance

		Risk				Total
		Below average	Average	Above average	Very high	
Family Size	Less than 3 Members	2	4	1	0	7
	3-6 Members	28	20	10	2	60
	6-10 Members	9	13	3	2	27
	10 Members or above	4	2	0	0	6
Total		43	39	14	4	100

Table 27 : CHI Square Test Summary

	Value	Df	Sig. (2-sided)
Pearson Chi-Square	6.285	9	.711

Table 28 : Summary Of Correlation

		Family Size	Risk
Family Size	Pearson Correlation	1	-.040
	Sig. (2-tailed)		.694
	N	100	100
Risk	Pearson Correlation	-.040	1
	Sig. (2-tailed)	.694	
	N	100	100

From Table 27: It is evaluated that the computed value of chi-square is 6.285. Where tabulated value using 5% level of significance is 16.919. Computed value is less than tabulated value so we accept our H0 (null hypothesis) and concluded that there is no significant effect of family size on risk tolerance during financial decisions.

Table 28 is revealing that negative correlation is exist between family size and level of risk tolerance. An increase in family size caused a negative effect on investor's ability of financial risk tolerance.

VI. CONCLUSION

This study concludes that there is an association between demographic characteristics and investors level of risk tolerance. Result shows that demographic factors like investor's age, academic qualification, income level, investment knowledge, and investment experience have significant effect on the behaviour of investors. There is positive correlation between investor's academic qualification, income level, and investment knowledge and investment experience with their level of risk tolerance during the choice of investments. However investor's age shows slight negative correlation. Increase in age at one point caused a negative effect on risk taking behaviour of investors.

Other demographic factors like investor's gender, marital status, occupation and family size have no significant effect on investor's level of financial risk tolerance.

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