

How Risk Tolerance Influences Investment Choices: Evidence from the United States

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Abstract

Risk plays a central role in personal finance, as individuals' risk tolerance and risk aversion directly influence their investment decisions and financial behavior. Analyzing the relationship between risk and investment choices is crucial for understanding individual financial behavior. This study uses the 2022 wave of the Survey of Consumer Finance (SCF) and develops a relationship between risk tolerance, risk aversion, and investment choices related to stocks, bonds, mutual funds, and certificates of deposits (CDs). Using a multinomial logit model, the findings show that individuals with medium risk are significantly more likely to have investment holdings in stocks, bonds, mutual funds, and CDs. High risk individuals are found to be investing more in stocks, bonds, and mutual funds, but less on CDs as compared to medium risk individuals. Using an alternate definition of risk, willingness to take risk, the results remain robust and significant. Additionally, this research controls various socioeconomic and financial variables to analyze the impact of risk tolerance on investment choices. The findings also suggest that individuals with high personal finance knowledge are found to be significantly more likely to invest in financial products such as stocks, bonds, mutual funds, and CDs. These results allow investment firms, corporate entities, and governments to identify how risk

tolerance shapes investment behavior, target areas with lower participation, and design policies that encourage greater financial engagement among groups that are currently less likely to invest.

Introduction

Risk aversion is referred to as the price of risk (Çepni *et al.*, 2020). If financial risk tolerances are inversely related to risk aversion, then one can say that having a lower risk tolerance would make that person more risk averse (Antwi & Naanwaab, 2022; Grable & Rabbani, 2023; Hanna *et al.*, 2001). When looking at savings and investment plans as a function as such, both risk tolerance and aversion are necessary inputs to determine such accounts (Grable & Rabbani, 2023). If risk aversion is the alternative from risk tolerance, then the risks people are willing to take versus what risks they try to avoid are identifiable (Grable & Rabbani, 2023; Hanna, Gutter, & Fan, 2001). If an individual tries avoiding unnecessary risks, they can be deemed as risk averse instead of risk tolerant. Heddy *et al.*, (2025) and Antwi & Naanwaab (2022) talk about risk while they also include generations of individuals, not just a lump sum of individuals as the collective whole. In extending their work, there is a need to establish a relation between risk tolerance and investment choices.

Risk is something that is not only considered in terms of financial investments there are many other areas in which risk and risk aversion play an important role. In the area of health insurance, between two options, an individual may reveal information of a general nature about preferences for avoiding risk (Friedman, 1974). Moreover, they find that the estimated amount of risk aversion is quite high when stated in terms of simple gambles, where a gamble is referred to as the choice of the highest overall value from a pair of alternatives (Bromiley, 2010). This is a differentiated definition of risk aversion, where they view this scenario as a gamble, since one, or both options, leave the individual unsatisfied. Another area in which risk is notable is in property insurance, where individual policyholders are known to be risk averse and cannot hedge most types of risk in any other way than by purchasing insurance (Cummins & Sommer, 1996). This is an interesting thought that, like financial risk, there has been various research done on risk in other areas, which go beyond just health insurance and property insurance, such as unemployment insurance and flood insurance (O'Donoghue & Somerville, 2018). In the medical field, the tendency toward risk aversion may lead patients to weigh risks more heavily than benefits and thus lead to poor treatment choices (Oussedik *et al.*, 2017). Risk aversion is prevalent in other sections throughout the world, namely investments (including insurances), and medical-related fields. The caveat to risk aversion is namely risk tolerance, as specified further below.

In addition to risk aversion there is risk tolerance. Because of the difference between subjective and objective risk tolerance, the SCF questions may reflect a combination of the investor's current situation and/or the investor's limited information (Hanna *et al.*, 2001). The main difference between objective and subjective risk tolerance is what could be thought of as intuitive. Essentially, an individual with a high ego, who likes to portray themselves better to others, could say that they are very risk tolerant, when they are not. Likewise, the objective side of that is that they are not actually risk tolerant, based on facts, such as the portfolio status, financial status, etc. This double-edged sword of risk tolerance implies subjective and objective results and thus must be differentiated.

The classifications of investments are something that needs to be defined, since how these investments relate to risk is the area of concern. There are real investments and financial investments, which include tangible assets like buildings and equipment as well as securities, stocks, and similar instruments, respectively (Aghabekyan, 2025). Furthermore, the author mentions specific classifications of investments, including object of activity, organizational forms, duration, ownership, risk level, etc. For example, individual investors often use rules of thumb in making decisions, which become flawed in the real dynamic stock markets (Lo, 2012 and 2005). Referencing bonds, the borrower may choose to diversify his portfolio of outstanding obligations over various maturities, whether that is short term or long term, given the project lifespan (Roll, 1971). Although there are many other classifications of investments, such as mutual funds and life insurance, the primary types of financial investment for the purposes of this research are stocks, bonds, and mutual funds.

Risk has lots of prior research done on how it relates to investments (Antwi & Naanwaab, 2022; Çepni *et al.*, 2020; Cummins & Sommer, 1996; Friedman, 1974; Sachse *et al.*, 2012). There are four sources in which risk derives from as it pertains to investments, including default, differences in liquidity, certain rates of inflation, and incompatibility between bond maturities and investor horizons (Roll, 1971). There is a relationship between generational differences, risk tolerance, and attitudes towards financial investments (Antwi & Naanwaab, 2022). For predicting bond premia, time-varying risk aversion captures significant predictive information over excess returns on U.S. government bonds (Çepni *et al.*, 2020). When referencing insurance, specifically property insurance, individuals are known to be more risk averse (Cummins & Sommer, 1996). For health insurance, an individual may reveal information of a general nature about preferences for avoiding risk (Friedman, 1974). From the perspective of the individual investor, certain investment types, such as bonds and stocks of an individual, are perceived as risk characteristics of that individual (Sachse *et al.*, 2012). Furthermore, they looked at the individual's characteristics and their effects on perceived investment risk.

Many areas have investigated how investments connect to risk, and that is something that is built upon in this research.

The main idea of this paper is to see how investments change given an individual's risk level-either risk averse or risk tolerant. The reason for looking specifically at this is to see if there is a change in the number of holdings in various different investments with an increase or decrease in risk. Prior research shows that younger age groups present higher risk tolerance than their older counterparts (Shah *et al.*, 2024). Additionally, others look very specifically at the relationship of age with other investment patterns, including investment avenues, reasons of investment, investment knowledge and apprehension about investment (Ansari, 2019). Our contribution to the current literature is to see how risk affects investments by looking at different risk measures and different investment types. It is understood that others have looked at risk and investments but have not looked at holdings in investments as attributed to the various risk measurements. Particularly, this paper shows risk and its effects on investments, helping to strengthen current research to see precise trends that can be identified and interpreted with how the data is presented. This research answers the important question by employing the triannual cross-sectional data that is collected through the Survey of Consumer Finance (SCF).

This study consists of four sections. Section 2 explores literature. Section 3 reviews data sources, variables, and methodology. Section 4 deals with the analysis of the data. Section 5 brings everything together, entailing our conclusions and policy implications.

Literature Review

Risk Tolerance & Investment

Risk tolerance is an essential topic that needs to be addressed while evaluating the investment choices. Heddy *et al.* (2025) state that risk tolerance is difficult to research due to its subjective nature, and unable to address potential endogeneity because they did not make causal claims. Furthermore, Hanna and Chen (1997) mention the effect of subjective risk tolerance is investigated based on the investor's relative risk aversion. Moreover, Grable and Rabbani (2023) continue to say the idea here is that to measure effects of subjective risk, you would have to look at their risk aversion, otherwise known as the inverse of risk tolerance. Albeit subsequent mentions of it, it remains important to understand the underlying meaning. Fredman (1996) states that an investor's ability to handle risks may be related to individual characteristics. This coincides with the nature of our study, since Sung and Hanna (1996) mention there may be objective as well as

subjective aspects of risk tolerance. This is taken as fact, since current research shows that there are 2 sides to the coin, as stated by these authors.

Grable (2008) states that the most common, traditional, and no-fail technique of measuring this has been, historically, called the expected utility framework (EUT), which has been the primary approach used by researchers to describe how risk tolerance is conceptually linked with risk-taking behaviors. Furthermore, they note that even though EUT has traditionally been a favorite method for conceptualizing risk tolerance and risk-taking behaviors among economists and groups of researchers, they have questioned the notion that risk tolerance can be represented within an economic utility framework. Friedman and Savage (1948) were the earliest to challenge this, who said that only a handful of people have a constant risk aversion throughout their wealth. Once again, people try to do the same thing, irrespective of their life events. As Grable (2008) states again, risk preferences are constant while us (consumers) are rational. Although traditional economics uses the EUT as a baseline, current research does not favor the EUT. Tversky (1975) notes that the common, most widely understood definition of this is that EUT has been used in economics as a descriptive theory to explain various phenomena, like the purchase of insurance and the relation between spending and saving. This is an interesting concept to formulate, because it directly relates to our idea of investment behaviors. Although everyone seems to think EUT may be outdated, it serves as a very essential tool for us, and a baseline for how current researchers conduct their studies.

Prospect theory is a way to overcome the shortcomings of the seemingly outdated EUT. Many researchers agree that Kahneman and Tversky (1979) were the first to publish such a counter measure. Bromiley (2010) specifically states that prospect theory is where an individual chooses the gamble with the highest overall value from a pair of alternatives. In classical prospect theory, an uncertain prospect's utility is the sum of all utilities of each individual outcome, where each is weighted by probability. The updated version, deemed cumulative prospect theory by Tversky & Kahneman (1992), modifies this theory by suggesting that vessels of value are gains and losses instead of final assets, and that the value of each outcome is multiplied by a decision weight instead of an additive probability. They also note that to keep the essential features of the original theory, they extend it to uncertain and risky prospects with any possible number of outcomes. By doing this, they are better able to capture the full scope of those individuals around them, instead of just assuming if an individual always chooses the gamble with the highest value, in comparison to alternatives that may be better.

Risk Aversion & Investment

As for risk aversion, this topic adds another angle for risk tolerance, given that a person is risk averse (avoids) or risk tolerant (partakes). From O'Donoghue and Somerville (2018), risk aversion plays a role in investments, driving the trade-off between risk and return. Proper risk aversion is noted by many, but in the case of Pratt and Zeckhauser (1987), this would occur if an individual is required to take an outcome between two undesirable outcomes, while still believing that, after an outcome is chosen, it is still undesirable. They deem this as proper and by rejecting one outcome, it makes that individual accept other independent risks, of which do not affect others. In pertaining to investment behaviors, knowing the idea of properness is very prevalent in the sense that trends can be distinguished between different demographics, especially age differences. For instance, current research from Shah *et al.*, (2024) shows that younger ages present higher risk tolerance than their older counterparts. Furthermore, Shinde & Zanvar (2015) mention that, in India, other factors such as income and education level also affect an investor's risk tolerance, thus a negative relationship towards risk aversion. They also noted that age is the most important determinant of investor style, implying either high risk tolerance and low risk aversion, or low risk tolerance and high-risk aversion.

Risk tolerance and risk aversion are important factors when it comes to understanding investment behavior, but they are not as straightforward as they may seem. As shown throughout the literature, risk tolerance is both subjective and objective which cannot be fully explained by just one perspective. While traditional approaches like expected utility theory have been widely used as a baseline, more recent ideas such as prospect theory better capture how individuals make decisions, especially when dealing with gains and losses. Additionally, factors such as age, income, and education continue to play a major role in shaping an individual's level of risk tolerance or aversion. The research suggests that there is no single way to explain investor behavior, but rather a combination of different theories and individual characteristics that together influence how people approach risk in investment decisions. The following are the research hypotheses (i) The connections between risk tolerance and investment behaviors is associated with the individual's risk tolerance with other underlying factors playing a role (ii) High risk tolerant individuals have different investments than lower risk tolerant individuals (iii) There is a connection between an individual's personal finance knowledge and investments.

Data Sources, Variables, and Methodology

Data Source and Variables

This study uses data from the Survey of Consumer Finances (SCF), which is a cross-sectional data set collected by the Federal Reserve Board. Every year since 1983, they have conducted triannual cross-sectional surveys, where they ask questions about an individual's finance and investment statuses, asking both objective and subjective questions. Like any data source, there are bound to still be issues, even if trying to control and overcome these biases. As such, Lindamood *et al.* (2007) provides that there are four methodological issues related to using SCF data¹. This study follows various investment types such as stocks, bonds, mutual funds, and CDs. All these variables are equal to “one” if that individual holds that item, while “zero” otherwise. Table 1 provides the summary statistics and shows us the different measures of risk. Also, it provides survey averages for the following independent variables of debt and income. Additionally, there are demographic types: age, marital status, race, sex, education level, and employment status. What is the number for each component?

Firstly, there are the different investment categories that are analyzed. In totalization, there are total investments, stocks, bonds, mutual funds, and CDs. Total investment is the average of individuals holding any type of investment, where one is equal to if the individual holds any type of stock, bonds, mutual funds, and CDs. It is found to be that about 42.92% of people within this wave have any of these investment types, which amounts to an average of \$5,924 thousand. Breaking that down, stock is listed, which is if the individual has any type of stock, and one if they do. About 29.11% of individuals hold stocks, averaging about \$3,343 thousands. Within bonds, there are U.S. government savings bonds, mortgage-backed bonds, state or municipal or other tax-free bonds, U.S. Government bonds or Treasury bills, foreign bonds, and corporate or any other type of bonds. These are summed to be 1 if the individuals hold any of these, and if they do, is attributed to the bond's variable. 11.10% of individuals hold any type of these bonds, with the average amount being \$513 thousands.

Like bonds, the mutual funds variable equals 1 if the individual holds any of the following types of mutual funds: stock mutual funds; tax-free bond mutual funds; U.S. government or government backed bond mutual funds or other bond mutual funds; combination funds; and any other mutual funds. It is important to note that all have options for electronically traded funds (ETFs) as listed by the SCF. The average 20.04% of individuals are found to hold any of these, which equates to about 1,960—in thousands of dollars. Lastly, there are CDs, which are equal to 1 if the individual holds any CDs at financial. About 7.80% of individuals do, and the average amount invested is only 108—in thousands of dollars. It is very important to note that the total investment percentage does

¹ These issues are 1) the respondent may not be the head of household, 2) some variation in reporting of race and ethnicity between SCF and federal standards, 3) using RII method for implicates, 4) discussion of weighted and unweighted data in multivariate analysis.

not coincide with the summation of the various investment types. This is because the total investment is just asking if the individual has any of the types of investments, while the others are specific breakdowns of that category. This means that the same individual can be selected as 1 for stocks, bonds, mutual funds, and CDs, but only has 1 entry for that of total investments.

Table 1. Summary Statistics

Variables	Description	Mean
Investment (%) - (in thousandths, nearest \$)		
Stock owned	=1 if individual holds any stock	29.11 (3,343)
Bond(s) holding	=1 if individual holds any bond	11.10 (513)
Mutual funds holding	=1 if individual holds mutual fund	20.04 (1,960)
CDs at financial institutions	=1 if individual has any Certificate Deposits	7.80 (108)
Risk Tolerance (omitted: low risk)		
Medium risk	=1 if individual ranked 3 - 7	59.35
High risk	=1 if individual ranked 8 - 10	17.13
Willingness to take risks	=1 if individual is risk willing	68.24
Personal Finance Measure		
Some finance knowledge	=1 if individual ranked 3 - 7	40.42
High finance knowledge	=1 if individual ranked 8 - 10	56.69
Household Debt		
Total debt	=1 if individual has debt	85.41
Credit line	=1 if individual has a credit line	12.21
Credit card	=1 if individual has a credit card	82.12
Student loan	=1 if individual has a student loan	17.67
Income		
Income (in thousandths, nearest \$)	=average individual income	1,520
Income brackets (omitted: <40,000)		
40,000-59,999	=1 if individual income	12.85
60,000-79,999	=1 if individual income	9.14
80,000-99,999	=1 if individual income	6.48
100,000-124,999	=1 if individual income	6.99
125,000-149,999	=1 if individual income	4.54
150,000+	=1 if individual income	34.02
Demographics		
Individual age		
18-34	=1 if individual age	13.34
35-50	=1 if individual age	26.96
51-64	=1 if individual age	29.82
65+	=1 if individual age	29.88
Marital Status (omitted: Never Married)		

Married	=1 if married	54.60
Separated / Divorced	=1 if separated or divorced	17.13
Widowed	=1 if widowed	6.72
Race (omitted: white)		
Black/African American	=1 if Black/African American	15.60
Hispanic/Latino	=1 if Hispanic/Latino	13.60
Asian/Indian/Hawaiian	=1 if Asian/Indian/Hawaiian	8.78
Sex (omitted: male)		
Female	=1 if female	23.90
Education Level (omitted: <12 th grade/no diploma)		
High school diploma	=1 if highest education	19.68
Bachelor's / associate's degree	=1 if highest education	47.21
Graduate degree	=1 if highest education	23.76
Employment Status (omitted: Employed ²)		
Working now ³	=1 if working now	66.64
Retired	=1 if retired	22.22
Unemployed ⁴	=1 if unemployed	3.55

Note: 22,975 observations in this wave. All percentages rounded to the nearest hundredth. All dollar amounts rounded to the nearest dollar. ETFs are short for electronically traded funds.

For the different measures of risk, there is the 11-point grading scale, where the individual ranks if they see themselves as low risk (-1 to 2); medium risk (3 to 7); and lastly, high risk (8 to 10). Secondly, there is willingness to take risks, which is the 4-point grading scale. This is where any individual satisfies that field if they put one for if they have substantial, above average, or average risk tolerance. These are summed into one category, called willingness to take risks. Lastly, another risk measurement is used, which is the personal finance knowledge question. Like the 11-point scale, the same bounds for determining the individual's personal finance knowledge are utilized, with 0 being if any individual has no financial knowledge, and 10 is if the individual ranks themselves as being very financially knowledgeable. Most of the observants decide that they are medium risk tolerant, assuming that they are not overtly risky or scared of taking risks. The number of observations who reported themselves in this group equates to 5,403 individuals, equating to 23.52%. The respondents who rank themselves at medium risk is 13,636 equal to 59.35, and high-risk respondents are at 3,936, or 17.13%. The number of individuals who are willing to take any financial risk is 68.24% of the survey. 2.89% of individuals put themselves as having no financial knowledge. 40.42% of individuals said they have some

² Other omitted employment statuses include those on vacation, leave of absence, on sabbatical, on strike, or are a student.

³ Also includes those who are self-employed or doing volunteer work.

⁴ Also includes those under temporary employment.

financial knowledge. 56.69% of individuals say that they have high financial knowledge. From this, although most individuals rank themselves within the medium risk group, this is a left-tailed data set, since there are 1,467 more respondents who rank themselves as low risk than high risk. Antwi and Naanwaab (2022) use ownership of financial securities as their dependent variables, while other independent variables, such as willingness to take risks, are included in their model. Sachse *et al.* (2012) talks about investment risk from the perspective of individual investors. They investigated the volatility of certain investment types, such as bonds and stocks of an individual to see perceived risk characteristics. Furthermore, they looked at the individual's characteristics and their effects on perceived investment risk.

Then there are the debt and income variables. Debt is broken down into specific categories that are common for these survey individuals. These are if any individual has any line of credit, credit card, or student loan. There is also total debt, which is 1 if the individual has any type of debt. 85.41% of individuals have some type of debt, while 12.21% of individuals have debt from lines of credit; 82.12 have debt from any credit card, and 17.67% have some type of student loan(s). Also, there is average income for each individual which includes the following income sources: wages and salaries; sole proprietorship; non-tax investments; interest; dividends; gains or losses from the sale of mutual funds, stocks, bonds, or real estate; other businesses or investments, net rent, trusts, or royalties; unemployment or worker's compensation; child support or alimony; social security or other pensions, annuities, or other disability or retirement programs; and welfare programs such as SNAP and TANF. With the average sum, the individual has an income of about 1,520—in thousands of dollars. Additionally, Boisclair *et al.* (2017) breaks down income into 7 total categories. Those same categorical bounds for different incomes are used here, since it shows how the individuals surveyed fare amongst others.

The various demographic variables include age, marital status, race, sex, education level, and employment status. The bulk of individuals are found to be 65+ years old, with 51-64, 35-50, and 18-34 trailing. The overwhelming majority of individuals surveyed are married, then separated and divorced combined into one, and then widowed. The omitted category is those who have never been married. For race, the omitted category is white individuals, which happens to be a big portion of respondents. Following this, Black and African American individuals, Hispanic and Latino individuals, and Asian or Indian or Hawaiian individuals are listed, who are all combined into one category due to low representation. For sex, the vast number of individuals are male, with only a quarter being female. Next there is the education level. It is important to note that these categories are representative of high levels of completion. If an individual has received a high school diploma, went to a four-year college, but never got their bachelors, then they are represented in the high school diploma category. About half of the individuals have a

bachelor's or associate degree—combined into one category—followed by those with a graduate degree—including master's or a PhD—followed by those with a high school diploma. The omitted category is for those who have never received a diploma or have completed no more than twelfth grade or lower. That which remains is the employment status of these individuals. Many are working now or self-employed or doing volunteer work. Following this are those who are retired. Trailing is those who are temporarily employed due to seasonal work or those unemployed. The omitted category is those currently employed and other various types.

Methodology

In order to do analysis with the variables presented above, this study develop a relation between risk tolerance and investment behavior. The dependent variables are ownership in investments, with medium and high-risk tolerance being the primary independent variables. The other risk variables are also considered, and the demographics follow. A multinomial logit model is the determinant for developing the model at hand. This is because the investment categories, fixed income securities and equities have more than two outcomes. Fixed income securities include all bonds and CDs, and equities include all stocks and all mutual funds. By making a multinomial logit model, the group with no investment can be removed. This prevents skewing of the results because they only include those who hold investments, which is the main area of concern. The probability of an individual selecting any investment within either category represented by $j \in \{1,2\}$, holding relative to the base category of individuals not holding an investment in the specific category represented by $j = 0$, the following multinomial logit model is used:

$$Pr (R_i = j) = \frac{\exp (X_i' \beta_j)}{1 + \sum_{k=1}^2 \exp (X_i' \beta_k)} \text{ for } j = 1,2 \quad (1)$$

$$Pr (R_i = 0) = \frac{1}{1 + \sum_{k=1}^2 \exp (X_i' \beta_k)}$$

Where $R_i \in \{0,1,2\}$ are representative of the individuals holding in investments. Since fixed income securities include bonds and CDs and equities include stocks and mutual funds, let $R_i = 0$ represent an individual not holding any specific investment in either the fixed income securities or equities category. X_i is a set of control variables for the individual, including debt, income, age, marital status, race, sex, education level, and employment status. β_j is the main variable, representing the individual's holdings in the

specific investment category. Considering this, the next section includes the results and analysis of the data.

Data Analysis and Estimations

Correlation Results

Figure 1 looks at the correlation between the different risk measurements against the various investment types, which is listed as a percentage. Out of all the respondents who designated themselves as either low risk, medium risk, or high risk, that individual either satisfies the category or not by correlating it with the different investment types. The percentage shown is the number of respondents within that category who hold that particular investment type. The correlation shows that high risk individuals and those with high personal finance knowledge are holding investments more than their counterparts. Risk willingness, willingness to take risk, is highest in stock, just like the other categories.

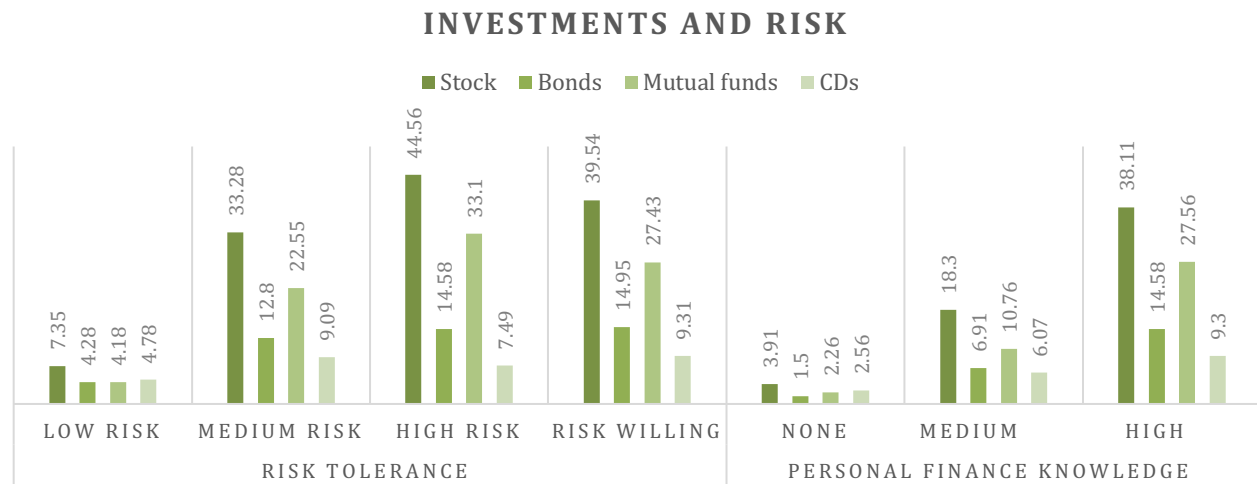


Figure 1. Investments and Risk

Table 2 shows the correlations between the different risk measurements and demographics. Age categories, marital status, race, sex, education level, and employment status are all included. Of interest is seeing that, compared to medium and high-risk categories, the married groups are more than 20% lower in low-risk respondents. Across the board, the largest race group is white. However, the smallest race group are those included within Asian/Indian/Hawaiian. Another key point of interest is seeing that females have the highest respondent percentage within the low-risk category, showing at 40.63%, which is nearly 21% higher than medium risk (19.73%) and high risk (15.37%). Of course, the least educated individuals have the lowest percentage of those with a graduate degree,

falling to 8.98%. The low-risk people have the highest rate of anything less than twelfth grade and no diploma, almost doubling the percentage between its cohorts of medium and high-risk respondents.

Table 2. Correlations of Demographics and Risk

Demographic	Risk				Personal Finance Knowledge		
	Low Risk	Medium Risk	High Risk	Risk Willing	None	Some	High
Age							
18-34	12.68	14.12	11.56	13.30	13.53	20.57	8.18
35-50	24.15	28.37	25.97	27.64	30.08	33.81	21.92
51-64	26.97	29.72	34.04	31.07	25.56	24.59	33.76
65+	36.20	27.79	28.43	28.00	30.83	21.03	36.14
Marital Status							
Married	37.44	59.96	59.60	61.98	20.30	45.63	62.75
Separated / Divorced	24.49	14.24	17.02	14.04	30.08	18.58	15.43
Widowed	11.97	5.41	4.07	4.61	15.79	5.44	7.18
Race							
Black/African American	21.97	13.44	14.33	11.78	20.60	19.73	12.39
Hispanic/Latino	20.12	11.45	12.07	9.03	35.34	18.06	9.31
Asian/Indian/Hawaiian	6.29	9.33	10.29	9.54	9.02	9.64	8.15
Sex							
Female	40.63	19.73	15.37	17.12	50.38	28.32	19.39
Education Level							
High school diploma	27.56	17.37	16.90	14.54	31.43	24.46	15.68
Bachelor's / associate's degree	43.66	49.52	44.11	50.67	27.52	46.54	48.69
Graduate degree	8.98	27.16	32.29	31.03	6.77	16.07	30.12
Employment Status							
Self employed	52.69	69.87	74.59	72.93	51.13	68.92	65.80
Retired	27.52	21.66	16.90	20.22	20.30	16.63	26.31
Unemployed	4.81	3.12	3.30	2.61	6.02	5.06	2.34

Note: Age in years old, rounded to nearest hundredth. All percentages rounded to nearest hundredth.

Four big trends are clear within this table. Firstly, widowed respondents decrease from low risk and high risk. Secondly, Asian/Indian/Hawaiian respondents increase from low

risk to high risk. Thirdly, those with a high school diploma as their highest form of education decrease from low risk to high-risk respondents. Lastly, those with a graduate degree increase from low risk to high risk. These are the four trends that are constant throughout the data. Although some categories are highest and lowest within medium risk than low and high risk, it does not appear to be common. Specifically, married (highest), separated/divorced (lowest), less than twelfth grade/no diploma (highest) and bachelors/associates degree (highest). This tells us that either more or less are grouped within the other categories where medium is the highest or lowest. Those who are self-employed seem to be higher in all categories, especially if the individual has high risk tolerance, is willing to take any sort of risk, and has high personal finance knowledge. The exception is that those that have some personal finance knowledge are higher in self-employment than those who have high personal finance knowledge. Generally, those who are retired have lower risk tolerance levels, not as willing to take risks, and yet most of them say they have high personal finance knowledge. Unemployed individuals have the lowest rates of willingness to take risks and have the lowest rate of individuals putting themselves as having high personal finance knowledge. Other unworking types, including students, are found to be the lowest in having low risk tolerance but a significant margin, and so are those having no personal finance knowledge within this category.

Table 3 shows the correlation between demographics and investments. The younger categories (18-34, 35-50) find more of themselves holding stocks more than the other categories. Those of the 51-64 varieties are found to be holding more mutual funds, and those 65+ are found to have CDs more than their other options. Unanimously, married individuals dominate each category of investment. Individuals are found to be holding mutual funds more than the other categories, but only slightly. The lowest percentage of ownership is found in widowed individuals, who are the lowest in each category. For race, Asian/Indian/Hawaiian individuals are the highest of the other minority groups to hold any investment type, with Hispanic/Latino individuals being the lowest in all categories, except for mutual funds where Black/African Americans are the lowest. Those who are female are holding CDs more than the other types of investments, with the lowest being mutual funds.

Of all education levels, those with a high school diploma as their highest educational attainment are tremendously lower in holding any type of investment. Stocks and CDs are highest in those with a bachelor's or associate degree, and those with a graduate degree are highest in bonds and mutual funds. Employment shows some interesting connections. Firstly, those individuals who are self-employed are seen to be more correlated in holding everything investment. The highest rate of investment is found in stock, which is found to be true in all categories. CDs have the lowest investment rate compared to those being self-employed. Stocks are the least common investment for those who are retired. For unemployed people and the lower rates of investment, the lowest is found in bonds.

Table 3: Correlation of Demographics and Investments

Demographic	Stocks	Bonds	Mutual Funds	CDs
Age				
18-34	10.05	3.10	6.19	2.51
35-50	22.31	17.91	19.66	15.74
51-64	32.11	34.54	37.88	34.93
65+	35.54	44.45	36.27	46.82
Marital Status				
Married	72.58	75.15	77.06	69.92
Separated / Divorced	10.87	11.17	9.69	10.99
Widowed	4.02	7.06	3.58	9.26
Race				
Black/African American	6.08	2.74	2.37	5.69
Hispanic/Latino	4.38	1.80	3.37	4.85
Asian/Indian/Hawaiian	12.24	7.80	10.66	12.89
Sex				
Female	9.34	11.92	7.86	14.73
Education Level				
High school diploma	8.64	7.06	5.73	12.56
Bachelor's/associate's degree	50.80	45.35	45.89	50.28
Graduate degree	39.36	46.69	47.61	34.77
Employment Status				
Self employed	72.42	65.23	71.70	60.99
Retired	23.89	31.44	25.37	35.10
Unemployed	1.49	0.78	1.41	1.40

Note: All percentages rounded to nearest hundredth.

Regression Results

As mentioned in the methodology, the investment categories are split to account for those not holding any types of investments. To do this, 4 multinomial logit models are used to account for the different investment types and risk measurements. Multinomial logit 1 (ML1) shows the results for the primary risk measurement, risk tolerance, for fixed income securities (bonds and CDs).⁵ ML2 uses the same measurement but takes equities instead (stocks and mutual funds).⁶ ML3 uses the alternate risk measurement tool, willingness to

⁵ ML1 uses those not having investments in either fixed income security as the base category.

⁶ ML2 uses those not having investments in either equity as the base category.

take risk, and compares it against fixed income securities⁷. ML4 is similar but uses equities instead.⁸

Table 4 shows the regression results for investments and risk using the main risk measurement tool, risk tolerance. This is derived from SCF’s 11-point risk tolerance scale. This table also considers personal finance knowledge, various debt categories, income brackets, and various demographic categories. Fixed income securities reveal several notable patterns. For medium-risk individuals, the coefficients for bonds (0.034) and CDs (-0.004) are not statistically significant, indicating that medium risk has little influence on whether someone holds these assets. The positive sign for bonds and the negative sign for CDs suggests a slight tendency for medium-risk investors to favor bonds over CDs, but the effect is too weak to draw strong conclusions. This differentiation in behavior across fixed income instruments aligns with prior research showing that investors do not treat all fixed income assets uniformly and instead consider perceived risk and return characteristics (Sachse *et al.*, 2012). In contrast, high-risk individuals exhibit significant negative coefficients for both bonds (-0.379) and CDs (-0.463), indicating they are substantially less likely to hold either asset relative to non-investors. The slightly larger negative effect for CDs reflects their guaranteed, low-yield nature, which high-risk investors tend to avoid. These results support established findings that risk-tolerant individuals prefer assets with higher expected returns over low-yield, capital-preserving instruments (Grable, 2008). In practical terms, high-risk individuals are dramatically less likely to hold any fixed income securities, and the avoidance is particularly pronounced for CDs.

Table 4: Multinomial Logit Regression Analysis (Investments and Risk)

	Fixed Income Securities (ML1)		Equities (ML2)	
	Bonds	CDs	Stocks	Mutual Funds
Medium Risk	0.034 (0.121)	-0.004 (0.098)	0.845*** (0.077)	0.752*** (0.088)
High Risk	-0.379** (0.173)	-0.463*** (0.149)	1.131*** (0.087)	1.152*** (0.096)
Some finance knowledge	0.531 (0.463)	0.036 (0.265)	1.541*** (0.416)	-0.078 (0.281)
High finance knowledge	0.403 (0.464)	-0.247 (0.266)	1.672*** (0.416)	0.310 (0.280)
Credit line	0.194 (0.120)	-0.093 (0.115)	-0.134** (0.061)	-0.219*** (0.060)
Credit card	0.667*** (0.197)	0.689*** (0.157)	1.049*** (0.105)	1.386*** (0.160)
Student loan	0.248**	-0.494***	0.211***	-0.873***

⁷ ML3 uses those not having investments in either fixed income security as the base category.

⁸ ML4 uses those not having investments in either equity as the base category.

	(0.118)	(0.146)	(0.056)	(0.079)
Income 40,000-59,999	0.321*	0.245*	0.425***	0.322**
	(0.185)	(0.141)	(0.094)	(0.128)
Income 60,000-79,999	0.795***	0.699***	0.550***	0.526***
	(0.182)	(0.146)	(0.099)	(0.132)
Income 80,000-99,999	0.825***	0.492***	0.475***	0.833***
	(0.199)	(0.175)	(0.110)	(0.134)
Income 100,000-124,999	0.951***	0.810***	0.695***	0.874***
	(0.192)	(0.161)	(0.105)	(0.130)
Income 125,000-149,999	0.235	0.262	1.031***	1.214***
	(0.250)	(0.210)	(0.112)	(0.134)
Income 150,000+	0.031	-0.001	1.165***	1.740***
	(0.188)	(0.150)	(0.090)	(0.109)
Age	0.004	0.023***	-0.012***	-0.010***
	(0.004)	(0.004)	(0.002)	(0.002)
Married	0.160	0.066	-0.281***	-0.550***
	(0.150)	(0.139)	(0.069)	(0.078)
Separated / Divorced	0.049	-0.225	-0.203**	-0.505***
	(0.162)	(0.152)	(0.081)	(0.093)
Widowed	0.083	0.132	-0.341**	-0.689***
	(0.222)	(0.169)	(0.132)	(0.142)
Black/African American	-1.385***	-0.297**	-0.107	-1.208***
	(0.204)	(0.138)	(0.072)	(0.127)
Hispanic/Latino	-1.117***	-0.193	-0.490***	-0.662***
	(0.209)	(0.154)	(0.084)	(0.100)
Asian/Indian/Hawaiian	-0.826***	0.228*	0.295***	-0.032
	(0.193)	(0.130)	(0.067)	(0.071)
Female	0.389***	0.168	-0.442***	-0.331***
	(0.143)	(0.125)	(0.075)	(0.088)
High school diploma	-0.119	0.577***	0.367**	0.617***
	(0.280)	(0.205)	(0.143)	(0.221)
Bachelor's/associate's degree	0.542**	0.667***	0.712***	1.283***
	(0.261)	(0.200)	(0.138)	(0.213)
Graduate degree	0.505*	0.487**	0.505***	1.443***
	(0.275)	(0.216)	(0.144)	(0.216)
Self employed	0.031	0.023	0.279**	0.194
	(0.223)	(0.203)	(0.128)	(0.159)
Retired	-0.029	0.617***	0.508***	0.573***
	(0.239)	(0.207)	(0.138)	(0.166)
Unemployed	-0.824*	-0.962**	0.042	0.352
	(0.496)	(0.488)	(0.190)	(0.223)
Pseudo R-squared		0.0705		0.1612
Number of observations	22,975	22,975	22,975	22,975

Note: Standard errors in parentheses. *** Significant at the 1% level, ** Significant at the 5% level, * Significant at the 10% level. Values rounded to nearest thousandth.

Debt also plays a distinct role in shaping fixed income holdings. Credit card ownership is strongly associated with higher participation in both bonds (0.667) and CDs (0.689), suggesting that access to credit corresponds with greater engagement in financial markets. In contrast, holding a line of credit has no significant effect, though the signs are positive for bonds and negative for CDs. Student loans create mixed effects: borrowers are more likely to hold bonds (0.248) but less likely to hold CDs (-0.494). These patterns indicate that borrowers may seek moderately higher returns via bonds while avoiding the low yields of CDs.

Income strongly predicts fixed income investment. Individuals earning \$60,000–\$124,999 exhibit significant positive effects at the 1% level for both bonds and CDs, with the effect for bonds generally larger. Those earning \$60,000–79,999 show coefficients of 0.795 for bonds and 0.699 for CDs, while the effect grows with higher income brackets, reaching 0.951 for bonds and 0.810 for CDs in the \$100,000–124,999 range. Individuals earning \$40,000–59,999 are significant at the 10% level, whereas the highest income group (\$150,000+) shows positive but not statistically significant effects, suggesting that very high earners may allocate more wealth toward equities or alternative assets. These results highlight that fixed income holdings are concentrated among middle- to upper-middle-income investors. This is in line with previous studies indicating that higher-income individuals are more likely to allocate wealth toward riskier assets due to greater financial capacity to absorb potential losses (Hanna *et al.*, 2001)

Demographic factors further shape fixed income participation. Age and marital status are generally not significant for bonds, though older individuals show a slight preference for CDs (0.023). Minority status significantly affects holdings: Black/African American investors are less likely to hold bonds (-1.385) and moderately less likely to hold CDs (-0.297), while Hispanic/Latino individuals are also less likely to hold bonds (-1.117). Asian/Indian/Hawaiian individuals are slightly more likely to hold CDs (0.228). Females are significantly more likely to hold bonds (0.389), but there is no notable effect for CDs. Education positively influences fixed income participation, with bachelor's/associate's degree holders more likely to hold bonds (0.542) and CDs (0.667), and graduate degree holders showing similar positive effects (bonds 0.505, CDs 0.487). High school diploma holders are more likely to hold CDs (0.577). Employment status is also important: retirees are more likely to hold CDs (0.617), whereas unemployed individuals are significantly less likely to hold both bonds (-0.824) and CDs (-0.962). Overall, fixed income holdings are most common among middle-income, educated, and retired investors, while minority status and unemployment reduce participation.

Equity holdings (stocks and mutual funds) exhibit different patterns. Medium-risk individuals are significantly more likely to hold equities, with positive coefficients for stocks (0.845) and mutual funds (0.752), slightly stronger for stocks. High-risk individuals

show even larger positive effects (stocks 1.131, mutual funds 1.152), demonstrating a strong positive relationship between risk tolerance and equity ownership. Financial knowledge amplifies this effect: individuals with some knowledge are much more likely to hold stocks (1.541), while those with high financial knowledge show even greater likelihood (1.672). The effect on mutual funds is weaker, supporting prior research that financial literacy drives participation more in complex assets like stocks than in simpler pooled investments such as mutual funds (Sachse et al., 2012). These findings reinforce the well-documented link between higher risk tolerance and equity market participation (Hira & Loibl, 2008; Grable, 2008).

Debt has nuanced effects on equities. Holding a line of credit slightly decreases the likelihood of owning stocks (-0.134) and mutual funds (-0.219), while credit card ownership significantly increases equity holdings (stocks 1.049, mutual funds 1.386). Student loans increase the probability of holding stocks (0.211) but decrease mutual fund participation (-0.873). Income is also a strong predictor: equities are significantly associated with all income levels, with the largest effects for the highest earners (\$150,000+: stocks 1.165, mutual funds 1.740). Stocks are more strongly associated with lower- to mid-income groups, while mutual funds dominate among higher-income investors, reflecting the capacity of wealthier individuals to diversify into complex, pooled assets. These trends align with prior findings that higher-income individuals are more willing to allocate wealth to riskier assets due to greater capacity to absorb potential losses (Hanna et al., 2001).

Demographics influence equity ownership in several ways. Age has a small but significant negative effect (stocks -0.012 mutual funds -0.010), consistent with life-cycle patterns where older investors shift toward safer assets (Hanna et al., 2001). Marital status reduces equity participation: married, separated/divorced, and widowed individuals are all less likely to hold equities than never-married individuals. Minority status produces mixed effects: Black/African American and Hispanic/Latino investors are less likely to hold equities, whereas Asian/Indian/Hawaiian individuals are slightly more likely to hold stocks. Females are significantly less likely to hold equities (stocks -0.442, mutual funds -0.331), reflecting observed gender differences in risk tolerance (Hira & Loibl, 2008). Education remains a key factor: higher attainment correlates with greater equity holdings across all asset types, with bachelor's/associate's degree holders and graduate degree holders showing strong positive effects. Employment also matters, retirees and self-employed individuals are more likely to hold equities, with coefficients of 0.508 for stocks and 0.573 for mutual funds for retirees.

The results reveal several noteworthy patterns in investment behavior. First, whether using the primary risk measure, risk tolerance, or the alternative measure, willingness to take risk, the general effects on fixed income securities and equities are largely consistent. Personal finance knowledge, however, stands out as having a more targeted influence: it is

statistically significant only for stocks. This finding is particularly interesting because, while risk measures demonstrate significance with varying effects across all investments, the role of financial knowledge appears concentrated in riskier instruments. In practical terms, it suggests that an individual's understanding of personal finance is a key driver of participation in stocks, the riskiest investment class, whereas safer assets like bonds and CDs, and moderately risky pooled investments such as mutual funds, are less dependent on financial literacy.

Income also emerges as a strong determinant of investment choices, with a noticeably stronger influence on equity holdings than on fixed income securities. For fixed income, significance is observed primarily among those earning \$60,000–\$124,999 annually, with moderate significance at the 10% level for those earning \$40,000–\$59,999. This aligns with expectations, given the low-risk profile of bonds and the guaranteed returns offered by CDs: middle-income investors are likely allocating more of their limited resources to these safe instruments. In contrast, higher-income individuals show no significant effects for fixed income, suggesting that these investments are less appealing relative to higher-return options. Equities, on the other hand, display significant positive effects across nearly all income brackets, with the strength of the effect increasing alongside income. This pattern is observed for both stocks and mutual funds, indicating that higher-income individuals not only tolerate more risk in pursuit of higher returns but also strategically leverage the lower-risk nature of mutual funds for diversification.

Demographic characteristics further illuminate investment patterns. Age is associated with a modest but meaningful effect: older individuals are more inclined toward fixed income holdings—particularly CDs—and slightly less likely to hold equities, reflecting a life-cycle tendency to favor capital preservation. Marital status does not significantly influence fixed income holdings but is negatively associated with equity participation across all categories. Racial and ethnic differences are pronounced: minority groups generally exhibit lower bond ownership, with the negative effect strongest for Black/African American individuals, followed by Hispanic/Latino and Asian/Indian/Hawaiian groups. For CDs, Black/African Americans show a slight negative effect, Hispanic/Latinos no significant effect, and Asian/Indian/Hawaiians a small positive effect. In equities, Hispanic/Latino and Black/African American individuals are less likely to hold stocks or mutual funds, while Asian/Indian/Hawaiian individuals are more likely to hold stocks. Gender effects align with existing literature: women are less likely to hold equities but are slightly more likely to hold bonds, consistent with evidence that women generally exhibit lower financial risk tolerance (Hira & Loibl, 2008).

Table 5: Multinomial Logit Regression Analysis (Investments and Alternate Risk)

	Fixed Income Securities (ML3)		Equities (ML4)	
	Bonds	CDs	Stocks	Mutual Funds
Willingness to take risks	0.965*** (0.142)	-0.100 (0.093)	1.112*** (0.070)	0.781*** (0.076)
Some finance knowledge	0.426 (0.462)	0.062 (0.263)	1.623*** (0.416)	0.045 (0.279)
High finance knowledge	0.241 (0.464)	-0.259 (0.264)	1.767*** (0.416)	0.469* (0.279)
Credit line	0.160 (0.121)	-0.094 (0.115)	-0.134** (0.061)	-0.210*** (0.059)
Credit card	0.535*** (0.198)	0.696*** (0.157)	1.024*** (0.106)	1.357*** (0.160)
Student loan	0.288** (0.117)	-0.478*** (0.146)	0.184*** (0.056)	-0.902*** (0.079)
40,000-59,999	0.241 (0.185)	0.247* (0.141)	0.375*** (0.094)	0.297** (0.128)
60,000-79,999	0.672*** (0.183)	0.711*** (0.146)	0.461*** (0.099)	0.484*** (0.132)
80,000-99,999	0.649*** (0.199)	0.492*** (0.176)	0.400*** (0.111)	0.809*** (0.133)
100,000-124,999	0.792*** (0.192)	0.825*** (0.162)	0.617*** (0.105)	0.835*** (0.130)
125,000-149,999	0.011 (0.249)	0.272 (0.210)	0.931*** (0.112)	1.185*** (0.134)
150,000+	-0.276 (0.187)	-0.026 (0.150)	1.064*** (0.091)	1.726*** (0.109)
Age	0.006 (0.004)	0.022*** (0.004)	-0.011*** (0.002)	-0.009*** (0.002)
Married	0.241 (0.151)	0.080 (0.139)	-0.263*** (0.069)	-0.553*** (0.078)
Separated / Divorced	0.070 (0.163)	-0.237 (0.152)	-0.174** (0.081)	-0.476*** (0.093)
Widowed	0.151 (0.222)	0.129 (0.169)	-0.308** (0.133)	-0.665*** (0.142)
Black/African American	-1.364*** (0.204)	-0.324** (0.139)	-0.022 (0.072)	-1.127*** (0.127)
Hispanic/Latino	-1.037*** (0.209)	-0.219 (0.154)	-0.374*** (0.084)	-0.576*** (0.100)
Asian/Indian/Hawaiian	-0.777*** (0.193)	0.213 (0.131)	0.384*** (0.067)	0.047 (0.071)
Female	0.474*** (0.142)	0.187 (0.125)	-0.437*** (0.075)	-0.354*** (0.088)
High school diploma	-0.192 (0.280)	0.572*** (0.205)	0.303** (0.144)	0.570*** (0.221)

Bachelor's/associate's degree	0.361 (0.261)	0.683*** (0.201)	0.574*** (0.139)	1.173*** (0.213)
Graduate degree	0.290 (0.275)	0.500** (0.217)	0.359** (0.145)	1.333*** (0.216)
Self employed	-0.032 (0.223)	0.015 (0.203)	0.276** (0.128)	0.200 (0.159)
Retired	-0.092 (0.240)	0.637*** (0.207)	0.493*** (0.138)	0.559*** (0.166)
Unemployed	-0.867* (0.496)	-0.982** (0.488)	0.144 (0.190)	0.428* (0.224)
Pseudo R-squared	0.0733		0.1629	
Number of observations	22,975	22,975	22,975	22,975

Note: Standard errors in parentheses. *** Significant at the 1% level, ** Significant at the 5% level, * Significant at the 10% level. Values rounded to nearest thousandth.

Education continues to play a critical role in investment decisions. Individuals with higher educational attainment are increasingly likely to hold both equities and fixed income assets, whereas high school diploma holders show a modest negative effect for bonds that is not statistically significant. Employment status is generally less influential, with exceptions observed among retired individuals, who show positive and significant effects for most investment types except bonds, and unemployed individuals, who are significantly less likely to hold fixed income securities but do not show consistent effects for equities.

Overall, these findings suggest that investment behavior is shaped by a combination of risk preference, financial knowledge, income, debt, and demographic factors. Using instrumental variable techniques to identify risk tolerance, this analysis demonstrates that these variables exert significant, and at times opposing, influences on the likelihood of holding different types of assets. High financial knowledge, moderate to high income, and certain demographic factors increase the likelihood of participation in riskier investments like equities, while safer instruments such as bonds and CDs are more influenced by age and middle-income status. The results underscore the complexity of investment decisions, highlighting the nuanced interplay between individual characteristics and perceived risk across asset classes.

As a robustness check, an alternate measure of risk is used, willingness to take risks. This combines the SCFs 4-point scale into one variable, where it is equal to one if the individual has the following risk types: substantial risk, above average risk, and average risk. Those who put themselves as having no risk are equal to zero and excluded by using the multinomial logit model. Leaving all other control variables equal, the results hold and are robust. Significance and signs remain the same for nearly all categories. The pseudo-R-

squared value also remains similar, with the alternate risk measurement tool yielding slightly higher results.

Conclusions and Policy Implications

Risk tolerance is analyzed and how it affects investment selection, which is found to have effects on the latter. Alternatively, risk aversion was analyzed as well, since they are negatively correlated. Other researchers have used other methods of framing the connection between the two variables, such as the older EUT and the newer version: prospect theory. Other researchers have had previous findings on the topic yet have not used an alternate measure in their same analysis and instead focused on one measurement and limited control variables. This goes beyond those other areas of study by utilizing a primary measurement (SCF 11-point scale) and an alternative measurement (willingness to take risks), specifically financial risks as per the scope of this research. To do this, a multinomial logit model was used to uncover key points of interest for risk and investment selection. The research hypotheses have been affirmed, where (i) The connections between risk tolerance and investment behaviors are associated with the individual's risk tolerance with other underlying factors playing a role (ii) High risk tolerant individuals do have different investments than lower risk tolerant individuals, such as riskier assets (stocks and mutual funds) (iii) There is a connection between an individual's personal finance knowledge and investments, with significance found in stocks only—the riskiest of the investments.

Firstly, the SCFs 11-point scale and our alternate variable created from the SCFs 4-point scale are one in the same in terms of determining investment holding, given the dependent variables. The outlier here is that while bonds using the primary measurement are not statistically significant, the alternate measurement makes the bonds significant. Moreover, the primary measurement of risk shows that risk tolerant individuals have a negative relationship of holdings with fixed income securities, while positive relationships with equities. However, those with some and high finance knowledge show that they are only significant in determining holdings of stocks, and by quite a large effect. This makes sense given the riskiness of stocks. Interestingly here, while both models show significance, with either a positive or negative effect, for the risk measurements in determining investment holdings, the personal finance variable is only significant in determining stocks and not the fixed income securities and mutual funds.

Secondly, the control variables consisted of various debts, income, age, marital status, race, education, and employment status. A select few income brackets are only significant in determining holdings in fixed income securities, while nearly all income brackets are significant in determining holdings into equities. Age had a negative effect on equities while

maintaining a positive effect on CDs, while bonds show no significance with age. Marital status is only significant in determining equities, and not at all in fixed income securities. Minority groups are the underrepresented category, and the lack of holdings show. This includes both race and sex categories. Education had increasing effects given the riskier categories and a decreasing effect with the less risky categories, even though that same effect is positive. Bonds had no significance, while the others had various positive effects. Employment status is only significant when referencing retired individuals, who are not significant in holding bonds while showing significance in all other categories. Bonds across all variables, except the minority groups, are not at all significant in both models. The exception in investment holdings is the positive effect found in Asian/Indian/Hawaiian individuals, who show a highly significant and positive impact with stocks.

Further research on the topic could dive into and address the results retrieved from this analysis. Number one, as mentioned above, includes other control variables into the analysis to limit the potential of endogeneity which would create a more perfect representation of how risk affects investments. Number two, only two measurements of risk are used in this study. Others could do different measurements by utilizing the SCF, by taking the questions as is or by creating new variables derived from the dataset, or by looking at other risk measurements. Number three, looking at an exact breakdown of investments holdings instead of broadly, such as this research. This requires looking into specific stock holdings, which brings into question which exchange to use as the medium. Also, figuring out the specific CDs and bonds may be more challenging since there are so many different ones available. Mutual funds, while generally not as risky, could be broken down to see why many of the primary independent variables yield statistical significance for these specifically.

Number four, this study finds that while both risk measures are appropriate for determining holdings in equities and fixed income securities, other trends appear. These trends include the underrepresented minorities who boast a negative effect and those with varying finance knowledge being significant in determining stocks, while not significant in the other categories, which is nearly the opposite of what the primary and alternate measurements reflect. Figuring out where these trends come from would help address these misrepresentations. For policymakers, making riskier investments more attractive to those underrepresented is key to bringing the effect into positive territory. This means that they will have to raise the financial literacy of these groups by implementing programs at earlier education years, focusing on at-risk communities, and targeting areas of known poverty to address this. At the moment, it is negative and by quite a lot. This could mean educating at an early age and education investments and risk, potentially signaling the need for more finance classes regarding such. On the other hand, if personal finance knowledge does not necessarily align with the risk measurements in this paper, finding

alternate underlying principles is essential for the continuation of investments. This is important to individuals for continued investment, which is the same reason of importance for policymakers as well, who would also have to look at outside sources that may not be determined by just looking at risk tolerance and personal finance knowledge as they pertain to investments.

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