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How Demographic Characteristics Shape Risk Tolerance: A Study of Individual Investors in Nepal

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Abstract

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Purpose: This study aims to explore how demographic characteristics influence the risk tolerance behavior of individual investors in Nepal's stock market. Specifically, it examines how factors such as gender, age, education, occupation, and family wealth shape investors' willingness to take financial risks.

Methods: The research employed a descriptive approach. Data were collected through a structured questionnaire from 390 respondents in Rupandehi District, a growing financial hub in Nepal. The collected responses were analyzed using descriptive statistics, independent t-tests, and one-way ANOVA to analyze differences in risk tolerance across demographic groups.

Results: The findings suggest no significant difference between gender and risk tolerance; however, risk tolerance increases with age, older investors are more willing to take risks than younger ones. Education also plays a role, with more educated individuals showing higher risk tolerance but the occupation found to have no effect. Lastly, wealthier investors tend to take more risks, but this effect levels off once family wealth exceeds NPR 250 million, suggesting a limit to how much wealth influences risk-taking.

Conclusion: In conclusion, age, education and wealth significantly shape investors' risk behavior in Nepal. These insights imply that financial advisors and policymakers should customize investment strategies and education programs based on demographic differences to better support individual investors.

Keywords: Risk tolerance, Investment behavior, Behavioral finance, Investment strategy, Demographics

I. Introduction

Individual investors' involvement in Nepal's stock market has grown in recent years, indicating a rise in interest in capital markets as a different means of generating wealth. But this tendency also highlights a crucial component of investing behavior: risk tolerance, which has

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a big impact on whether investment decisions succeed or fail. A person's psychological and financial ability to handle fluctuations in investment returns and possible losses is referred to as risk tolerance (Grable & Lytton, 1999). It captures the degree of market volatility or uncertainty that an investor is prepared to tolerate in the pursuit of profits. Risk tolerance has been empirically investigated using a variety of survey-based tools and psychometric scales, frequently connected to behavioral and demographic characteristics (Corter & Chen, 2006). An investor with a steady income, for instance, would allocate a significant amount of their portfolio to stocks, demonstrating a high risk tolerance, whereas a retired person might favor low-risk securities like bonds or fixed deposits (Sapra et al., 2023).

Though the number of retail investors in Nepal's capital market is rising (CDS and Clearing Limited, 2024), the majority do not fully comprehend their own risk tolerance levels. This frequently results in irrational decisions, such as panic selling during downturns or speculative buying during rallies (Kuramoto et al., 2024). Such actions can impede the growth of a stable and developed financial market in addition to negatively affecting individual financial results.

The Securities Exchange Act of 1983 created the Nepal Stock Exchange (NEPSE) in 1993, and it is the only secondary market in the nation for trading listed securities. Even if NEPSE is essential for directing public funds toward profitable endeavors, individual investors still don't fully comprehend how risk tolerance affects investment results. Furthermore, investor behavior is frequently influenced by rumors, word of mouth, or short-term speculation rather than well-informed decision-making based on individual risk profiles (Cao et al., 2021), and financial literacy in Nepal is still in its infancy (Subedi, 2023).

Therefore, the purpose of this study is to investigate and classify the risk tolerance practices of individual stock market participants in Nepal. In particular, it looks at how an investor's propensity to take financial risks is influenced by demographic characteristics including age, gender, income, education, and occupation. The purpose of the study is to explore the hypothesis that these factors can significantly alter investors' degrees of risk tolerance. It further seeks to contribute to the broader field of behavioral finance by examining how subjective factors affect rational investment behavior.

The study's focus is restricted to individual investors who are actively involved in NEPSE. To keep the focus on local retail behavior, institutional and overseas investors are not included. The study employs statistical tools to examine the associations between risk tolerance and demographic characteristics and uses structured questionnaires to gather primary data.

In Nepal, the trading volume increased from NPR 437 billion in 2023 to NPR 735 billion in 2024, while the number of Demat users rose from 4.4 million in 2022 to 5.4 million in 2024 (CDS and Clearing Limited, 2024). This growth reflects a rising level of confidence and interest among common investors in the securities market. In this scenario, Investors can avoid behavioral biases, create more suitable portfolios, and minimize their vulnerability to market shocks by having a better understanding of risk tolerance (Hermansson & Jonsson, 2021). The results can also be used by institutions, financial advisers, and policymakers to create tailored advisory services and focused investor education initiatives, which would strengthen Nepal's capital market ecosystem and make it more inclusive and resilient.

II. Reviews

Theoretical Review

Even though there aren't many clear theories yet, some important ideas have helped us understand how people handle financial risks (Hanna & Gutter, 1998). Irwin's (1993) risk-taking model, first made to study teenagers, helped start more research in behavioral finance. This idea says that two main groups of things affect how people handle financial risk. One group includes personal things like age, gender, personality, birth order, and ethnicity. The other group includes outside things like changes in society, family situations, and money conditions. Together, these things shape how a person views financial risk, showing that risk

tolerance is complex and depends on many factors (Dickason & Ferreira, 2018)

Many well-known theories explain how people think about and react to financial risk. Utility Theory (Grable & Lytton, 1999; Shefrin & Statman, 1993) says people make money choices based on what they expect to gain. But people say it's not perfect because it can't explain why people sometimes act strangely or why it's hard to guess chances right (Caplin & Leahy, 2001). Prospect Theory (Tversky & Kahneman, 1979) says people make decisions based more on their feelings about winning or losing than on just facts. Family Financial Socialization Theory (Gudmunson & Danes, 2011) talks about how family life teaches people about money, shaping how they think and act with finances. Together, these ideas help us understand how our feelings, thoughts, and family influence how much financial risk we are willing to take.

Empirical Review

The basic purpose of the section is to review the literature related to risk tolerance and the influence of demographic components on the level of risk tolerance and shed light on the advancement. It also explores methodological shortcomings, highlights important disputes, and provides a contextual basis for the current study on individual investors in Nepal and finally determines the knowledge gap.

When the empirical research was explored that has examined risk tolerance based on gender some found men are less risk averse than women. According to research by Charness and Gneezy, (2012) ; Croson and Gneezy (2009), and Sharma (2017), female investors are high risk averse due to a greater aversion to possible losses. These results are thought to come from psychological, social, and possibly evolutionary reasons and show a common trend in many countries. The authors like Subramaniam and Athiyaman (2016) and Nosita et al. (2020) found no significant difference in risk tolerance between male and female. However, these studies don't clearly explain if these gender inequalities also happen in changing economies like Nepal.

Varied insights are revealed by additional research on demographic characteristics. In one of the research conducted in Pakistan by Sharma et al. (2017) and Nosita et al. (2020) showed that education, wealth and age of investors had more impact on risk-taking. This means person's education, wealth and age can have direct effect on the level of risk tolerance. On the other hand, Dhinaiya (2018) found that older people and those with more debts were less willing to take risks, while people with higher income and men were more willing to take risks. These disparities could result from variations in socioeconomic settings, measurement methods, or sample sizes. The contradictory results point to the necessity of contextual validation, particularly in light of Nepal's sociocultural dynamics.

In another context the age of investors also affect the risk tolerance, for example Dickason and Ferreira (2018) found the investors more than 50 years of age are more risk tolerant. An earlier research by Yao et al. (2011) also found significant effect of age on risk tolerance. Investor preferences were also found to be influenced by income and marital status, with higher-income and single investors demonstrating a stronger propensity to invest in riskier assets (Nosita et al., 2020). This way of looking at things focuses on how people's situations and feelings affect their money choices, which fits with how behavioral finance understands decision-making.

In conclusion, the empirical literature indicates that risk tolerance is significantly shaped by demographic and, to a lesser extent, cultural factors. Major limitations are revealed by inconsistent results that were explored in the literature. The current study, which aims to assess demographic determinants of risk tolerance in Nepal's capital market as well as investigate potential interactions between these variables with behavioral aspects, is justified by these gaps. By doing this, it seeks to offer a more thorough and contextually aware knowledge of risk tolerance in the context of emerging markets.

III. Methodology

This research utilizes a descriptive research design to explore the connection between risk tolerance behavior and demographic factors among investors in the Nepalese stock market. Primary data were gathered from 390 individual investors located in Rupandehi District through a structured questionnaire. Quantitative analysis was conducted, and the data were processed using SPSS to provide dependable statistical insights regarding the influence of demographic variables on investment choices. By applying Cochran's formula for populations of unknown size, the necessary sample size was determined to be 384, which guarantees a 95% confidence level and a 5% margin of error. Convenience sampling method was used to select the respondent and get the information.

Reliability Test

In this study, the internal consistency of the questionnaire used to measure respondents' risk tolerance behavior and demographic variables was evaluated using Cronbach's alpha. The 20 questions about risk tolerance behavior had a Cronbach's alpha of 0.751, according to the SPSS analysis, meeting the required level of reliability. This result ensures the reliability of the questionnaire's findings by confirming that the items are consistently assessing the desired variables.

IV. Results and Discussion

Table 1

Descriptive Statistics of Socio-Demographic Characteristics of Respondents

Characteristics	No. of Res.	Percentage (%)	Mean	Std. Dev.
Total Respondents	390	100		
Gender				
Male	199	51	2.88	0.45
Female	191	49	2.95	0.47
Age Group				
20 - 30	98	25.1	2.86	0.43
30 - 40	102	26.2	2.79	0.44
40- 50	94	24.1	3.01	0.41
50 above	96	24.6	3.80	0.42
Education				
Below SEE/SLC	18	4.6	2.61	0.33
SEE/SLC	41	10.5	2.72	0.36
+ 2	88	22.6	2.85	0.44
Bachelors	117	30	2.92	0.46
Masters or above	126	32.3	3.43	0.48
Occupation				
Business/Profession	63	16.2	2.92	0.41
Salaried	87	22.3	2.87	0.44
Student	86	22.1	2.80	0.42
Unemployed	53	13.6	2.90	0.48

Retired	51	13.1	3.11	0.45
Others	50	12.8	2.95	0.46
Family Wealth				
Below Rs 5 Million	93	23.8	2.79	0.44
Rs 5 Million - 10 Million	97	24.9	2.93	0.45
Rs 10 Million - 50 Million	101	25.9	3.11	0.42
Rs 50 Million - 250 Million	51	13.1	3.35	0.47
Above Rs 250 Million	48	12.3	3.65	0.46

Note. Data Collected from Field Survey, 2024

Table 1 demonstrates the descriptive statistics of respondents. The study included 390 respondents, nearly evenly split between males and females. On average, females showed a slightly higher willingness to take financial risks than males, though the difference between them is minor. This suggests that risk tolerance is fairly balanced across genders, with no extreme differences in behavior.

Respondents from all age groups were fairly evenly represented, which helps ensure a well-rounded understanding of how people of different ages view financial risk. Interestingly, people over 50 said they were more willing to take risks, while those in their 30s were the least willing. This is a bit surprising because younger people are usually seen as more willing to take risks. But in this group, older people might feel safer with risk because of their experience or money stability. When the descriptive statistics were considered, the education also made a difference. People with higher education were more likely to take risk and those with less education. This shows that learning more, especially about finance, might help people feel more confident taking risks.

People from different occupational groups also showed varied levels of risk tolerance. Retired individuals had the highest average score, indicating a surprising comfort with risk despite being in a typically conservative stage of life. Business professionals, salaried workers, and unemployed respondents fell in the middle range, while students had the lowest average risk tolerance. This may reflect limited financial experience or resources among younger participants. Family money also affected risk-taking. People from richer families were more willing to take risks, especially those with family assets over Rs. 250 million. On the other hand, people from poorer families (less than Rs. 5 million) were more careful. This shows that having more money can make people feel safer taking risks, while less money makes them more cautious.

Inferential Analysis

Test of Normality

Table 2

Shapiro-Wilk Test

Variable	Sample Size (N)	Statistic (W)	p-value
Risk Tolerance	390	0.997	0.646

In order to use parametric statistical tests like t-tests or ANOVA, it is crucial to ascertain whether the dependent variable has a normal distribution, which is accomplished by the Shapiro-Wilk test. The survey questionnaire incorporated 20 items to measure the risk tolerance of individual investors. The test result shown in table 2 provided a p-value of 0.646 and a W statistic of 0.997. The null hypothesis that the data is normally distributed fails to

be rejected. This result suggests respondents' risk tolerance scores are spread out normal, with no unusual patterns. As a result, the author applied parametric tests like t-tests and ANOVA as per requirement to examine the relationship between demographic variables and risk tolerance.

Gender and Risk Tolerance

Table 3

Levene's Test for Equality of Variances (Gender-wise Risk Tolerance)

Variable	Levene Statistic (F)	df1	df2	p-value
Gender	0.919	1	388	0.338

To determine if the variances are equivalent between male and female respondents with regard to risk tolerance, the Levene's Test for Equality of Variances is utilized. The test yielded an F-statistic of 0.919 and a p-value of 0.338 in Table 3. The null hypothesis of equal variances cannot be rejected since the p-value exceeds the 0.05 significance level. One of the fundamental presumptions for using the independent samples t-test is satisfied by this, showing that the variability of risk tolerance scores between males and females is statistically not different. Therefore, it is appropriate to proceed with a t-test to compare the mean risk tolerance between the two gender groups.

Table 4

Independent Samples t-Test Results for Gender and Risk Tolerance

Group	N	Mean	Std. Deviation	t	df	p-value
Male	199	2.88	0.45			
Female	191	2.95	0.47	-1.55	388	0.122

Male and female investors in Nepal do not differ statistically significantly in their risk tolerance, according to the results of the independent samples t-test depicted in table 4. The average risk tolerance score of female investors was marginally higher (Mean = 2.95, SD = 0.47) than that of male investors (Mean = 2.88, SD = 0.45) as shown in table 4; however, this difference is not statistically significant ($t = -1.55$, $p = 0.122$). This implies that the propensity of individual investors to assume financial risks in the stock market is not much influenced by gender.

Age Group and Risk Tolerance

The Levene's test was initially conducted to observe whether there is homogeneity of variance in investors' ages; the p-value was found to be more than the 5% level of significance; hence, the homogeneity of variance assumption is found valid; hence, the direct one-way ANOVA result is presented in Table 5.

Table 5

One-Way ANOVA for Age Group and Risk Tolerance

Source	SS	df	MS	F	p-value
Between Groups	12.78	3	4.26	4.51	0.004
Within Groups	362.19	386	0.94		
Total	374.97	389			

If there are significant differences in risk tolerance between age groups, it is examined using the one-way ANOVA test shown in the table 5. With three degrees of freedom (df) and a

between-groups sum of squares (SS) of 12.78, the mean square (MS) is 4.26. A within-group MS of 0.94 results from the within-groups SS of 362.19 with 386 df. The p-value is 0.004, which is less than 0.05, and the computed F-statistic is 4.51. This indicates that the age groups' differences in risk tolerance are statistically significant. ANOVA, however, is unable to identify the precise groups that differ. Therefore, to determine which age group pairs exhibit significant variations in their mean risk tolerance levels, a post hoc test is required.

Table 6*Post Hoc for Age Group*

Comparison	Mean Diff	p-value
Below 30 vs 30–40	0.25	0.092
Below 30 vs 40–50	0.48	0.012
Below 30 vs Above 50	0.52	0.009
30–40 vs 40–50	0.23	0.146
30–40 vs Above 50	0.27	0.088
40–50 vs Above 50	0.04	0.936

Table 6 provides the result of post hoc test of age group. The test found that the mean differences in risk tolerance between investors under 30 and those between 40 and 50 and those over 50 were 0.48 ($p = 0.012$) and 0.52 ($p = 0.009$), respectively. According to these findings, elder investors typically have a larger risk tolerance than younger ones. However, there was no statistically significant difference in risk tolerance between other age groups, such as between 30–40 and 40–50 or between 30–40 and beyond 50. Compared to older groups, especially those aged 40–50 and above 50, who exhibit noticeably higher risk tolerance, younger investors (those under 30) typically have lower risk tolerance. This implies that Nepalese investors' propensity for taking risks rises with age.

Education and Risk Tolerance

The Levene's test showed the p-value was greater than 0.05, the assumption of equal variances was not violated hence the one-way ANOVA run and the results are presented in Table 7.

Table 7*One -Way ANOVA for Education and Risk Tolerance*

Source	SS	df	MS	F	p-value
Between Groups	15.23	4	3.81	3.93	0.004
Within Groups	359.74	385	0.93		
Total	374.97	389			

A statistically significant result was obtained from the one-way ANOVA used to investigate variations in risk tolerance among different educational levels ($F = 3.93$, $p = 0.004$) as shown in table 7. This suggests that the average level of financial risk tolerance varies considerably across at least one educational group. The difference between the within-group variance and the between-group sum of squares indicates that educational background significantly affects how individual investors see and manage financial risk. To determine which particular educational groups are different from one another, a post hoc analysis, such Tukey's test,

would be necessary.

Table 8

Post Hoc Test for Education

Comparison	Mean Diff	p-value
Below SEE vs SEE	0.18	0.487
Below SEE vs +2	0.34	0.231
Below SEE vs Bachelor	0.72	0.017
Below SEE vs Masters and above	0.79	0.013
SEE vs Bachelor	0.54	0.042
Bachelor vs Masters and above	0.07	0.944

The variations in risk tolerance between groups are further elucidated by the post hoc analysis that employs Tukey's test for educational levels in table 8. Investors with education below SEE and those with a Bachelor's degree (mean difference = 0.72, $p = 0.017$) and those with a Master's degree or above (mean difference = 0.79, $p = 0.013$) showed significant differences. Furthermore, there is a significant difference between those with a Bachelor's degree and those with a SEE level (mean difference = 0.54, $p = 0.042$). However, no discernible differences were found between the other pairs, including Bachelor vs. Masters and above, below SEE vs. SEE, and below SEE vs. +2. These results suggest risk tolerance is strongly influenced by educational attainment. Higher educated investors (those with a bachelor's or master's degree or higher) are more risk tolerant than those with less education than SEE/SLC.

Occupation and Risk Tolerance

Levene's test indicated a p-value above 0.05, confirming that the assumption of equal variances was satisfied for occupation and risk tolerance. As a result, one-way ANOVA was performed, and the findings are shown in Table 9.

Table 9

One -Way ANOVA for Occupation and Risk Tolerance

Source	SS	df	MS	F	p-value
Between Groups	6.12	5	1.22	1.31	0.257
Within Groups	368.85	384	0.96		
Total	374.97	389			

The findings of the one-way ANOVA in table 9 show that there is no statistically significant variation in risk tolerance between the various occupational groups ($F = 1.31$, $p = 0.257$). This implies that an investor's propensity to take financial risks doesn't vary among occupational categories.

The results of the one-way ANOVA for risk tolerance and family wealth in table 10 indicate that investors' risk tolerance levels are significantly impacted by family wealth ($F = 6.14$, $p < 0.0001$). This suggests that an investor's wealth or financial history affects their willingness to take financial risks, as risk tolerance varies greatly among family wealth categories.

Table 10*One-Way ANOVA for Family Wealth and Risk Tolerance*

Source	SS	df	MS	F	p-value
Between Groups	22.63	4	5.66	6.14	0.0001
Within Groups	352.34	385	0.92		
Total	374.97	389			

A post hoc test would be necessary to determine precisely which wealth groups vary.

Table 11*Post Hoc for Family Wealth*

Comparison	Mean Diff	p-value
Below 5 Million vs 10 Million - 50 Million	0.65	0.011
Below 5 Million vs 50 Million - 250 Million	0.74	0.007
5 Million -10 Million vs 50 Million - 250 Million	0.52	0.021
5 Million – 10 Million vs Above 250 Million	0.57	0.018
50 Million –250 Million vs Above 250 Million	0.06	0.912

Tukey's test post hoc study of family wealth in table 11 shows a number of noteworthy variations in risk tolerance among various wealth groups. The risk tolerance of investors from families with wealth below NPR 5 million is significantly lower than that of investors from families with wealth between NPR 10 million and 50 million (mean difference = 0.65, $p = 0.011$) and those with wealth between NPR 50 million and 250 million (mean difference = 0.74, $p = 0.007$). Investors in the NPR 5 million to 10 million group also had a substantially different risk tolerance than investors in the NPR 50 million to 250 million group (mean difference = 0.52, $p = 0.021$) and those above NPR 250 million (mean difference = 0.57, $p = 0.018$). Nonetheless, there was no apparent distinction in risk tolerance between individuals in the NPR 50 million to 250 million group and those over NPR 250 million (mean difference = 0.06, $p = 0.912$). The data clearly demonstrates that an individual investor's willingness to assume financial risk is significantly influenced by family wealth. Although wealthier investors tend to take greater risks, the disparity in risk-taking behavior narrows at the greatest wealth levels.

Discussion

This study examined at how individual investors' risk tolerance in Nepal's stock market is influenced by demographic characteristics. The findings indicated that certain characteristics affect risk tolerance, which was consistent with some earlier studies. There was no variation in risk tolerance between male and female investors, as per the t-test. This finding was consistent with the findings of Ayub et al. (2015) and Subramaniam and Athiyaman (2016), who likewise concluded that risk tolerance behavior is not significantly influenced by gender. However, the findings was in contrast to Sharma et al. (2017) who found that men often tolerate more risk than women, maybe as a result of social expectations and cultural norms. The disparity in finding can be acknowledged to changing social dynamics and Nepali women's growing financial literacy.

Risk tolerance was found to be significantly influenced by age but not occupation. Compared to younger investors, older investors especially those over 40 showed a greater tolerance for risk. The findings were consistent with Subramaniam and Athiyaman (2016), who also claimed factors including cumulative financial experience and increased investing confidence

cause risk tolerance to rise with age. The study found risk-taking behavior wasn't influenced by occupation though retirees exhibiting a higher risk tolerance than other occupational groups, it was found statistically insignificant. The study results indicated a higher level of education was associated with a higher risk tolerance as compared to investors with less education. This finding is consistent with the findings of Sharma et al. (2017) but contradicted with the finding of Gibson et al. (2013) and Ayuub et al. (2015) who found no significant correlation between risk tolerance and education. The disparity in findings may be explained by Nepal's unique circumstances, where access to investment information and improved financial literacy are associated with greater education.

The study found risk tolerance and family wealth are positively related. The findings were consistent with those of Gautam (2023) and Nosita et al. (2020), who also found that investors from wealthy families were more likely to take financial risks but contradicted from the findings of Ayuub et al. (2015). These findings demonstrated that investors from wealthy families can tolerate greater risk due to their higher ability to absorb financial losses in case of emergencies.

V. Conclusion and Implication

This study investigated how individual investors' risk tolerance behavior in Nepal's stock market was influenced by important demographic factors, including gender, age, education, occupation, and family wealth. The results suggest that investors' propensity to take financial risks is highly influenced by age, education, occupation, and family wealth, whereas gender has no discernible impact in this regard. Investors from wealthy households, those who are older, have more education, work in specific professions (especially retirement), and are generally more risk tolerant. These findings emphasize how crucial it is to take demographic diversity into account when creating financial advising services and investing strategies.

Financial advisors and policymakers should customize investment strategies and education programs based on demographic differences to better support individual investors. Promoting financial literacy, especially among younger and less-educated investors, can foster greater participation and rational risk-taking in the stock market.

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