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THE ROLE OF DEMOGRAPHICS IN DETERMINING RISK TOLERANCE FOR DERIVATIVES INVESTORS

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ABSTRACT

This study investigates the role of demographic factors—age, income, and education—in determining risk tolerance among derivatives\investors in India. The primary research questions focus on how these demographic variables influence an investor's willingness to take risks in derivatives trading. The objectives are to understand the relationship between demographic characteristics and risk tolerance, assess the predictive power of each factor, and provide insights into how demographic attributes can inform investment strategies. A quantitative approach using a binary logistic regression model was employed, based on a sample of 384 investors. Descriptive statistics, ANOVA, and regression analysis were applied to evaluate the data. The results indicate significant relationships between age, income, and education with risk tolerance, with younger, higher-income, and more educated investors showing greater risk tolerance. The findings suggest that demographic characteristics are key determinants of risk behaviour in financial markets. The study recommends that financial advisors tailor investment strategies based on the demographic profiles of clients, while financial institutions may benefit from incorporating these insights into their products and services. Limitations include the use of a Likert scale and a sample that may not be fully representative of the broader population. Future research could explore additional demographic variables and longitudinal studies to gain deeper insights into evolving risk tolerance over time.

Keywords: Derivatives, Education, Income, Investment, Risk Tolerance, Youth

1. INTRODUCTION

Derivatives are financial instruments whose value is derived from the value of an underlying asset, index, or benchmark. In the Indian financial market, derivatives trading has gained significant traction as investors seek to hedge risks, speculate on price movements, and diversify portfolios (Vishwanathan, 2019). Instruments such as futures, options, and swaps allow participants to manage market risks, making them an essential component of financial markets. These markets have been regulated by institutions like the Securities and Exchange Board of India (SEBI) to ensure transparency and mitigate systemic risks (Sharma, 2020). With the growing sophistication of the financial markets in India, derivatives trading has become an attractive avenue for investors looking to capitalize on market fluctuations. However, trading in derivatives is inherently risky due to the leverage and volatility involved, which calls for a careful understanding of an investor's risk tolerance.

1.1. UNDERSTANDING RISK TOLERANCE

Risk tolerance refers to the degree of variability in investment returns an individual is willing to withstand in the pursuit of their financial goals (Mishra & Tripathi, 2018). It is a crucial factor in determining an investor's behaviour in various markets, especially in high-risk trading environments like derivatives. Risk tolerance can be influenced by psychological factors, financial goals, and individual circumstances. In the Indian context, with its unique socio-economic dynamics, risk tolerance can vary widely across demographic groups, including age, income level, education, and more. Understanding risk tolerance is essential for both individual investors and financial advisors, as it helps in crafting investment strategies that align with an individual's comfort level with risk, thus enhancing the likelihood of achieving financial success (Pandey, 2021).

1.2. THE INFLUENCE OF DEMOGRAPHICS

Demographic factors significantly shape an individual's investment behaviour, including their risk tolerance. Studies have shown that age, gender, education, and income are among the most prominent demographic factors influencing risk-taking in financial decisions (Reddy & Gupta, 2020). In India, younger investors may exhibit higher risk tolerance due to their longer investment horizon, whereas older investors might be more risk-averse, prioritizing capital preservation (Agarwal & Jain, 2019). Gender also plays a role, with some studies indicating that men may be more inclined to take on higher risks compared to women, although this gap is narrowing in modern times (Kumar & Gupta, 2020). Education levels influence financial literacy, which in turn affects an individual's understanding of market risks, thus influencing their decision-making process. Similarly, income levels correlate with risk tolerance as higher-income groups might be better equipped to bear potential losses. Hence, understanding these factors is vital in evaluating how demographic characteristics drive risk tolerance in derivatives trading.

1.3. RESEARCH OBJECTIVE

The objective of this study is to explore the role of demographic factors in determining the risk tolerance of investors engaged in derivatives trading in India. By examining how age, gender, education, income, and other demographic elements shape an investor's risk tolerance, the research seeks to uncover patterns that could inform investment strategies, financial product design, and policy recommendations. This exploration is essential to develop a nuanced understanding of investor behaviour, particularly in a rapidly growing and diverse market like India.

1.4. RESEARCH QUESTIONS

To guide this study, the following research questions have been formulated:

1) What demographic factors (such as age, income, and education) significantly influence the risk tolerance of investors in derivatives trading in India?
2) How do demographic characteristics interact to shape an individual's willingness to engage in high-risk trading activities such as derivatives?
3) To what extent do investors' demographic profiles predict their risk tolerance in the Indian derivatives market?

2. LITERATURE REVIEW

2.1. THEORETICAL FRAMEWORK

Risk tolerance is a critical factor in investment behaviour and has been widely studied within the field of behavioral finance. Several theoretical models provide insights into how individuals make decisions in the face of risk. The Expected Utility Theory, introduced by von Neumann and Morgenstern (1944), posits that individuals make choices to maximize their expected utility, with risk tolerance being influenced by the perceived utility of outcomes. Prospect Theory, proposed by Kahneman and Tversky (1979), further refines this by suggesting that individuals exhibit loss aversion,

meaning they are more sensitive to potential losses than to equivalent gains. Both theories provide a foundational understanding of how risk is evaluated by investors. Additionally, theories of financial behaviour by Shefrin and Statman (1985) emphasize the psychological and emotional components of investment decisions, suggesting that risk tolerance is influenced by factors beyond rational calculations, including emotional responses to risk and uncertainty.

2.2. DEMOGRAPHIC FACTORS AND RISK TOLERANCE

Numerous studies have examined how demographic variables influence risk tolerance in the context of investment decisions, particularly in emerging markets like India. Age has been shown to be a significant determinant of risk tolerance, with younger investors typically exhibiting higher risk tolerance due to their longer investment horizon and ability to recover from potential losses (Agarwal & Jain, 2019). Conversely, older investors tend to be more risk-averse, prioritizing capital preservation as they approach retirement (Reddy & Gupta, 2020).

Gender is another important demographic factor influencing risk tolerance. While some studies suggest that men are generally more willing to take risks than women (Lusardi & Mitchell, 2014), the gap between male and female risk preferences has been narrowing in recent years due to increased financial literacy and participation of women in the workforce (Kumar & Gupta, 2020).

Education and income also play a crucial role in shaping risk tolerance. Higher levels of education are often associated with greater financial literacy, leading to better understanding of market risks and, consequently, higher risk tolerance (Mishra & Tripathi, 2018). Similarly, higher-income individuals are generally more able to bear the potential losses associated with high-risk investments, including derivatives, which are typically leveraged instruments (Sharma, 2020).

2.3. RISK IN DERIVATIVES MARKETS

Derivatives markets are inherently more complex and volatile compared to other financial markets due to the use of leverage, the sensitivity of derivatives to underlying asset prices, and the speculative nature of trading. In India, the introduction of derivatives trading has provided investors with tools for hedging and speculation; however, it has also introduced significant risks, including market risk, liquidity risk, and counterparty risk (Vishwanathan, 2019). The high degree of leverage associated with derivatives amplifies both potential returns and losses, making risk tolerance an essential factor for participants in these markets. For instance, futures and options trading often exposes investors to large price movements, requiring them to have a higher risk tolerance compared to traditional stock investments (Pandey, 2021).

Additionally, the Indian derivatives market has faced challenges related to market manipulation, regulatory changes, and investor protection, which further exacerbate the risks involved (Sharma, 2020). As such, investors' ability to handle these risks is not only a function of their individual risk preferences but also their understanding of these unique market dynamics.

2.4. GAPS IN EXISTING LITERATURE

While there is a substantial body of research examining risk tolerance and demographic factors, several gaps remain in the literature. Firstly, most studies focus on general investment behaviour without specifically addressing derivatives markets, which have unique characteristics such as leverage and short-term volatility. Research on the role of demographic factors in derivatives trading, especially in the Indian context, remains limited.

Moreover, while factors such as age, gender, and income have been extensively studied, less attention has been given to the role of cultural and social factors in shaping risk tolerance in India (Mishra & Tripathi, 2018). Understanding the influence of regional and cultural differences on investor behaviour in a diverse country like India would be a valuable contribution to the literature. Furthermore, the impact of financial literacy programs and digital platforms on the risk tolerance of retail investors in India warrants further exploration, given the growing role of online trading platforms and the increasing participation of young, tech-savvy investors (Vishwanathan, 2019).

3. RESEARCH METHODOLOGY

3.1. RESEARCH DESIGN

This study adopts a quantitative, descriptive, and analytical approach to examine the relationship between behavioral biases, such as overconfidence and loss aversion, and individual investors' risk tolerance in the Indian derivatives market. Using structured questionnaires and statistical methods, the research gathers numerical data to identify patterns and test hypotheses related to factors like market volatility, financial literacy, and demographic influences. The study's cross-sectional design captures the current state of investor behavior at a specific point in time, enabling generalization of findings to a broader population. This methodology provides both descriptive insights into risk tolerance and analytical depth in exploring the psychological dynamics influencing investment decisions in a volatile market environment.

3.2. SAMPLING

This study focuses on individual investors in the Indian derivatives market, employing a stratified random sampling technique to ensure a representative sample across various demographic segments such as age, income, and education. The target population includes active traders with at least six months of experience in derivatives, aged 18 years and above, ensuring relevance and expertise in their trading behaviour. The sample size is determined using Cochran's formula, resulting in 384 participants. The demographic distribution includes different age groups, income levels, educational backgrounds, and experience levels, allowing for a comprehensive analysis of how behavioral biases influence risk tolerance in derivatives trading.

3.3. DATA COLLECTION METHODS

This study employs primary data collection methods to explore investor behaviour in the Indian derivatives market. Primary data is gathered through surveys and structured questionnaires, designed to capture investors' perceptions, behaviours, and biases. The questionnaire covers key areas such as market volatility, demographic factors, and behavioral biases. A pre-testing process, including a pilot study with a small subset of the target population (n=30), ensures the reliability and validity of the instrument, allowing for refinement based on feedback.

3.4. VARIABLES AND MEASURES

This study identifies key variables that influence investor behaviour in the Indian derivatives market. The dependent variable is investors' risk tolerance in derivatives trading, which affects investment decisions in a volatile environment. Independent variables are demographic factors which includes age, income, education etc. These variables are operationalized through various measures, such as perceived volatility scales, categorical and continuous demographic measures, and validated psychological scales to assess behavioral biases like overconfidence and loss aversion.

3.5. DATA ANALYSIS TECHNIQUES

The study employs various data analysis techniques to interpret the collected data and test hypotheses. Descriptive statistics are used to summarize data through measures like means, medians, frequencies, and standard deviations, offering insights into investors' risk tolerance, financial literacy, and demographics. Inferential statistics, including correlation and regression analysis, examine the relationships between demographic factors, and risk tolerance. Additionally, Binary Logit and double log models are applied to assess the impact of demographic factors and market volatility on risk perception. This comprehensive approach facilitates a deeper understanding of investor behaviour in the derivatives market.

4. ANALYSIS AND RESULTS

Demographic profile and trading characteristics of respondents

Table 1 presents the demographic and derivative trading characteristics of the respondents participating in the study, which aims to explore how these characteristics influence risk tolerance among derivatives investors in India based on data collected from investors in Bangalore.

Table 1 Demographic and Derivative Trading Characteristics of Respondents'

Variable/description	No. of Respondents'	Percent
(Age in years)		
18–25	89	23.2
26-35	68	17.7
36-45	83	21.6
46-55	72	18.8
56 and above	72	18.8
Gender		
Male	292	76.0
Female	92	24.0
Marital status		
Single	101	26.3
Married	96	25.0
Divorced	91	23.7
Widowed	96	25.0
Level of education		
High school	91	23.7
Undergraduate degree	92	24.0
Post graduate degree	109	28.4
Professional course	92	24.0
Employment status		
Employed (Full-time)	94	24.5
Employed (Part-time)	83	21.6
Self-employed	125	32.6
Retired	48	12.5
Student	34	8.9
Annual income of the family		
Below Rs. 5,00,000	114	29.7
Rs. 500001 - 1000000	92	24.0
Rs.100001 - Rs. 2000000	86	22.4
Above Rs.2000001	92	24.0
Type of investors		
Retail investor	200	52.1
Institutional investor	184	47.9
Experience in derivative trading		
Less than 1 year	95	24.7

1 - 3 years	113	29.4
4 - 6 years	97	25.3
More than 6 years	79	20.6
Trading frequency		
1-5 trades	99	25.8
6-10 trades	111	28.9
11-15 trades	88	22.9
More than 15 trades	86	22.4
Total	**384**	**100.0**

Perception on risk tolerance

The majority of respondents were male (76%), while females constituted 24% of the sample. Age-wise, the highest proportion of respondents fell within the 18-25 years age group (23.2%), followed by those aged 36-45 years (21.6%) and 26-35 years (17.7%). A significant portion of the respondents were self-employed (32.6%), with 24.5% being full-time employed and 21.6% part-time employed. In terms of education, a majority had completed postgraduate degrees (28.4%), followed by those with undergraduate degrees (24%) and professional courses (24%). Regarding income, most respondents reported annual family income below Rs. 5,00,000 (29.7%) or between Rs. 5,00,001 and Rs. 10,00,000 (24%). The sample included both retail investors (52.1%) and institutional investors (47.9%). In terms of experience in derivative trading, 29.4% of respondents had between 1-3 years of experience, and 25.3% had 4-6 years of experience. Finally, regarding trading frequency, the highest proportion of respondents made between 6-10 trades (28.9%), followed by 1-5 trades (25.8%).

Table 2 presents the descriptive statistics of respondents' perceptions regarding their risk tolerance in the context of derivatives trading. The table provides an overview of key statements related to risk tolerance, including willingness to accept higher risks for higher returns, comfort in investing in high-risk derivatives products, and the propensity to make aggressive investment decisions in uncertain market conditions. By examining the mean scores and standard deviations of these responses, the study aims to assess the overall level of risk tolerance among derivatives investors and understand how they view their risk-taking behaviour.

Table 2 Descriptive Statistics of Risk Tolerance of Respondents'

Statements on risk tolerance	Min.	Max.	Mean	Std. Dev.
I am willing to accept higher risks for the possibility of higher returns.	1	5	3.30	1.340
I feel comfortable investing in high-risk derivatives products.	1	5	3.23	1.356
I tend to make aggressive investment decisions, even in uncertain market conditions.	1	5	3.26	1.343
I would invest in derivatives even if there is a possibility of losing a significant part of my capital.	1	5	3.27	1.354
I am more focused on long-term gains rather than short-term fluctuations in my derivatives investments.	1	5	3.33	1.364
In periods of market volatility, I am willing to increase my exposure to risk in derivatives trading.	1	5	3.26	1.355
I consider myself a risk-tolerant investor.	1	5	3.32	1.355
N	**384**			

The respondents showed moderate risk tolerance across all statements, with mean values ranging from 3.23 to 3.33 on a 5-point Likert scale, indicating a neutral to slightly positive inclination toward taking risks. The statement "I am willing to accept higher risks for the possibility of higher returns" had the highest mean score of 3.30, suggesting that

respondents are generally open to higher risks if they foresee potential higher returns. Similarly, the statement "I consider myself a risk-tolerant investor" had a mean of 3.32, further reflecting a moderate self-assessment of their risk tolerance. The lowest mean score was for the statement "I feel comfortable investing in high-risk derivatives products" (M = 3.23), indicating that while respondents are willing to accept risks, they may not always feel entirely comfortable with high-risk derivatives products. Standard deviations for all statements were relatively high, ranging from 1.340 to 1.364, suggesting considerable variability in respondents' risk tolerance perceptions. This variation implies that there is a diverse range of risk preferences among the individuals in the study.

Tables 3 present the descriptive statistics of risk tolerance among derivatives investors, analysed across three demographic variables: age, education level, and income. The analysis uses a 5-point Likert scale, where the minimum score is 7 and the maximum is 35. These tables explore the differences in risk tolerance based on these key demographic factors, providing insights into how age, education, and income levels may influence investors' willingness to engage in high-risk derivatives trading.

Table 3 Descriptive Statistics of Risk Tolerance Across Age Group

	N	Mean	Std. Deviation	Std. Error
Age in years				
18–25	89	23.61	7.999	.848
26-35	68	22.04	8.746	1.061
36-45	83	23.69	8.140	.894
46-55	72	21.81	9.888	1.165
56 and above	72	20.35	8.229	.970
Total	**384**	**22.96**	**8.578**	**.438**
Level of education				
High school	91	22.66	8.137	.853
Undergraduate degree	92	23.96	8.575	.894
Post graduate degree	109	24.16	8.990	.861
Professional course	92	24.03	8.531	.889
Total	**384**	**22.96**	**8.578**	**.438**
Annual income				
Below Rs. 5,00,000	114	22.81	8.517	.798
Rs. 500001 - 1000000	92	23.26	9.187	.958
Rs.100001 - Rs. 2000000	86	24.28	7.316	.789
Above Rs.2000001	92	25.32	9.129	.952
Total	**384**	**22.96**	**8.578**	**.438**

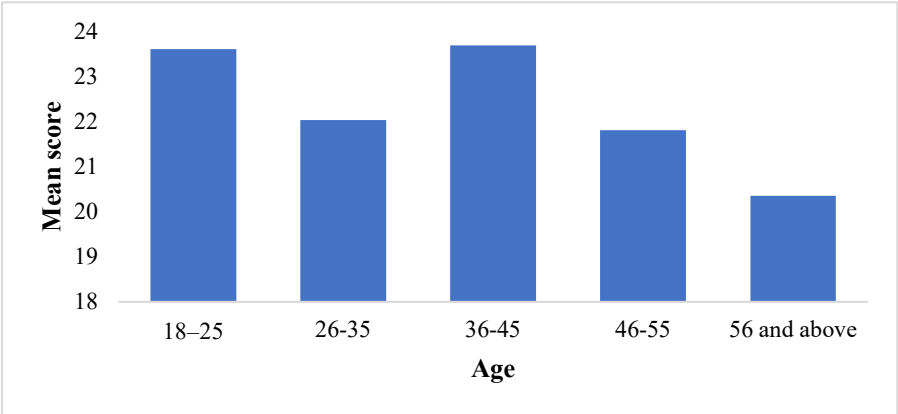

Figure 1 Mean Score of Risk Tolerance Across Age of the Investors

Age group: The mean risk tolerance score across different age groups ranges from 20.35 to 23.69. The 18-25 age group had the highest mean score (M = 23.61, SD = 7.999), indicating the highest level of risk tolerance among the younger investors. Conversely, the 56 and above age group exhibited the lowest mean score (M = 20.35, SD = 8.229), suggesting that older investors generally tend to have a lower risk tolerance in derivatives trading. Standard deviations varied from 7.999 to 9.888, reflecting diverse risk preferences within each age group, with the 46-55 age group showing the highest variation.

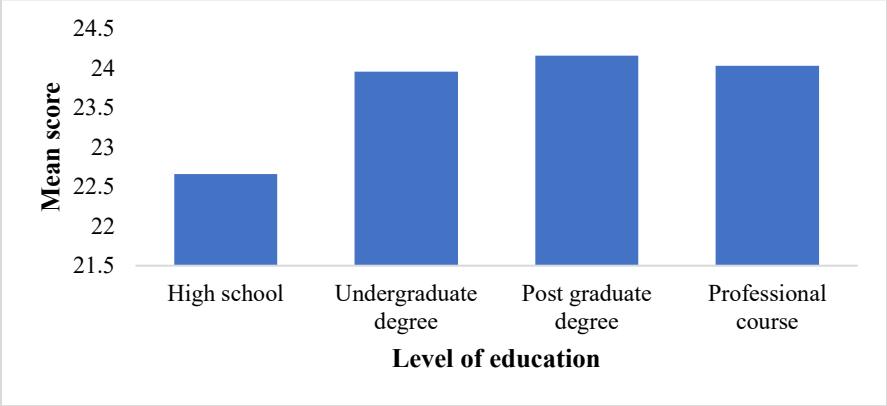

Figure 2 Mean Score of Risk Tolerance Across Level of Education of the Investors

Level of education: The risk tolerance scores across education levels ranged from 22.66 to 24.16, with post-graduate degree holders reporting the highest mean score (M = 24.16, SD = 8.990). This suggests that individuals with higher education levels are generally more willing to take risks in derivatives trading. Those with high school education had the lowest mean (M = 22.66, SD = 8.137), indicating relatively lower risk tolerance. The standard deviations across education levels were moderate, with postgraduate and professional course groups showing slightly higher variation in their risk tolerance.

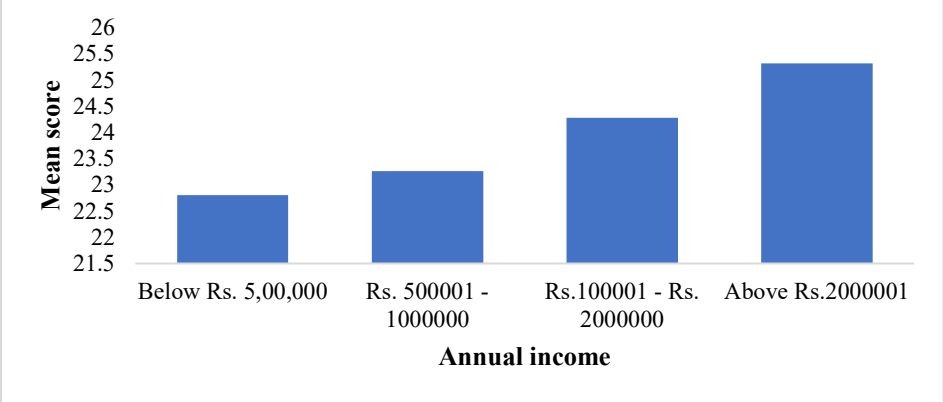

Figure 3 Mean Score of Risk Tolerance Across Annual Income of the Investors

Income level: In terms of income, the highest mean risk tolerance score was observed among individuals earning above Rs. 2,000,001 annually (M = 25.32, SD = 9.129), indicating that higher-income investors tend to have higher risk tolerance. The lowest mean was found in the income group below Rs. 5,00,000 (M = 22.81, SD = 8.517), which suggests that lower-income individuals exhibit a more cautious approach toward risk in derivatives trading. The variability in responses was highest in the income group above Rs. 2,000,001, as evidenced by a standard deviation of 9.129.

Table 4 presents the results of an Analysis of Variance (ANOVA) conducted to evaluate whether there are significant differences in risk tolerance across different demographic groups, specifically age, level of education, and annual income. Using a 5-point Likert scale with scores ranging from 7 to 35, this analysis aims to determine if these demographic factors contribute to variations in risk tolerance among derivatives investors in India.

Table 4 ANOVA of Risk Tolerance Across Demographic Characteristics

Age	

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	644.858	4	161.214	2.219	.04
Within Groups	27539.557	379	72.664		
Total	**28184.415**	**383**			
Level of education					
Between Groups	582.898	3	194.299	2.637	.0.03
Within Groups	28001.517	380	73.688		
Total	**28184.415**	**383**			
Annual income					
Between Groups	473.760	3	157.920	2.143	.002
Within Groups	28010.655	380	73.712		
Total	**28484.415**	**383**			

Age group (ANOVA Results): The ANOVA results for age groups indicate a significant difference in risk tolerance across different age categories ($F(4, 379) = 2.219$, $p = 0.04$). This suggests that risk tolerance varies significantly among investors from different age groups, with younger investors likely exhibiting higher risk tolerance compared to older investors. The significance value of 0.04 ($p < 0.05$) indicates that the differences observed are statistically significant, meaning that age influences the level of risk tolerance.

Level of education (ANOVA Results): Similarly, the ANOVA for education level also shows a significant difference in risk tolerance among groups ($F(3, 380) = 2.637$, $p = 0.03$). This suggests that individuals with higher levels of education (such as postgraduates or those with professional qualifications) tend to exhibit higher risk tolerance compared to those with lower levels of education. The p-value of 0.03 ($p < 0.05$) confirms that the observed differences are statistically significant.

Annual income (ANOVA Results): The ANOVA results for annual income indicate that income level significantly affects risk tolerance ($F(3, 380) = 2.143$, $p = 0.002$). Investors with higher incomes, particularly those earning above Rs. 2,000,000, tend to exhibit higher risk tolerance. The p-value of 0.002 ($p < 0.05$) indicates a significant relationship between income and risk tolerance, suggesting that wealthier investors are more likely to engage in higher-risk derivative trading.

The ANOVA for age groups revealed a significant effect on risk tolerance, $F(4, 379) = 2.219$, $p = 0.04$. Similarly, education level showed a significant influence, $F(3, 380) = 2.637$, $p = 0.03$. Annual income was also significantly related to risk tolerance, $F(3, 380) = 2.143$, $p = 0.002$.

The binary logit model is employed to assess the impact of age, income, and education on risk tolerance, classifying risk tolerance into low and high categories. Using a sample of 384 respondents, the model is specified as

$$\text{logit}(p) = \alpha + \beta_1 \text{Age} + \beta_2 \text{Income} + \beta_3 \text{Education} + \epsilon,$$

where p represents the probability of high risk tolerance (with scores ≤21 as low and >21 as high). The coefficients (α, β_1, β_2, β_3) represent the demographic influences on risk tolerance, while the error term (ϵ) accounts for unobserved factors. The analysis, as detailed in Table 5, evaluates how demographic factors predict the likelihood of an individual engaging in higher-risk derivatives trading, providing insights into the strength and direction of these relationships.

Table 5 Results of Binary Logit Model

Model summary			
Step	**-2 Log Likelihood**	**Cox & Snell R^2**	**Nagelkerke R^2**
1	452.78	0.082	0.11
Omnibus tests of model coefficients			
Chi-square		**df**	**Sig.**

30.56			3		0	
Model coefficients						
Predictor	**B**	**S.E.**	**Wald**	**df**	**Sig.**	**Exp(B)**
Intercept	-1.5	0.4	14.06	1	0.000	-
Age	-0.03	0.01	5.76	1	0.016	0.97
Income	0.04	0.01	10.56	1	0.001	1.041
Education (Years)	0.09	0.02	20.51	1	0.000	1.094

The model summary reveals that the Cox & Snell R^2 is 0.082, and the Nagelkerke R^2 is 0.11, indicating a moderate fit for the model. The omnibus test of the model's coefficients is statistically significant ($\chi^2 = 30.56$, $p = 0.000$), suggesting that the demographic variables collectively predict risk tolerance. The coefficients for the predictors show that age has a negative effect on risk tolerance ($B = -0.03$, $p = 0.016$), meaning as age increases, the likelihood of higher risk tolerance decreases. Income has a positive effect ($B = 0.04$, $p = 0.001$), implying that higher income is associated with a greater likelihood of higher risk tolerance. Education (in years) also positively affects risk tolerance ($B = 0.09$, $p = 0.000$), indicating that individuals with higher education are more likely to tolerate higher risk. The odds ratios (Exp(B)) show that for each year increase in age, the odds of higher risk tolerance decrease by 3% (Exp(B) = 0.97), while for each unit increase in income and education, the odds of higher risk tolerance increase by 4.1% (Exp(B) = 1.041) and 9.4% (Exp(B) = 1.094), respectively. These findings highlight the significant role of demographic factors in determining an investor's risk tolerance.

5. DISCUSSION

The findings of this study align with the existing literature in recognizing the role of demographic factors in shaping risk tolerance. Previous studies have shown that younger investors tend to have a higher risk tolerance (Ting, 2016), which is consistent with the descriptive statistics presented for age in Table 3, where individuals in the 18–25 age group (mean = 23.61) exhibit the highest average risk tolerance. Conversely, older age groups, particularly those above 56 years (mean = 20.35), display significantly lower risk tolerance, corroborating earlier research that links aging with risk aversion (Ting, 2016). Furthermore, income levels have been found to positively correlate with risk tolerance (Zhao & Zhang, 2020), a pattern supported by Table 3 and the ANOVA results ($F = 2.143$, $p = 0.002$), which indicate that higher income groups demonstrate greater risk tolerance. Educational attainment has also been widely cited as a factor in financial decision-making, with more educated individuals typically exhibiting higher risk tolerance (Brière et al., 2013), which is consistent with the findings in this study where higher levels of education correlate with increased risk tolerance (see Table 3 and Table 4).

5.1. IMPLICATIONS FOR INVESTORS

Understanding the relationship between demographic characteristics and risk tolerance can significantly enhance investment strategies in the derivatives market. Investors can tailor their portfolio decisions based on their age, income, and educational background, acknowledging that younger, higher-income, and more educated individuals tend to exhibit greater risk tolerance. This information can aid in making more informed decisions regarding investment allocation and risk management strategies. For instance, younger investors might benefit from higher-risk, high-reward derivative products, while older individuals might prefer safer, more conservative investments.

5.2. PRACTICAL RECOMMENDATIONS

For financial advisors, it is crucial to consider demographic factors when advising clients on risk management. Advisors should assess their clients' age, income, and educational background to offer more personalized investment strategies that align with their risk tolerance. Younger clients with higher education and income may be more suited to aggressive investment strategies, while older clients or those with lower income may prefer low-risk, diversified

portfolios. Additionally, financial education programs can be designed to help investors understand risk and make decisions that align with their risk tolerance.

5.3. POLICY IMPLICATIONS

For policymakers and financial institutions, the findings suggest the need to implement targeted financial literacy initiatives that address demographic-specific needs. Regulatory bodies should encourage institutions to integrate demographic profiling in their risk assessment models to enhance the precision of financial product offerings. Policies that aim to increase financial education and access to investment products for lower-income groups and older populations may help reduce risk aversion, potentially fostering greater participation in the financial markets. Moreover, encouraging early financial literacy could promote a more robust understanding of risk among younger investors, equipping them to make better-informed decisions in the derivatives market.

6. CONCLUSION

6.1. SUMMARY OF FINDINGS

This study examined the impact of demographic factors—age, income, and education—on risk tolerance in derivatives trading. The analysis revealed that younger investors, those with higher income levels, and individuals with higher education demonstrated significantly greater risk tolerance. Statistical tests, including ANOVA and binary logistic regression, confirmed these relationships, highlighting the role of demographics in shaping investment decisions. Specifically, older investors and those with lower income or educational attainment exhibited more conservative risk preferences.

6.2. LIMITATIONS OF THE STUDY

The study is not without limitations. The sample size, though large (n = 384), may not fully represent all demographic groups within the broader Indian population, particularly in rural areas. Additionally, the use of a self-reported Likert scale for measuring risk tolerance may introduce response bias. The study also focuses primarily on derivatives investors, which limits its generalizability to other investment forms or markets.

6.3. SUGGESTIONS FOR FUTURE RESEARCH

Future research could explore the role of additional demographic variables, such as gender and occupation, in shaping risk tolerance. Longitudinal studies could provide deeper insights into how risk tolerance evolves over time, especially with changing economic conditions. Comparative studies across different countries or regions could also offer a broader understanding of demographic influences on financial behaviour.

6.4. FINAL REMARKS

This research underscores the importance of considering demographic factors when designing investment strategies and risk management models. Financial advisors and institutions can benefit from these findings by tailoring their products and services to meet the specific risk profiles of their clients. The study contributes to the growing body of knowledge on investor behaviour, offering valuable insights for both the financial industry and individual investors seeking to optimize their investment strategies.

CONFLICT OF INTERESTS

None.

ACKNOWLEDGMENTS

None.

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