Risk Tolerance Dependent on What? Demographics or Personality Type: Findings from an Empirical Research

Heena Thanki (HOD)

R. B. Institute of Management Studies (Affiliated to Gujarat Technological University), Ahmedabad
No. 60, Shree Ram Bunglows, Manohar villa cross roads, Nava Naroda, Ahmedabad
E-mail: heenat@rbi.edu.in

Abstract

An investor's decision regarding investment is influenced by a number of factors. Many researchers have concluded that risk tolerance level of investors plays a vital role in making investment decision. It is therefore importance to measure the risk tolerance level of investors. Many studies have concluded that risk taking capabilities of an individual is based on his basic demographic characteristics such as age, gender, marital status, income level, education, family background and occupation etc. yet no major systematic effort has been made to ascertain the impact of personality trait of an individual on his risk taking behavior.In the proposed study an attempt has been made to ascertain the relationship of (a) demographic variables (b) personality trait on risk taking behavior of investors.

Introduction

The financial landscape has changed extensively in the past few decades. The outburst of the financial service industry and many innovative investment planning has placed the risk of investing on individuals. These changes have increased the need for financial planners to accurately assess their clients' financial need and suggest the solution according to that need and his risk tolerance level.

Financial risk tolerance (FRT) refers to an investor's attitude towards risk and it can be defined as the amount of uncertainty or investment return volatility that an investor is willing to accept when making a financial decision (Faff, 2008; Grable, 2000; Grable and Lytton, 1999; Hallahan et al., 2003). An investor with a high risk tolerance is likely to invest in securities, such as stocks in startup companies, and is willing to accept the possibility that the value of his/her portfolio will decline, at least in the short-term. An investor with a low risk tolerance, on the other hand, tends to invest predominantly in stable stocks and/or highly-graded bonds.

One's risk tolerance is subjective and may vary according to age, needs, goals, and even personal dispositions. There is an assumption that people are generally risk-averse, but it is also clear that individuals vary considerably in the degree of financial risk that they are willing to incur (Corter and Chen, 2006).

Roszkowski, Snelbecker, and Leimberg (1993), cite some heuristics in their research which are presented based on their demography. They affirms that as age advances, risk tolerance decreases; males are more risk tolerance; married individuals are less risk tolerant; professionals are more risk tolerant; people with higher income are more risk tolerant; and self-employed individuals are more risk tolerant.

Literature review

Along with all other dimensions, risk tolerance is also now days seen as an important criteria in the clients by financial planners and financial firms. To get into the details of people's risk tolerance, many scientifically proven psychometric test instruments are also developed to measure persons risk tolerance (Ehrenfeld, 2011). Many researchers are also focusing on this issue. Bouchey (2004) devised a ten-question risk tolerance survey that he believed typified the questions used by financial planners and found that the questionnaire did not predict respondents' actual investment behavior, while Yook and Everett (2003) reported the disturbing finding that six "investor risk tolerance" questionnaires failed to correlate highly. Roszkowski, Davey and Grable (2005) argued that despite some arguments to the contrary, a client's financial risk tolerance can be measured accurately by a questionnaire, provided that the questionnaire has been developed in accordance with psychometric principles.

There is also some proposition that biological changes in enzymes due to the aging process may be responsible (Hallahan et al., 2004). A person's biological makeup, demographic and socioeconomic profile, personality type and psychological constructs are of primary importance when answering this question (Cesarini et al., 2008; Filbeck et al., 2005; Grable and Joo, 2000; Mayfield et al., 2008; Schooley and Worden, 1996). Anbar and Eker (2010) investigated the relationship between financial risk tolerance and demographic characteristics such as age, gender, marital status, number of children, income and total net assets.

The majority of the studies examining the relationship between gender and risk tolerance such as Bajtelsmit and Bernasek (1996); Faff (2008), and Yao and Hanna (2004) have found that women are more risk averse than men, however, some studies such as Embrey and Fox (1997) and Grable and Lytton (1999) have indicated that gender is not a significant determinant of financial risk tolerance.

Grable and Joo (2004) found support for the notion that single individuals are more risk tolerant than married individuals. On the other hand, it has also been suggested that married individuals have greater risk taking propensities, because shared income and double human capital of married individuals may encourage them to invest in riskier assets.

Finke and Huston (2003) and Jianakoplos and Bernasek (2006) found that financial risk tolerance decreased with age (negative relationship). Wang and Hanna (1997) and Grable (2000) found that risk tolerance increased with age (positive relationship). The relationship between age and risk tolerance may not be linear. Risk tolerance declines with age until a certain point and then risk tolerance begins to rise again with age (Anbar and Eker, 2010). Additionally, there are several studies that have found no relationship between age and risk tolerance (Grable and Lytton, 1998; Grable and Lytton, 1999).

Because upper income and/or prosperous individuals have the funds to incur the losses, it results in a risky investment (Grable and Lytton, 1998; Hallahan et al., 2004; Watson and McNaughton, 2007). Most of the research findings in relation to income and wealth support this hypothesis. On the other hand, there may be a negative relationship between financial risk tolerance and wealth and/or income. Because individuals with lower income and wealth may willing to take more risk for becoming wealthier. Faff (2008) found that there was a negative relationship between risk tolerance and income and wealth.

Many studies on education and risk tolerance have also been carried out. Higher education encourages taking more financial risk (Grable and Lytton, 1998; Venter, 2006; Grable and Lytton, 1999; Qui, 2002; Christiansen et al., 2006; and Al-Ajmi, 2008) found that individuals with higher attained education were more risk tolerant than individuals with lower attained educational levels, although Hallahan et al. (2003) found that education was not a significant determinant o f an individual's attitude towards risk.

Many studies have been carried out by various researchers to find out the relationship between occupation and risk tolerance level. Major studies carried out by Meyer et al, Grey and Gordon (1978), Hammond, Houston, and Melander(1967) conclude that entrepreneur shows higher tolerance for risks as compared to nonentrepreneur.

However, an investor's risk tolerance is not static and it can change over time. When demographic and economic factors related to investor change, the investor's position on the risk-reward spectrum will also change (Bertaut, 1998; Grable et al., 2006; Yao et al., 2004).

Chitra and Sreedevi (2011) concluded that the personality traits of the investors have an impact on the individuals while taking decisions and also have a strong influence on determining the method of investment. The study also found that the influence of personality traits on the investment decision is more compared to that of demographic variables. Reimann, Knutson and Peterson (2009) found that several personality dimensions drive financial risk taking and the link between personality traits and financial performance is mediated by risk aversion and risk seeking, respectively. Moreschi (2005), in his paper, analyzed the capability of individuals to accurately estimate risk tolerance.

People with type A personality are competitive in nature, aggressive, impatient with themselves and with others as well. They set standards and are always under time-pressure. As opposed to that type B personality are of relaxed nature, rarely are they hurried by pressure due to time. They are hesitant to make aggressive moves and are easygoing.

In the proposed study an attempt has been made to ascertain the relationship of (a) demographic variables (b) personality trait on risk taking behavior of investors.

Research Methodology
The study is a cross sectional descriptive research. To measure Risk Tolerance A quiz on "Investment Risk Tolerance" was adopted, developed by Ruth Lytton and John Grable.This test contains thirteen multiple choice questions, each option has been assigned a value between 1 to 4 based on the riskiness of that option. The total score varies between 13to 47 with high score representing high risk tolerance. For finding out the personality

type of Investors   a test developed by   Howard Glazer was used. This test has 20 semantic scale questions representing the traits of personality A and B. Lowest score on this test is 20 and highest score is 140, where high score represent more of personality A. The questionnaire was prepared using these two tests and adding demographic components to it. The survey was administered to 300 investors. We received about 288 questionnaires back but out of them some were having one or more missing/invalid responses. Such questionnaires were discarded and were not subjected to further analysis. The final sample size was 258.

To find out whether the risk tolerance level differs among different demographic components or not, Independent T test and ANNOVA was used. PostHoc ANOVA was used to find out the difference between categories. The   impact of Personality type on risk tolerance level was assessed through regression analysis.

Data Analysis

Analysis of result is carried out in two parts where part A studies relationship between various demographic factors viz. Gender. Marital status, Age, Income, Education & Occupation and risk tolerance and part B examines the relationship between personality type (type A and type B) and risk tolerance.

Part A: Demographics & Risk Tolerance

In this part an attempt has been made to   studies relationship between various demographic factors viz. Gender, Marital status, Age, Income, Education & Occupation and risk tolerance with the help of various statistical tests. Sample Characteristic:

Table 1 Sample Characteristic

Category	N	Mean(R.T)*	Category	N	Mean(R.T)*
Gender			**Income**		
Male	185	30.66	5 Lakh-8lakh	17	31.59
Female	73	21.9	>8 Lakh	6	32.5
Marital Status			**Education**		
Single/Unmarried	46	30.91	H.S.C.	65	29.09
Married	212	27.59	Graduate	86	28.2
			Post Graduate	70	26.8
Age			Other	37	29.16
<25	39	29.41			
25-45	137	27.09	**Occupation**		
45-65	74	29.22	Service/Sallaried	105	25.51
>65	8	26.38	Business	84	33.27
			House Wife	10	21.4
Income			Proffesional	30	25.87
<2 Lakh	122	26.79	Student	11	26.36
2 Lakh-5 Lakh	113	28.95	Other	18	26.28

R.T = Risk Tolerance.

From Table 1 we can see that   Avg. Risk tolerance score of male is 30.66 where as females' scores 21.9 which is quite lower than the average scores of male. Unmarried (30.91) investors have high risk tolerance as compared to married (27.59).   Age group of 25-45 scores lowest i.e. (27.09) as between this age an individual is having maximum responsibility. Positive relation is found between income and risk tolerance. Post graduate people takes very calculative risk and scores lowest score in that category (26.8). By seeing the value of mean in each category of occupation we can say that business people as they are having inherent risk taking capability they scores maximum (33.27)

Gender and Risk Tolerance

Literature   review indicates that women are more risk averse than men, however, some studies such as Embrey and Fox (1997) and Grable and Lytton (1999) have indicated that gender is not a significant determinant of financial risk tolerance.**H0**: There is no significant difference in Risk Tolerance level between Male and Female **H1**: There is significant difference in Risk Tolerance level between Male and Female

To check whether statistically data is normal or not Kolmogorov-Smirnov test was used. Table 2 shows the result of the K-S test.

Table: 2 Test of Normality (Gender)

	Male	Female
Kolmogorov-Smirnov Z	1.271	1.313
Sig. (2-tailed)	0.079	0.064

The p value of test for both male and female is 0.079 and .069, which is higher than the significant level 0.05. Which indicate that the data follows normal distribution. To test the hypothesis independent sample T test was used.

Table:3 T Test(gender and Risk tolerance)

Levene's Test for Equality of Variances		t-test		
F	Sig.	t	df	Sig. (2-tailed)
3.196	0.075	12.937	256	0

The p value of the t test is 0.00 which is less than the 0.05 so we reject the null hypothesis and concluded that risk tolerance level significantly difference between gender. T value is 12.937 so we can conclude that compared to women men takes more risk.

Marital Status and Risk Tolerance

Secondary data supports that marital status has impact on Risk tolerance level. As person gets married his responsibility increases and hence risk taking capability reduces. **H0:** There is no significant difference in Risk Tolerance level between marital status H1**:** There is significant difference in Risk Tolerance level between marital status. K-S test was used to check the normality of the data.

Table: 4 Test of Normality (Marital status)

	SINGLE/UNMARRIED	MARRIED
Kolmogorov-Smirnov Z	0.867	1.219
Sig. (2-tailed)	0.54	0.103

The p value of test for both single and married is 0.054 and .103 respectively, which is higher than the significant level 0.05. So we can conclude that the data is normally distributed. To test the hypothesis independent sample T test was done.

Table: 5 T Test (Marital Status and Risk tolerance)

Levene's Test for Equality of Variances		t-test		
F	Sig.	t	df	Sig. (2-tailed)
3.461	0.064	3.314	256	0.001

From table 5 we can see that p value of the t test is 0.001 which is less than the 0.05 so we reject the null hypothesis and concluded that risk tolerance level significantly difference between marital status. Unmarried investors take more risk than married investors.

Age and Risk Tolerance

Some past research concludes that there is a negative relationship between age and risk tolerance and some research also says that age is insignificant and some research also conclude about positive relationship between the variable. **H0:** There is no significant difference between Risk Tolerance level and age **H1:** There is significant difference between Risk Tolerance level and age

Table: 6 Test of Normality (Age)

	<25	25-45	45-65	>65
Kolmogorov-Smirnov Z	0.728	1.221	0.907	0.672
Sig. (2-tailed)	0.665	0.102	0.384	0.757

The p value of test in each age group is higher than the significant level 0.05. so we can conclude that the data is normally distributed. To test the hypothesis one way ANOVA was carried out.

Table: 7 Test of Homogeneity (Age)

Levene Statistic	df1	df2	Sig.
1.573	3	254	0.196

To check the precondition of ANOVA Levene test of homogeneity for checking equality of variance was run was significant value of this test is .196 which is greater than our significant value 0.05 so we conclude that data has equal variance.

Table:7 ANOVA (age and Risk Tolerence)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	460.82	3	153.607	4.027	0.008
Within Groups	9689.618	254	38.148		
Total	10150.44	257			

From table 7 we can see that p value of the ANOVA test is 0.008 which is less than the 0.05 so we reject the null hypothesis and concluded that risk tolerance level differs significantly between ages. To further analyze the variance we have perform the Post Hoc ANOVA.

Table: 8Multiple Comparisons Tukey HSD (age and Risk Tolerance)

(I) age	(J) age	Mean Difference (I-J)	Sig.	(I) age	(J) age	Mean Difference (I-J)	Sig.
<25 (mean=29.41)	25-45	3.315*	0.018	45-65 (mean=.29.22)	<25	-1.194	0.763
	45-65	1.194	0.763		25-45	2.121	0.083
	>65	4.035	0.335		>65	2.841	0.605
25-45(mean=27.09)	<25	-3.315*	0.018	>65 (mean=.26.38)	<25	-4.035	0.335
	45-65	-2.121	0.083		25-45	-0.72	0.989
	>65	0.72	0.989		45-65	-2.841	0.605

*The mean difference is significant at the 0.05 level.

From table 8 we can see that between age group of less than 25 and 25-45 risk tolerance level difference significantly. So we can say that as between the age of 25-45 an individual has maximum responsibility to perform and that is way the risk tolerance level reduces.

Income and Risk Tolerance

Some literature concludes that income has positively correlated with risk tolerance and some says that income is insignificant. **H0:** There is no significant difference between Risk Tolerance level and income H1**:** There is significant difference between Risk Tolerance level and income

Table: 9 Test of Normality (Income)

	<2 Lakh	2 Lakh-5 Lakh	5 Lakh-8Lakh	>8 Lakh
Kolmogorov-Smirnov Z	1.13	1.52	0.872	0.722
Sig. (2-tailed)	0.156	0.02	0.433	0.674

In the income category of 2-5 lakh p value is less than0 .05, the rule of normality is break hence we cannot use parametric test. To check the difference between risk tolerance level and income non-parametric test has been used.

Table: 10 K-W Test (age and Risk Tolerance)

k-w test		Mean			
Chi-Square	15.855	<2 Lakh	2 Lakh-5 Lakh	5 Lakh-8Lakh	>8 Lakh
df	3				
Asymp. Sig.	0.001	26.79	28.95	31.59	32.5

From table 10 we can see that significant value is .001 which is less than the 0.05 so we reject the null hypothesis and conclude that there is a significant difference between income and risk tolerance level. By seeing the mean of each income category we can conclude that there is a positive relationship between income and risk tolerance but when income rises beyond a certain level marginal increase in risk taking capacity reduces.

Education and Risk Tolerance

Mix evidence is there for relationship between education and risk taking capability. Some argued that there is a positive relationship between these variables whereas some argues that education is irrelevant. **H0:** There is no significant difference between Risk Tolerance level and education   **H1:** There is a significant difference

between Risk Tolerance level and education.

Table: 11 Test of Normality (Education)

	H.S.C	Graduate	Post graduate	Other
kolmogorov-smirnov z	1.098	0.776	0.91	1.158
sig. (2-tailed)	0.179	0.584	0.379	0.137

Table:12 Test of Homogeneity(education)

Levene Statistic	df1	df2	Sig.
0.299	3	254	0.826

Table:13 ANOVA (Education and Risk Tolerance)

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	223.125	3	74.375	1.903	0.13
Within Groups	9927.313	254	39.084		
Total	10150.44	257			

The p value of normality test (table11) in each age group is higher than the significant level 0.05, so we can conclude that the data is normally distributed. To test the hypothesis one way ANOVA was carried out. To check the precondition of ANOVA Levene test of homogeneity for checking equality of variance was run (table12), significant value of this test is .826 which is greater than our significant value 0.05 so we conclude that data has equal variance. From table 13 we can see that significant value of ANOVA test is 0.13 which is greater than the 0.05 so we accept the null hypothesis and conclude that there is no significant difference between Risk Tolerance level and education

Occupation and Risk Tolerance

Table: 14 Test of Normality (occupation)

	Service	Business	House Wife	Proffesional	Students	Other
Kolmogorov-Smirnov Z	1.151	2.293	1.005	1.04	0.81	0.81
Sig. (2-tailed)	0.141	0.004	0.265	0.23	0.528	0.528

Table:15 K-W Test (age and Risk Tolerance)

K-w test		Mean					
Chi-Square	104.988	Service	Business	House Wife	Proffesional	Students	Other
df	5						
Asymp. Sig.	0	25.51	33.21	21.4	25.87	26.36	26.28

In the business category p value is less than 0.05(table 14), which breaks the rule of normality hence, we cannot use parametric test. To check the difference between risk tolerance level and occupation non-parametric test has been used. From table 15 we can see that significant value is .000 which is less than the 0.05, we reject the null hypothesis and conclude that there is a significant difference between occupation and risk tolerance level. By seeing the value of mean in each category we can say that business people as they are having inherent risk taking capability which is shown in their score.

Part B: Personality type & Risk Tolerance
In this part an attempt has been made to study relationship between personality type A ,B and Risk tolerance level. The impact of Personality type on risk tolerance level was assessed through regression analysis. The basic condition for regression is dependent variable should be scale continuous. And as regression being the parametric test we should also check for normality of data.

Table:16 Test of Normality(Risk Tolerance and personality Type)

	risk tolerance	personality type
Kolmogorov-Smirnov Z	1.087	3.006
Asymp. Sig. (2-tailed)	0.188	0.089

The p value of test in risk tolerance and personality type is higher than the significant level 0.05; we can conclude that the data is normally distributed.

Table: 17 Model fit summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.754	0.568	0.567	4.137

Table:18 coefficient

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.793	1.034		9.467	0
	PersonalityType	0.229	0.012	0.754	18.356	0

The value of R is 0.754 which shows positive correlation between risk tolerance and personality type. From the data we can conclude person with more traits of personality A takes higher risk compared to person with more traits of personality B. The value of adjusted R square is 0.567 which means that 56% of the change in risk tolerance can be explained by personality type. . Model can be written as:
Risk tolerance = 9.793+ .754 personality type.

Conclusion
From the data analysis we can conclude that females are more risk averse than man which is in line with the conclusion of Bajtelsmit and Bernasek (1994); Faff (2008), and Yao and Hanna (2004). Single/unmarried investors take higher risk than married which is same as concluded by Grable and Joo (2004). Investors among 25-45 age have lowest risk tolerance capability which is similar to the conclusion of (Anbar and Eker, 2010). The association between age and risk tolerance may not necessary be linear, as in India between these age group generally people get married and have maximum responsibility to perform and that is why they prefer to take calculated risk.

We have also found positive relationship between income and risk tolerance level but we also noticed that when income increases beyond certain level marginal rate of increase in risk taking capacity reduces. Education is found to be irrelevant in determining investor's attitude towards risk which is in line with Hallahan et al. (2003). Business people have high risk tolerance ability whereas salaried people take calculated risk the conclusion is supported by the similar conclusion of Meyer et al, Grey and Gordon (1978), Hammond, Houston, and Melander(1967). Personality type A people, being aggressive and impatient, takes high risk as compare to type B.

Limitation and further research scope
Survey was carried out in Ahmedabad city hence, the result of research cannot be generalized for whole India. Biasness on the side of respondent may ends up giving false conclusions. All other limitations of research such as respondent and non-respondent error may also be there. An Extensive research may be carried out at pan India level to get substantial results. Further an ordinal regression model or logistic regression model can be built by combining the demographic characteristics and personality type which may give a model to the conclusion.

Reference
Al-Ajmi, J.Y. (2008): "Risk Tolerance of Individual Investors in an Emerging Market", International Research Journal of Finance and Economics, 17, 15-26.
Anbar A., Eker M. (2010). An empirical investigation for determining of the relation between personalFinancial risk tolerance e and demographic characteristic, EGE Academic Review, 10 (2), 503-523.
Bailey, J.J. and Kinerson, C. (2005): "Regret Avoidance and Risk Tolerance", Financial Counseling and Planning, 16(1), 23-28.
Bajtelsmit, V.L. and Bernasek, A. (1996): "Why Do Women Invest Differently Than Men?", Financial Counseling and Planning, 7, 1-10.
Bajtelsmit, V.L., Bernasek, A. and Jianakoplos, N.A. (1999): "Gender Differences in Defined Contribution Pension Decisions", Financial Services Review, 8(1), 1-10.
Bellante, D. and Gren, C.A., (2004): "Relative Risk Aversion among the Elderly", Review of Financial Economics, 13, 269–281.
Bertaut, C.C. (1998): "Stockholding Behavior of U.S. Households: Evidence from the 1983-1989 Survey of Consumer Finances", The Review of Economics and Statistics, MIT Press, 80(2), 263-275.
Brown, S. and Taylor, K. (2005): "Wage Growth, Human Capital and Financial Investment", The Manchester

School, 73(6), December, 686–708.

Callan, V.J. and Johnson, M. (1999): "Measuring Risk Tolerance: A Psychological Perspective", The University of Queensland, August, 1-25.

Cesarini, D., Johannesson, M., Lichtenstein, P., Sandewall, O. and Wallace, B. (2008): "Is Financial Risk-Taking Behavior Genetically Transmitted?" Research Institute of Industrial Economics, Working Paper Series, No.765.

Chitra K and Sreedevi V R(2011) **"**Does Personality Traits Influence the Choice of Investment?"IUP Journal 47-57.

Christiansen, C., Joensen, J.S. and Rangvid, J. (2006): "Gender, Marriage, and the Decision to Invest in Stocks and Bonds: Do Single Women Invest More in Less Risky Assets?"

Corter, J.E. and Chen, Y.J. (2006): "Do Investment Risk Tolerance Attitudes Predict Portfolio Risk?" Journal of Business and Psychology, 20(3), spring, 369-381.

Embrey, L. C. and J. J. Fox (1997) "Gender differences in the investment decision-making process." *Financial Counseling and Planning,* Vol. 8:2, 33-40.

Faff, R. (2008): "On the Linkage between Financial Risk Tolerance and Risk Aversion", The Journal of Financial Research, XXXI (1), spring, 1-23.

Faff, R., Mulino, D. and Chai, D. (2008): "On the Linkage between Financial Risk Tolerance and Risk Aversion", The Journal of Financial Research, 31(1), 1–23.

Fesler, P. and Schürz, M. (2008): "Stock Holdings in Austria", Monetary Policy & the Economy, Q2/08, 83-100.

Filbeck, G., Hatfield, P. and Horvath, P. (2005): "Risk Aversion and Personality Type", The Journal of Behavioral Finance, 6(4), 170–180.

Finke, M.S. and Huston, S.J. (2003): "The Brighter Side of Financial Risk: Financial Risk Tolerance and Wealth", Journal of Family and Economic Issues, 24(3), fall, 233-256.

Grable, J. and Lytton, R.H. (1999a): "Financial Risk Tolerance Revisited: The Development of a Risk Assessment Instrument", Financial Services Review, 8, 163–181.

Grable, J., Lytton, R.H., O'Neill, B., Joo, S.H. and Klock, D. (2006): "Risk Tolerance, Projection Bias, Vividness and Equity Prices", The Journal of Investing, summer, 68-74.

Grable, J.E. (2000): "Financial Risk Tolerance and Additional Factors that Affect Risk Taking in Everyday Money Matters", Journal Of Business and Psychology, 14(4), 25-63.

Grable, J.E. and Joo, S.H. (2000): "A Cross-Disciplinary Examination of Financial Risk Tolerance", Consumer Interests Annual, 46, 1-7.

Grable, J.E. and 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.

Grable, J.E. and Lytton, R.H. (1999b): "Assessing Financial Risk Tolerance: Do Demographic, Socioeconomic and Attitudinal Factors Work?" Family Relations and Human Development Family Economics and Resource Management Biennial, 1-9.

Grey, R. J., & Gordon, G. G. (1978, November). Risk-taking managers: Who get the top jobs? Management Review, 67, 8-13.

Halek, M. and Eisenhauer, J.G. (2001): "Demography of Risk Aversion", The Journal of Risk and Insurance, 68(1), 1-24.

Hallahan, T. Faff, R. and McKenzie, M. (2003): "An Exploratory Investigation of the Relation between Risk Tolerance Scores and Demographic Characteristics", Journal of Multinational Financial Management, 13(4-5), December, 483-502.

Hallahan, T.A., Faff, R.W. and McKenzie, M.D. (2004): "An Empirical Investigation of Personal Financial Risk Tolerance", Financial Services Review, 13, 57–78.

Hammond, J. D., Houston, D. B., & Melander, E. R. (1967). Determinants of household life insurance premium expenditures: An empirical investigation. The Journal of Risk and Insurance, 34, 397-408.

Hanna, S.D., Gutter, M.S. and Fan, J.X. (2001): "A Measure of Risk Tolerance Based On Economic Theory", Financial Counseling and Planning, 12(2), 53-60.

Jianakoplos, N.A. and Bernasek, A. (2006): "Financial Risk Taking by Age and Birth Cohort", Southern Economic Journal, 72(4), 981-1001.

Mayfield, C., Perdue, G. and Wooten, K. (2008): "Investment Management and Personality Type", Financial Services Review, 17, 219–236.

Meyer, H. H., Walker, W. B., & Litwin, G. H. (1961). Motive patterns and risk preferences associated with entrepreneurship. Journal of Abnormal and Social Psychology, 63, 570-574.

Qiu, J. (2002): "T he Determinants of Households' Direct and Indirect Stock Holding Behavior", April.

Reimann.M, Knutson.B and Richard.p "personality and performance on the stock market: themediating role of consumers' financial risk taking" American Marketing Association / Winter 2009,310.

Roszkowski, M.J., Davey, G. and Grable, J.E. (2005): "Insights from Psychology and Psychometrics on Measuring Risk Tolerance", Journal of Financial Planning, April, 66-77.

Schooley, D.K. and Worden, D.D. (1996): "Risk Aversion Measures: Comparing Attitudes and Asset Allocation", Financial Services Review, 5(2), 87-99.

Venter, G.V. (2006): "Financial Planners' Perceptions of Risk Tolerance ", The 2006 Financial Management Association's (FMA) Annual Conference, Salt Lake City, Utah, USA, 11 – 14, October, 1-31.

Wang, H. and Hanna, S. (1997): "Does Risk Tolerance Decrease with Age?" Financial Counseling and Planning, 8(2), 27-3

Watson, J. and McNaughton, M. (2007): "Gender Differences in Risk Aversion and Expected Retirement Benefits", Financial Analysts Journal, 63(4), 52-62.

Yao, R. and Hanna, S.D. (2004): "The Effect of Gender and Marital Status on Financial Risk Tolerance", Consumer Interests Annual, 50, 123-124.