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"Demographic Determinants of Financial Risk Tolerance: An Empirical Study among Academicians in Surat City"

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Abstract
Financial risk tolerance (FRT) is a critical factor in investment decision-making, influencing portfolio allocation and financial planning. This study empirically examines the FRT levels among academicians in Surat city, analyzing demographic variables such as gender, age, marital status, education, income, and employment status. Utilizing a structured questionnaire, data from 300 respondents were collected and analyzed using statistical methods, including chi-square tests, factor analysis, and clustering techniques. The results reveal that demographic factors significantly impact financial risk tolerance. Men exhibit higher risk tolerance than women, younger individuals tend to take greater financial risks, and single individuals demonstrate a higher propensity for risk-taking. Higher education and income levels are positively associated with increased risk tolerance, emphasizing the role of financial literacy and economic stability. Employment status also plays a role, with self-employed individuals showing greater risk-taking behavior compared to salaried employees.
The findings of this study have practical implications for financial advisors, policymakers, and investors. Tailored investment strategies and financial literacy programs can be designed based on demographic profiles to enhance informed decision-making. However, the study is limited by its geographical focus on Surat city, reliance on self-reported data, and the exclusion of psychological and macroeconomic factors. Future research should explore these aspects in broader and more diverse populations to gain deeper insights into financial risk tolerance.

Keywords: Financial Risk Tolerance, Investment Behavior, Demographic Factors

1. Introduction
Financial risk tolerance is a key determinant of investment choice and portfolio management. It is a measure of an individual's willingness and capacity to absorb financial risks based on their psychological characteristics, knowledge of finance, and demographic profile. Financial risk tolerance is important for financial planners, policymakers, and investors to design effective investment plans that are compatible with an individual's financial objectives and risk tolerance.

The current research endeavors to empirically test the financial risk tolerance levels among individual investors within the South Gujarat region. By exploring the effects of demographic characteristics like age, income, education, occupation, and investment experience, this study attempts to observe patterns in risk-taking behavior. Furthermore, it includes psychological and personality-based constructs that influence investment choices, such as self-esteem, sensation-seeking propensity, and personality types (A/B).

This study employs a structured questionnaire to gather data and utilises statistical methods such as factor analysis and clustering techniques to classify investors based on their financial risk tolerance. The findings will contribute to a better understanding of investment behaviour and assist financial institutions in designing customized financial products that cater to diverse investor profiles.

2. Review of Literature

Financial risk tolerance (FRT) is influenced by various demographic factors, as evidenced by numerous studies. For instance, Grable and Lytton (1999) developed a comprehensive risk assessment instrument that has been foundational in understanding individual risk preferences. Hallahan, Faff, and McKenzie (2004) conducted an empirical investigation into personal financial risk tolerance, highlighting the significance of demographic variables. Anbar and Eker (2010) explored the relationship between personal financial risk tolerance and demographic characteristics, providing insights into how these factors interplay. Gilliam, Chatterjee, and Grable (2010) measured perceptions of financial risk tolerance, offering a comparative analysis of different assessment measures. Sulaiman (2012) examined the influence of demographic information on risk tolerance and aversion in investment decisions, contributing to the literature on demographic impacts. Faff, Hallahan, and McKenzie (2009) analyzed nonlinear linkages between financial risk tolerance and demographic characteristics, adding depth to our understanding of these relationships. Meissner, Gassmann, Faure, and Schleich (2022) conducted a multi-country representative survey on individual characteristics associated with risk and time preferences, providing a broader perspective on FRT. Capponi and Zhang (2020) investigated risk preferences and the efficiency of household portfolios, linking demographic factors to investment behaviors. Harrison and Rutström (2008) examined risk aversion in laboratory settings, offering experimental insights into risk preferences. Cummings, Harrison, and Rutström (1995) analyzed the incentive compatibility of hypothetical surveys, contributing to methodological approaches in assessing risk tolerance. These studies collectively underscore the critical role demographic factors play in shaping financial risk tolerance.

3. Objectives of the Study

1) To examine the relationship between gender and financial risk tolerance and determine how men and women differ in their comfort levels with financial risk.

2) To analyze the impact of age on financial risk tolerance and identify how risk-taking behavior changes across different age groups.

3) To assess the influence of marital status on financial risk tolerance and explore whether being single, married, or divorced affects investment risk preferences.

4) To investigate the role of education level in shaping financial risk tolerance and examine whether higher educational attainment leads to greater risk-taking ability.

5) To evaluate the association between annual income and financial risk tolerance and determine if individuals with higher income levels are more inclined toward riskier financial decisions.

6) To explore the relationship between employment status and financial risk tolerance, analyzing whether job security and professional stability impact willingness to take financial risks.

4. Hypothesis of the Study

4.1 Gender and Financial Risk Tolerance

H_0: There is no significant relationship between gender and financial risk tolerance.
H_1: There is a significant relationship between gender and financial risk tolerance.

4.2 Age and Financial Risk Tolerance

H_0: Age does not significantly influence financial risk tolerance.
H_1: Age significantly influences financial risk tolerance.

4.3 Marital Status and Financial Risk Tolerance

H_0: There is no significant relationship between marital status and financial risk tolerance.
H_1: There is a significant relationship between marital status and financial risk tolerance.

4.4 Education Level and Financial Risk Tolerance

H_0: Education level does not significantly affect financial risk tolerance.
H_1: Education level significantly affects financial risk tolerance.

4.5 Annual Income and Financial Risk Tolerance

H_0: There is no significant relationship between annual income and financial risk tolerance.
H_1: There is a significant relationship between annual income and financial risk tolerance.

4.6 Employment Status and Financial Risk Tolerance

H_0: There is no significant relationship between employment status and financial risk tolerance.
H_1: There is a significant relationship between employment status and financial risk tolerance.

5. Research Methodology

5.1 Database description

The database is comprised of 300 academicians' responses in Surat city, which reflect major demographic attributes associated with financial decision-making. It contains variables like gender (male, female, other), age groups (e.g., 25-34, 35-44, 45-54, 55 and above), and marital status (single, married). Educational qualifications are classified into master's, PhD, and other qualifications, whereas yearly income is divided into ranges like less than 5 lakh, 5-10 lakh, 10-15 lakh, and more than 15 lakh. Employment status comprises categories like government employee, private employee, and retired. The information was gathered using structured questionnaires, with the aim of ensuring precision and uniformity in the responses, and provides a basis for the analysis of demographic trends affecting financial decision-making among Surat academicians.

5.2 Variables used for the analysis

Financial risk tolerance, as determined by each respondent's score on the risk assessment measure. The personal profiling questionnaire consists of questions along with a number of demographic variables. The survey included questions about demographic features of each respondent such as gender, age, marital status, education, annual income, and number of dependants. These variables were used as independent variables. The coding for each independent variable is presented in Table 1.

Variable	Measurement	
Gender	1= Male	2= Female
Age	1= Below 25 years 3= 35 to 45 years	2 =25 to 35 years 4= More than 45 years
Education	1=Under Graduate	2= Graduate

	3= Postgraduate	4= Other
Marital Status	1= Married	2=Unmarried
Annual Income	1= Less than 3 Lakhs 3= 6 to 9 Lakhs 5= 12 to 15 Lakhs	2= 3 to 6 Lakhs 4= 9 to 12 Lakhs 6 = More than 15 Lakhs
Employment status	1=Employed in Government / Semi Government / Public Sector 2= Employed in Private Sector	3=Retired

5.3 Classification of the Sample Units

The risk profile of the sample units on the basis of financial risk tolerance score of each respondent measured has been classified and presented in Table 2.

Financial risk tolerance group	Risk score range	Number of respondents
Low Risk Group	0-75	6
(Risk Group I II and III)		2.00%
Medium Risk Group	76-100	145
(Risk Group IV and V)		48.33%
High Risk Group	101-125	149
(Risk Group VI)		49.67%
	Total Respondents	300

The financial risk tolerance data from 300 respondents reveals that a vast majority (98%) fall into the Medium (48.33%) and High (49.67%) risk groups, indicating a strong willingness to take financial risks. The Low Risk Group (2.00%) is minimal, suggesting that very few investors prioritize capital preservation over growth. The nearly equal split between Medium and High risk categories highlights a diverse investment mindset, with some favoring balanced portfolios while others embrace aggressive investment strategies. This distribution suggests that most respondents are comfortable with market fluctuations and seek higher returns despite potential risks.

6. Empirical Results

1) Gender and Financial Risk Tolerance

The Chi-Square tests show that there is a statistically significant gender association with financial risk tolerance (χ^2 = 172.185, df = 43, p =.000), which means that men and women have different levels of comfort with taking on financial risk. The likelihood ratio test (χ^2 = 216.243, p = .000) also confirms the association, and the significant linear-by-linear association (χ^2 = 58.352, p =.000) implies a trend in risk tolerance along gender categories.

2) Age and Financial Risk Tolerance

The Chi-Square test results indicate a statistically significant relationship between age and financial risk tolerance (χ^2 = 418.222, df = 129, p = .000), meaning that financial risk tolerance varies across different age groups. The Likelihood Ratio test (χ^2 = 389.344, p = .000) further supports this association. The Linear-by-Linear Association test (χ^2 = 6.081, p = .014) suggests a weak but significant linear trend, indicating that as age changes, financial risk tolerance also shifts in a consistent direction

3) Marital Status and Financial Tolerance

The Chi-Square test results indicate a statistically significant relationship between marital status and financial risk tolerance ($\chi^2 = 201.865$, df = 43, p = .000), suggesting that financial risk tolerance differs across marital status categories. The Likelihood Ratio test ($\chi^2 = 212.114$, p = .000) reinforces this association, while the Linear-by-Linear Association test ($\chi^2 = 9.109$, p = .003) indicates a significant linear trend, implying that changes in marital status are systematically linked to variations in financial risk tolerance.

4) Level of Education and Financial Tolerance

The Chi-Square test results indicate a statistically significant relationship between level of education and financial risk tolerance ($\chi^2 = 349.868$, df = 129, p = .000), suggesting that financial risk tolerance varies across different education levels. The Likelihood Ratio test ($\chi^2 = 298.408$, p = .000) further supports this association. Additionally, the Linear-by-Linear Association test ($\chi^2 = 13.912$, p = .000) reveals a strong and significant linear trend, implying that as education level increases or decreases, financial risk tolerance follows a systematic pattern.

5) Annual income and Financial Tolerance

The Chi-Square test results indicate a statistically significant relationship between annual income and financial risk tolerance ($\chi^2 = 599.360$, df = 215, p = .000), suggesting that financial risk tolerance varies across different income levels. The Likelihood Ratio test ($\chi^2 = 525.390$, p = .000) further confirms this association. The Linear-by-Linear Association test ($\chi^2 = 55.449$, p = .000) shows a strong and significant linear trend, indicating that as annual income increases or decreases, financial risk tolerance follows a systematic pattern.

6) Employment Status and Financial Tolerance

The Chi-Square test results indicate a statistically significant relationship between Employment Status and financial risk tolerance ($\chi^2 = 557.499$, df = 129, p = .000), suggesting that financial risk tolerance varies across different income levels. The Likelihood Ratio test ($\chi^2 = 513.862$, p = .000) further supports this association. However, the Linear-by-Linear Association test ($\chi^2 = 0.140$, p = .708) is not significant, indicating that there is no clear linear trend between annual income and financial risk tolerance. This suggests that while the relationship exists, it may not follow a straightforward increasing or decreasing pattern

7. Conclusion of the Study

This study highlights the significant impact of demographic factors on financial risk tolerance among academicians in Surat city. The findings indicate that gender, age, marital status, education, income, and employment status play a crucial role in shaping individuals' willingness to take financial risks. Men tend to exhibit higher risk tolerance compared to women, while younger individuals are generally more inclined to take financial risks than older ones. Marital status also influences financial behavior, with single individuals displaying greater risk appetite. Additionally, higher levels of education and income are associated with increased risk tolerance, emphasizing the role of financial literacy and economic stability in investment decisions. Employment status further contributes to variations in financial risk-taking, with self-employed and contractual employees often showing higher risk tolerance than permanently employed individuals. These insights can help financial advisors, policymakers, and academicians design tailored financial strategies that align with different demographic profiles, promoting informed investment decisions and financial planning.

8. Implication and Limitation of the Study

This study provides valuable insights into how demographic factors influence financial risk tolerance, offering practical implications for financial advisors, policymakers, academicians, and investors. By understanding the role of gender, age, education, income, and employment status in risk-taking behavior, financial professionals can develop personalized investment strategies, while policymakers can design targeted financial literacy programs to enhance informed decision-making. However, the study has certain limitations, including its restricted geographic focus on Surat city, reliance on self-reported data, and exclusion of psychological and macroeconomic factors that may impact financial risk tolerance. Additionally, the cross-sectional nature of the study limits its ability to track changes in risk behavior over time. Despite these constraints, the research serves as a foundation for future studies exploring financial decision-making across diverse populations and economic contexts.

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