

# Impact of Demographic Factors on Risk Tolerance

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## Abstract

*This study investigates the influence of demographic factors on Financial Risk Tolerance (FRT) among Nepalese investors, focusing on gender, marital status, income, education, age, and investment experience. Guided by behavioral finance theory, it employs a quantitative, cross-sectional design with data from 422 verified stock market participants across Nepal, collected through licensed brokerage firms and an online questionnaire. FRT was measured using the financial subscale of the Domain-Specific Risk-Taking (DOSPERT) scale ( $\alpha = .81$ ). Multiple and hierarchical regression analyses revealed that gender significantly influenced FRT, with male investors reporting higher tolerance, while marital status was insignificant. The interaction between income and education was significant, showing that higher education increased FRT even among low-income investors. Overall, demographic variables collectively predicted FRT, with education and the income–education interaction emerging as the strongest predictors. Findings highlight the role of socio-cultural and economic factors in shaping financial risk-taking, underscoring education as a key moderator of risk aversion. The study contributes to behavioral finance literature in emerging markets and offers insights for policymakers, educators, and financial institutions to foster inclusive investment behavior.*

**Keywords:** Financial Risk Tolerance, Demographics, Gender, Income, Education, Nepal

## 1. Introduction

Financial Risk Tolerance (FRT) is a pivotal construct in behavioral finance, shaping investment behavior, portfolio allocation, and wealth accumulation (Grable, 2000; Grable, 2017; Roszkowski & Grable, 2005; Sadiq & Khan, 2019). It reflects an individual's willingness to accept uncertainty in financial outcomes, influenced not only by external market conditions but also by internal psychological and demographic characteristics (Hanna, Waller, & Finke, 2008). In emerging economies such as Nepal, where financial markets are still developing, understanding the demographic determinants of risk tolerance is essential for fostering inclusive financial participation and enhancing financial planning.

Empirical research consistently highlights that demographic factors including age, gender, marital status, education, income, and investment experience play a significant role in financial decision-making (Sahm, 2012). For instance, younger investors typically exhibit higher risk tolerance due to longer investment horizons and greater capacity to recover from potential losses, whereas older investors often adopt more conservative strategies approaching retirement (Grable & Lytton, 1999; Jianakoplos & Bernasek, 1998). Gender differences are also prominent, with men generally displaying higher risk tolerance than women, while marital status influences risk-taking behavior, as married individuals tend to be more risk-averse due to shared financial responsibilities (Barber & Odean, 2001; Jianakoplos & Bernasek, 1998; Yao & Hanna, 2005). Similarly, higher education and income levels are associated with greater risk tolerance, reflecting enhanced financial literacy and the capacity to withstand financial losses (Grable & Joo, 2004; Hallahan, Faff, & McKenzie, 2004; Van Rooij, Lusardi, & Alessie, 2011).

Despite extensive evidence from developed economies, there is limited empirical research on risk tolerance in developing countries such as Nepal, where sociocultural factors such as patriarchal norms, joint-family systems, and the dual formal–informal economy may further shape investment behavior. Understanding how these demographic and cultural characteristics interact to influence risk tolerance is critical for developing targeted financial advisory services, investor education programs, and inclusive policy interventions.

To capture these complexities, this study employs a hierarchical regression model, allowing stepwise assessment of demographic predictors of financial risk tolerance. The first stage examines the influence of gender and marital status, highlighting sociocultural constraints on financial decision-making. The second stage introduces income and education, including their interaction, to determine whether higher education mitigates the risk aversion associated with lower income levels. Finally, a comprehensive model evaluates the collective effects of age, gender, marital status, income, education, and investment experience, providing a nuanced understanding of how structural and personal

factors shape investment behavior in Nepal. To address the above phenomenon this study sets out the following objectives.

1. To examine the influence of gender and marital status on risk tolerance among Nepalese investors, with particular focus on how patriarchal norms and joint-family structures affect financial risk-taking behavior.
2. To assess the combined impact of income level and educational attainment on investment risk tolerance in the context of Nepal's mixed formal informal economy and determine whether higher education mitigates risk aversion among lower-income groups.
3. To analyze the overall effect of key demographic factors including age, gender, income, education, and marital status on financial risk tolerance, thereby offering insights relevant to investor behavior in developing economies.

#### 4. 2. Literature Review

Understanding what drives financial risk tolerance is essential in shaping effective financial education, investment strategies, and policymaking, particularly in developing economies. While considerable research has explored the predictors of risk tolerance in Western contexts, the nuanced impact of demographic factors in countries like Nepal remains relatively underexplored. Research has shown that income and education significantly shape investment behavior, and financial literacy may further moderate these relationships (Baker et al., 2019; Kathpal et al., 2021). This section reviews key literature linking demographic characteristics to investment behavior.

***Gender and Marital Status as Predictors of Risk Tolerance:*** Gender is one of the most consistently studied predictors of investment behavior. Empirical evidence suggests that men typically exhibit greater risk tolerance than women, which may be attributed to social roles, economic participation, and overconfidence (Barber & Odean, 2001; Grable, 2017). In Nepal, patriarchal norms and joint-family systems further complicate gender dynamics, as financial decision-making is often male-dominated and culturally ingrained (Nepal & Sherchan, 2014). These structures may lead women to exhibit lower financial autonomy and greater risk aversion.

Marital status, meanwhile, has also been shown to influence risk behavior. Married individuals, especially those with dependents, often adopt more conservative investment strategies (Yao et al., 2005). In collectivist cultures like Nepal, where familial interdependence is stronger, both gender and marital status may exert amplified effects on investment decisions, necessitating an empirical examination tailored to these cultural conditions.

### Hypothesis

***Hypothesis 1 (H1):*** Gender and marital status significantly influence financial risk tolerance among Nepalese investors.

***Income and Education in a Mixed Economy:*** Another significant line of research has examined how socioeconomic status influences risk tolerance. Higher income levels generally correlate with a greater capacity to bear financial risk, while education increases awareness of financial tools and reduces perceived risk through better decision-making capabilities (Van Rooij, Lusardi, & Alessie, 2011; Guiso & Paiella, 2008). However, in Nepal's mixed economy comprising both formal employment and informal livelihoods income and education often do not align predictably.

Individuals with low incomes but high educational attainment may show relatively higher risk tolerance, as education can compensate for financial insecurity by improving cognitive evaluation of risks and rewards (Acharya & Ghimire, 2020). Conversely, high-income individuals with limited financial literacy may still avoid risky investments due to poor understanding of market dynamics. These divergent profiles suggest a need to explore how education interacts with income in shaping investment behaviors.

***Hypothesis 2 (H2):*** The combined effect of income and educational attainment significantly predicts financial risk tolerance, with higher education mitigating risk aversion among lower-income groups.

***Broader Demographic Influences in Developing Contexts:*** A comprehensive body of work also highlights how factors such as age, gender, education, income, and marital status together shape financial risk tolerance. Younger individuals generally show higher tolerance for risk due to longer investment horizons, while older individuals become increasingly risk-averse with age (Riley & Chow, 1992; Sahm, 2012). In the context of developing economies, these relationships may be influenced by weaker financial infrastructure, limited access to investment avenues, and traditional family expectations.

Nepal presents a particularly complex environment for investment decisions. Cultural factors such as familial obligations, caste dynamics, and rural–urban disparities can either suppress or exaggerate risk-taking behavior. Additionally, the country's limited financial literacy levels and underdeveloped capital markets warrant an investigation into how these demographic variables operate in tandem to influence risk preferences.

***Hypothesis 3 (H3):*** Age, gender, income, education, and marital status collectively have a significant impact on financial risk tolerance among Nepalese investors.

### 3. RESEARCH METHODS

This study employed a quantitative, cross-sectional survey design to examine the relationships between demographic factors (age, gender, income, education, marital status)

and FRT among Nepalese investors. The target population included financially active adults aged 20–60 years with active DEMAT accounts and at least one year of trading history on the Nepal Stock Exchange (NEPSE). Participants were recruited from all seven provinces through 15 licensed brokerage firms using purposive sampling, ensuring diversity in gender, age, education, and income.

A total of 422 respondents participated (58% male, 42% female; 38% aged 20–35, 45% aged 36–50, 17% aged 51–60). Data was collected via a structured online questionnaire, comprising: (a) a demographic inventory; (b) the financial subscale of the Domain-Specific Risk-Taking (DOSPERT) scale ( $\alpha = .81$ ; Blais & Weber, 2006; Nunnally & Bernstein, 1994); and (c) self-reported trading frequency. Ethical guidelines were followed (APA, 2017), and confidentiality was maintained.

Multiple regression analyses were conducted to test the hypothesized relationships. Moderation analysis examined the joint effect of income and education on FRT using hierarchical regression (Aiken & West, 1991). Predictor variables were mean centered before computing the interaction term.

The Multiple Linear Regression Model (MLRM) for this study is formulated as follows:

$$\text{Risk Tolerance} = \beta_0 + \beta_1(\text{AG}) + \beta_2(\text{GE}) + \beta_3(\text{MS}) + \beta_4(\text{IL}) + \beta_5(\text{IE}) + \beta_6(\text{ED}) + \beta_7(\text{IL} \times \text{ED}) + \epsilon$$

Where:

Risk Tolerance is the dependent variable.

AG = Age

GE = Gender

MA = Marital Status

IL = Income Level

IE = Investment Experience

ED = Education

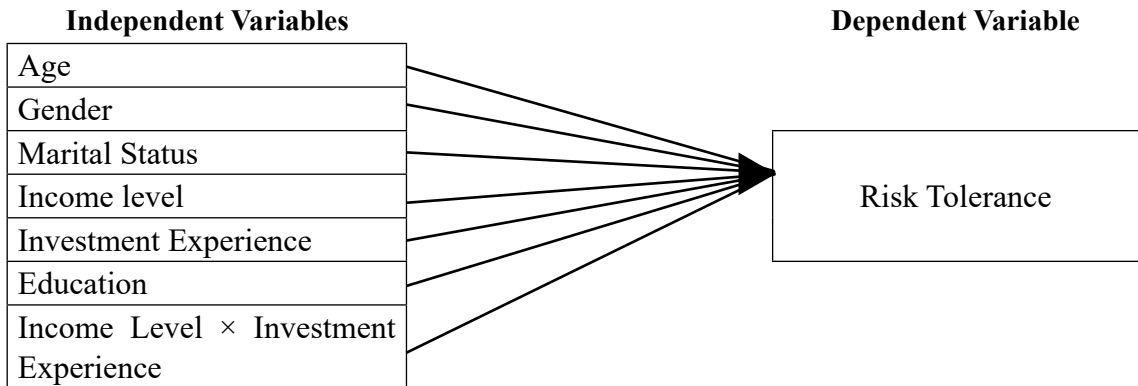
IL × ED = Interaction term to test whether education moderates the effect of income on FRT

$\beta_1$  through  $\beta_7$  are the coefficients representing the influence of each respective independent variable on Risk Tolerance.

$\epsilon$  denotes the error term in the model, capturing unmeasured factors influencing risk tolerance.

### ***Conceptual Framework of the study***

**Figure 1: Relationship of Demographic Factors on Risk Tolerance**



## **4. Results And Discussion**

**Reliability Analysis:** A reliability analysis was conducted to assess the internal consistency of the scale. The Cronbach's alpha coefficient was found to be .772, which indicates acceptable reliability for the scale (Nunnally & Bernstein, 1994). According to Nunnally's criteria, Cronbach's alpha value of .70 or above suggests an acceptable level of internal consistency.

**Table 1: Descriptive statistics of demographic characteristics of respondents**

	Descriptive Statistics				
	N	Minimum	Maximum	Mean	Std. Deviation
Age	417	1	4	2.70	1.040
Gender	417	1	2	1.37	.484
Marital Status	417	1	2	1.35	.478
Income Level	417	1	4	2.88	.892
Investment Experience	417	1	3	2.19	.672
Education	417	1	4	2.24	.870
Risk Tolerance	417	2.00	3.71	3.0449	.33267

*Source: SPSS Results Based on Survey, 2025*

Table 1 summarizes the demographic characteristics of the respondents. The age distribution ranged from category 1 to 4, with a mean of 2.70 (SD = 1.04), indicating a relatively balanced representation across age groups. Marital status was coded similarly, with 1 = Married and 2 = Unmarried. The mean marital status score was 1.35 (SD = 0.478), suggesting that most participants were married. Gender was coded as 1 for male and 2 for female, with a mean of 1.37 (SD = 0.48), suggesting a higher proportion of male participants. The level of investment experience ranged from 1 to 3, with a mean of

2.19 (SD = 0.67), reflecting a moderately experienced sample. The average educational qualification was 2.24 (SD = 0.87), while the mean income level was 2.88 (SD = 0.89), both showing moderate variability among participants. The risk tolerance score ranged from 2.00 to 3.71, with a mean of 3.04 (SD = 0.33). The relatively low standard deviation suggests that most respondents had similar levels of risk tolerance.

**Table 2: Correlation Analysis**

Correlations Matrix						
	Risk Tolerance	Age	Gender	Income Level	Investment Experience	Education
Risk Tolerance	1					
Age	.070	1				
Gender	.040	.113*	1			
Marital Status	-.047	-.834**	-.090	1		
Income Level	.162**	.552**	-.144**	1		
Investment Experience	-.055	.615**	-.034	.360**	1	
Education	.215**	-.039	-.341**	.057	.049	1

*Source: SPSS Results Based on Survey, 2025*

Table 3 presents the Pearson correlation coefficients between demographic variables and financial risk tolerance. Educational qualification ( $r(417) = .215, p < .001$ ) and income level ( $r(417) = .162, p = .001$ ) were both significantly and positively associated with financial risk tolerance. This suggests that individuals with higher levels of education and income are more likely to accept financial risk. Other demographic variables including age ( $r(417) = .070, p = .155$ ), gender ( $r(417) = .040, p = .410$ ), and investment experience ( $r(417) = -.055, p = .262$ ) did not show significant correlations with risk tolerance, implying these factors do not substantially influence individual risk-taking behavior. Several significant interrelationships were observed among the demographic variables. Age was positively correlated with experience ( $r = .615, p < .001$ ) and income level ( $r = .552, p < .001$ ), indicating that older individuals tend to have more experience and higher income. Gender was negatively correlated with qualification ( $r = -.341, p < .001$ ) and income ( $r = -.144, p = .003$ ), suggesting gender disparities in education and earnings. Marital status demonstrated a strong negative correlation with age ( $r = -.834, p < .01$ ), while its associations with gender ( $r = -.090$ ), risk tolerance ( $r = -.047$ ), income level ( $r = .108$ ), investment experience ( $r = .048$ ), and education ( $r = .019$ ) were weak and statistically non-significant, indicating that marital status in this sample is primarily influenced by respondents' age. Experience was also positively correlated with income ( $r = .360, p < .001$ ), indicating that more experienced individuals tend to earn more.

The results highlight that education and income significantly influence an individual's financial risk tolerance. Specifically, those with higher qualifications and income levels are more inclined to take financial risks. In contrast, age, gender, and experience do not appear to be significant predictors of risk tolerance in this sample. Moreover, the interrelationships among demographic factors reveal important socioeconomic patterns, such as the strong positive links between age, experience, and income, and the gender-based disparities in education and earnings.

### Regression Analysis

**Table 3: Model Summary of Regression Analysis**

R	R Square	Adjusted R Square	Std. Error of the Estimate
.331 <sup>a</sup>	.109	.096	.31624

*Source: SPSS 27, Results Based on Survey, 2025*

**Table 4: ANOVA Table**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	5.036	6	.839	8.393	.000 <sup>b</sup>
Residual	41.002	410	.100		
Total	46.038	416			

*Source: SPSS Results Based on Survey, 2025*

**Table 5: Beta Coefficient of Regression Analysis**

Variables	Unstandardized Coefficients		Standardized Coefficients		Sig.	Collinearity Statistics	
	B	Std. Error	Beta	t		Tolerance	VIF
(Constant)	2.494	.181		13.762	.000		
AG	.034	.030	.106	1.124	.261	.244	4.093
GE	.102	.035	.148	2.867	.004	.816	1.225
MS	.042	.059	.061	.713	.476	.299	3.345
IL	-.082	.030	-.167	-2.782	.006	.605	1.652
IE	.102	.019	.266	5.353	.000	.880	1.136
ED	.075	.022	.200	3.456	.001	.646	1.547

*Source: SPSS Results Based on Survey, 2025*

### Moderation Analysis: The Joint Effect of Income and Education on Risk Tolerance

A hierarchical multiple regression analysis was conducted to examine whether income and educational attainment, including their interaction, significantly predicted financial risk tolerance among Nepalese investors.

**Table 6:** Model Summary for Hierarchical Regression on Risk Tolerance

Model	R	R <sup>2</sup>	Adj. R <sup>2</sup>	SE of Estimate	$\Delta R^2$	$\Delta F$	df1	df2	p
1	.262	.069	.064	0.322	—	15.30	2	414	<.001
2	.357	.127	.121	0.312	.058	27.68	1	413	<.001

**Note:** Adj. R<sup>2</sup> = Adjusted R Square;  $\Delta R^2$  = R Square Change; SE = Standard Error.

**Note.** Model 1 includes income and education as predictors. Model 2 adds the interaction term (income  $\times$  education).

As shown in Table 1, Model 1 with income and education as predictors explained approximately 6.9% of the variance in financial risk tolerance ( $R^2 = .069$ ,  $F(2, 414) = 15.303$ ,  $p < .001$ ). The addition of the interaction term in Model 2 significantly improved the model fit,  $\Delta R^2 = .058$ ,  $\Delta F(1, 413) = 27.678$ ,  $p < .001$ , increasing the explained variance to 12.7%.

**Table 7:** ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.169	2	1.585	15.303	.000 <sup>b</sup>
	Residual	42.868	414	.104		
	Total	46.038	416			
2	Regression	5.862	3	1.954	20.086	.000 <sup>c</sup>
	Residual	40.176	413	.097		
	Total	46.038	416			

**Table 8:** Hierarchical Multiple Regression Predicting Risk Tolerance from Income, Education, and Their Interaction

Model	Predictor	B	SE	$\beta$	t	p	VIF
1	(Constant)	3.045	0.016	—	193.22	<.001	—
	Income (centered)	0.056	0.018	.150	3.17	.002	1.003
	Education (centered)	0.079	0.018	.207	4.35	<.001	1.003
2	(Constant)	3.050	0.015	—	199.32	<.001	—
	Income (centered)	0.023	0.018	.061	1.24	.215	1.140
	Education (centered)	0.063	0.018	.165	3.53	<.001	1.033
	Income $\times$ Education	-0.108	0.021	-.262	-5.26	<.001	1.174

Source: SPSS Results Based on Survey, 2025

The findings reveal that education significantly and positively predicts financial risk tolerance ( $\beta = .165, p < .001$ ), suggesting that higher educational attainment is associated with greater willingness to tolerate financial risk. Although income alone was not a significant predictor in the full model ( $p = .215$ ), the interaction between income and education was statistically significant ( $\beta = -.262, p < .001$ ), indicating a moderation effect.

Specifically, the negative interaction coefficient suggests that the positive effect of education on risk tolerance diminishes as income increases meaning that education plays a stronger role in promoting risk tolerance among lower-income investors, while its influence is reduced for those with higher income levels. This supports the hypothesis that higher education mitigates risk aversion particularly in lower-income groups.

The model's explanatory power increased from 6.9% to 12.7% with the inclusion of the interaction term, indicating a meaningful improvement in predictive accuracy.

**Table 6: Summary of Hypothesis Testing**

S.N.	Hypothesis	Tools Used	P-Value	Decision
1	Gender and marital status significantly influence financial risk tolerance among Nepalese investors.	Multiple Linear Regression	Gender: .004 Marital Status: .476	Partially supported
2	The combined effect of income and educational attainment significantly predicts financial risk tolerance, with higher education mitigating risk aversion among lower-income groups.	Hierarchical Regression (Interaction Term)	.000	Supported
3	Age, gender, income, education, and marital status collectively have a significant impact on financial risk tolerance among Nepalese investors.	Multiple Linear Regression	.000	Supported

Hypothesis 1 examined whether gender and marital status significantly influenced financial risk tolerance. The regression analysis indicated that gender was a significant predictor of financial risk tolerance,  $\beta = .148, t(415) = 2.867, p = .004$ , while marital status was not significant,  $\beta = .061, t(415) = 0.713, p = .476$ . Therefore, this hypothesis was partially supported.

Hypothesis 2 assessed whether income and educational attainment jointly predicted financial risk tolerance and whether higher education mitigated risk aversion in lower-income groups. A hierarchical regression was conducted. The interaction term between income and education was statistically significant,  $\beta = -.262, t(413) = -5.261, p < .001$ ,

indicating a moderating effect. The inclusion of the interaction term in Model 2 significantly improved model fit,  $\Delta R^2 = .058$ ,  $\Delta F(1, 413) = 27.678$ ,  $p < .001$ . Thus, this hypothesis was supported.

Hypothesis 3 proposed that a combination of age, gender, income, education, and marital status would significantly predict financial risk tolerance. The multiple regression model was statistically significant,  $F(5, 411) = 10.008$ ,  $p < .001$ , with  $R^2 = .108$ . Therefore, Hypothesis 3 was supported.

## 5. Conclusion And Implications

This study explored the impact of demographic factors namely gender, marital status, income, education, and their interaction on financial risk tolerance among Nepalese investors. Drawing from data collected through active stock market participants and applying multiple regression analysis, the study addressed three core objectives aligned with contemporary behavioral finance frameworks in emerging economies.

The first objective examined the influence of gender and marital status on financial risk tolerance. Findings revealed a statistically significant relationship with gender and marital status contributing to variations in risk tolerance levels. These results reflect the socio-cultural dynamics prevalent in Nepal, where patriarchal norms and joint-family systems often influence household financial decisions. The implication is that risk attitudes are not merely individual traits but are shaped by broader social roles and expectations, particularly those associated with gender and marital commitment.

The second objective assessed the combined effect of income and educational attainment, particularly focusing on whether higher education mitigates risk aversion among lower-income groups. The analysis demonstrated a significant interaction effect: while income alone was not a robust predictor of risk tolerance, the moderating role of education was substantial. Specifically, higher educational attainment increased financial risk tolerance even among those with lower income levels. This finding emphasizes the importance of education in enhancing financial decision-making capacity, confidence, and openness to investment risk especially critical in Nepal's dual informal-formal economic structure.

The third objective evaluated the collective influence of key demographic variables age, gender, income, education, experience, and marital status on risk tolerance. The regression model confirmed a statistically significant contribution of these factors, particularly highlighting education and the income–education interaction as dominant predictors. This supports existing literature suggesting that financial behavior is multidimensional, with demographic profiles playing a central role in shaping risk preferences.

## Implications

The findings of this study offer several important implications for stakeholders in the financial ecosystem of developing economies such as Nepal:

1. For financial educators and policymakers, the significant role of education in enhancing financial risk tolerance underscores the importance of targeted financial literacy programs. Such initiatives, particularly aimed at lower-income and less-educated populations, can reduce risk aversion and promote more informed investment behavior.
2. For investment platforms and financial service providers, integrating demographic variables, especially the interaction between income and education into client risk profiling can improve the accuracy of investment recommendations and foster inclusive engagement strategies. Personalized onboarding processes that reflect demographic nuances may lead to better investor satisfaction and retention.
3. For researchers and behavioral economists, the results emphasize the need to ground behavioral finance theories in the sociocultural context of emerging markets. The interaction effects observed between income and education highlight the complexity of financial decision-making and suggest avenues for future research exploring structural determinants of investor behavior.

In conclusion, demographic characteristics particularly educational attainment and its interaction with income emerge as significant determinants of financial risk tolerance in Nepal. As Nepal's financial markets expand, integrating these insights into investor education, policy formulation, and product development is essential to ensure broader and more equitable participation in the financial system.

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## Conflict of Interest/ Ethical Issue

The author declares that there is no conflict of interest regarding the publication of this research. This study was conducted purely for academic purposes.

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