

COMMON CENTS: AN ANALYSIS OF FINANCIAL LITERACY AND SOCIOECONOMIC  
MOBILITY IN THE UNITED STATES

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By

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# COMMON CENTS: AN ANALYSIS OF FINANCIAL LITERACY AND SOCIOECONOMIC MOBILITY IN THE UNITED STATES

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## ABSTRACT

Many experts in the field of consumer finance highlight the scarcity of financial literacy in the United States. Compared to other developed countries, the U.S. population lacks rudimentary financial skills that would enable them to achieve greater success. Even after the expansion of financial tools and products and the recent economic fallout due to the Great Recession, there seem to be millions of Americans who are still financially illiterate. Using data from the Consumer Financial Protection Bureau's (CFPB) 2017 National Financial Well-Being Survey, this thesis assesses the potential impacts various demographic and personal factors have on financial literacy in the U.S. When measuring financial literacy, this thesis finds that education, race and ethnicity, gender, income, poverty status, homeownership, and perceived financial literacy are associated with financial knowledge levels. These findings underscore existing empirical research and may be beneficial when considering solutions to curb the compounding nature of financial illiteracy for future generations. Because financial literacy may be of great importance to socioeconomic mobility in the United States, it is vital that further research attempt to connect aspects described in this thesis to lasting public policy remedies.

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## 1. INTRODUCTION

*“All the Perplexities, Confusions and Distresses in America arise not from defects in their Constitutions or Confederation, not from a want of Honour or Virtue, So much as from downright Ignorance of the Nature of Coin, Credit and Circulation.”*<sup>1</sup>

–John Adams, Second President of the United States

Since its founding, mitigating deficiencies in financial literacy has been a point of contention and debate in the United States (“Commentary/History of Financial Literacy,” 2014). This has been apparent as financial systems have become more complex in the last several decades (Mandell & Klein 2009). Most recently, the Great Recession shed light on financial literacy, or rather financial illiteracy, in the U.S. It is widely accepted that financial literacy among the U.S. population is lacking compared to other developed nations’ populations worldwide (Lusardi & Mitchell 2011). From 2007-2009, the mortgage crisis, consumer over-indebtedness, and household bankruptcy rates provided evidence that something needed to be done to support U.S. financial literacy.

According to a 2009 House Committee on Financial Services hearing during the aftermath of the Great Recession, increasing financial literacy became a prominently recognized public policy objective.<sup>2</sup> Experts testified that increasing financial literacy has the ability to improve welfare among all Americans through better decision making.

In 2003, with the passage of the Fair and Accurate Credit Transactions (FACT) Act, the U.S. Department of Treasury established the Financial Literacy and Education Commission (FLEC), tasked with developing a national strategy for financial education (“Financial Literacy and Education Commission,” 2020). In 2010, with the passage of the Dodd-Frank Wall Street

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<sup>1</sup> *The Papers of Thomas Jefferson*, vol. 12, 7 August 1787–31 March 1788, ed. Julian P. Boyd. Princeton: Princeton University Press, 1955, pp. 55–56.

<sup>2</sup> *Regulatory Restructuring: Enhancing Consumer Financial Products Regulation: Hearings before the House Committee on Financial Services*, 111th Cong. (2009).

Reform and Consumer Protection Act, commonly referred to as Dodd-Frank, as a response to the Great Recession, the Consumer Financial Protection Bureau (CFPB) was established, which is responsible for consumer protection in the U.S. financial sector (Consumer Financial Protection Bureau 2020). According to the CFPB, an essential part of its mission is to empower individuals to take control over their financial lives. However, individuals need the financial capability to effectively navigate that marketplace to achieve their own financial goals. Today, more than a decade after the Great Recession, there seems to be millions of Americans who are still financially illiterate, and, in many cases, through no fault of their own.

Using data from the CFPB's 2017 National Financial Well-Being Survey, this thesis aims to assess financial literacy and its potential impacts in the United States. More specifically, this thesis empirically examines the relationship between financial literacy and socioeconomic mobility. Financial literacy may be of importance to those who aim to live a successful and prosperous life in the United States. Finally, this thesis attempts to assess if demographic factors, such as gender, race, and age, and other variants, such as education level, income, homeownership, can potentially hinder financial literacy, along with plausible strategies to help mitigate any disparities through educational or other mechanisms.

## **2. BACKGROUND**

### **2.1. What is Financial Literacy**

The former Director of the CFPB defines financial literacy as, “[An] understanding of tools that are the building blocks of financial life for American consumers, such as budgeting, banking account products, credit cards, and credit reports.” (Cordray 2013). Without an understanding of basic financial concepts in today's United States, individuals may be ill-equipped to make

informed decisions related to financial management, such as saving, investing, and borrowing (Lusardi & Mitchell 2011).

According to a 2016 global survey measuring national literacy rates, the U.S. ranked 14 among other developed economies, and under 60 percent of adults in the U.S. were classified as financially literate (Lusardi & Mitchell 2011). This invokes a troubling theme regarding the U.S. population's financial capability, mirroring the key message of widespread financial illiteracy of the U.S. President's 2008 Council on Financial Capability.<sup>3</sup> Americans may not adequately plan for predictable events such as retirement or their children's college education (Lusardi 2011). More troubling, however, is that individuals do not take precautions for unexpected events and emergencies, leaving them and the economy exposed to dangerous financial shocks (Clark, et. al. 2021; Lusardi 2011).

When evaluating financial literacy, it is difficult to differentiate how individuals process economic information and make informed decisions about their finances (Lusardi & Mitchell 2011). The distinction between financial literacy and perceived financial literacy need not be understated. Perceived financial literacy is measured on a self-rating scale that is open to interpretation (Allgood & Walstad 2016). Perception is important to examine because it may help to indicate an individual's confidence in financial understanding and the ability to handle personal financial matters (Allgood & Walstad 2016). However, confidence may not be the only trait captured in the self-rating of financial literacy, as it may reflect other personal characteristics, such as optimism about life, the degree of trust in institutions, or the extent of interest in personal finance and financial well-being (Allgood & Walstad 2016). Because this

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<sup>3</sup> U.S. President's Advisory Council on Financial Capability. (2012). United States. Retrieved from the Library of Congress, <https://www.loc.gov/item/lcwaN0016853/>.

thesis aims to assess whether certain variants hinder financial literacy, it is important to consider both what individuals know about financial matters and what they think they know when studying financial literacy. Previous research identifies a correlation between knowledge and perception, which ultimately affects financial literacy and, in turn, influences financial behavior (Agnew & Szykman 2005; Hung, et. al. 2009; Lusardi 2011).

## **2.2. History of Financial Literacy in the United States**

Over the past 60 years, consumer finance in the U.S. has expanded upon individual growth and freedom of choice (Ryan, et. al. 2009). With the expansion in the number, type, and access to financial products, the U.S. consumer for the first time had financial flexibility (Ryan, et. al. 2009). While the U.S. moved to an increase in and greater access to financial products in the 1960s, the shift to do-it-yourself financial management and the accompanying growth in household risk exposure did not intensify until broad financial deregulation came in the 1980s (Ryan, et. al. 2009). This deregulation of the U.S. financial service industry created both opportunities and problems for individuals (Mandell & Klein 2009). It is apparent that individuals have an abundance of choices for almost every financial product on the market, however, the industry has become much more complex, especially with the passage of the Gramm-Leach-Bliley Act, also known as the Financial Services Modernization Act of 1999, which solidified much of this deregulation into federal statute (Mandell & Klein 2009).<sup>4</sup>

While the compounding trends provided greater opportunities for some individuals, they also provide greater dangers for the less financially literate (Mandell & Klein 2009). The inability to make sound financial decisions can have negative ramifications on the entire U.S.

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<sup>4</sup> Gramm–Leach–Bliley Act, 113 U.S.C. § 1338 (1999).

economy, which include exacerbated business cycles, further inequality in the distribution of income and wealth, inadequate savings rates, and inflation (Mandell & Klein 2009).

Around the turn of the millennium, many policymakers thought that the impact of poor financial decision making due to a lack of financial knowledge would have an adverse effect on the economy and could be remedied through mandated financial education (Mandell & Klein 2009). As a result, the Federal Reserve began to focus on the importance of financial education and financial literacy (Greenspan 2003). The passage of the FACT Act and, subsequently, the U.S. Department of Treasury's establishment of FLEC in 2003 were aimed to help. FLEC's goals were to aid a struggling U.S. population with understanding basic and integral financial concepts. It had high hopes to set national strategy guidelines for financial literacy improvement efforts, but then in 2007, the Great Recession propelled the U.S. into financial chaos.

More than a decade after its founding, FLEC acknowledged evidence that the new field of formal financial education has the potential to boost Americans' financial well-being ("Promoting Financial Success," 2016). To help address this deficiency after the Great Recession, the CFPB was established with hopes of, among other things, improving the financial literacy in the U.S. ("Financial Well-Being in America," 2017). Specifically, its financial literacy mandate was set forth to develop and implement initiatives intended to educate, to develop and implement a strategy to improve financial literacy consistent with FLEC's National Strategy for Financial Literacy, and to develop financial education and policy initiatives to support the financial well-being of the consumer population ("Financial Well-Being in America," 2017).

### **2.3. Financial Literacy Education**

Though federal initiatives from FLEC and the CFPB have attempted to bolster nationwide financial literacy, financial literacy education has historically been delegated to the states. In the

years following the Great Recession, few states have implemented programs to properly address and remedy this deficiency (Urban 2020). Even though mandatory financial education has been suggested as remedy for financial illiteracy, as of 2014, only five states required students to complete personal finance courses prior to graduating from high school; and in 2020, that number is now six states (Urban 2020). More than a decade after the Great Recession, 21 states require high school students to take a course that integrates personal finance in the classroom, which is less than 50 percent of the nation, but other states still do not require any financial literacy education (“Survey of the States,” 2020; Urban 2020).

However, some scholarship questions the efficacy of financial literacy education. Though not the sole focus of this thesis, it is necessary to explore other avenues that could prove successful for improving financial knowledge. As skills necessary to make sound decisions in personal finance are intricate, in order to compete, financial literacy education must continuously evolve (Willis 2008). Some research suggests that instead of financial literacy education, the U.S. government should attempt to minimize the information asymmetry gap through various other measures, such as advocating for greater financial inclusion or increased market intervention (Willis 2017).

Policymakers must understand both the potential benefits and the drawbacks of a financial literacy education on the individual and, more broadly, on the United States economy when thinking about how to address widespread financial illiteracy.

### **3. LITERATURE REVIEW**

Insufficient financial education and knowledge may be exponentiated within certain subpopulations. As financial markets around the world have become increasingly accessible to

the everyday consumer, individuals in the United States should be taking advantage of these products and financial services (Bumcrot, et. al. 2011). However, since these products can be complex, many of today's households are not adequately prepared to make these financial decisions (Bumcrot, et. al. 2011). Existing literature points to a relationship between demographic and socioeconomic factors that impact financial literacy and the ability to take advantage of the available financial products (Bumcrot, et. al. 2011).

### **3.1. Affected Subpopulations**

According to a study on Americans between age 23 and 28, only 27 percent had knowledge of basic financial concepts, including inflation, risk diversification, and could correctly calculate a simple interest rate (Lusardi, et. al. 2009; Mandell 2008). Among the U.S. population, low levels of financial literacy are widespread (Bumcrot, et. al. 2011). It is particularly acute among certain subpopulations, such as women, those with low education, and minorities (Bumcrot, et. al. 2011; Mandell 2008).

Differentiation between state financial literacy rates is attributable to both differences in the demographic make-up of each state and a state's poverty level (Bumcrot, et. al. 2011). Age, gender, ethnicity, income, education, marital status combined all account for a substantial portion of the variation in financial literacy of a given state (Bumcrot, et. al. 2011). Additionally, states with higher financial literacy scores tend to have lower poverty levels (Bumcrot, et. al. 2011).

As one may speculate, financial literacy is highly correlated with educational attainment and achievement, which further underscores a need for earlier intervention (Lusardi, et. al 2009). Financial literacy levels increase with education levels, where increased literacy is associated with individuals who were full-time college students or graduates (Mandell & Klein 2009). Even though college students may have inadequate knowledge levels, they are significantly more

financially literate than those who do not attend any form of college (Bumcrot, et. al. 2011). This also holds true when student loan debt is controlled for; regardless of debt, those with college degrees score better on financial literacy tests than those without college degrees (Willis 2017).

Furthermore, one's family characteristics influence financial literacy. Specifically, parent education and familial financial sophistication are strong predictors of financial literacy (Lusardi, et. al. 2009).

### **3.2. The Need for Financial Literacy**

Challenges posed by a society struggling with an elementary understanding of financial concepts can hinder socioeconomic growth. For example, low levels of financial literacy have been connected to lower personal savings rates (Lusardi & Mitchell 2014; Lusardi, et. al. 2020). Issues with managing credit are also associated with lower levels of financial literacy, with low-literacy individuals often more likely to pay late and carry balances on their credit cards, increasing the amount of unnecessary interest and fees they will pay to lenders (Borden, et. al. 2008).

Additionally, participation in the banking system is higher among more literate individuals, and those who are outside of the banking system use higher-cost financial services as an alternative, potentially undermining their financial well-being (Lusardi & Mitchell 2014). Financial illiteracy can compound and if widespread, it can have national implications, as seen during the Great Recession (Mandell & Klein 2009).

Financial illiteracy also has implications on wealth inequality and generational opportunity in the U.S. (Lusardi, et. al. 2020; Mandell & Klein 2009). Studies in various other countries show that age, marital status, work experience, and income all impact financial literacy as well, while research on literacy levels in the U.S. only show that these variables jointly impact financial literacy (Bumcrot, et. al. 2011; Potrich, et. al. 2015). This thesis seeks to study many of

these socioeconomic and demographic factors to understand if they have an impact on financial literacy in the U.S. and what plausible strategies can help mitigate any disparities.

Financial literacy begins with an understanding of common financial concepts. However, an individual's education and cognitive ability may not be the only determinants of financial literacy. Other factors should also be accounted for when crafting inclusive public policy in order to alleviate this equity gap in the United States.

#### **4. CONCEPTUAL FRAMEWORK**

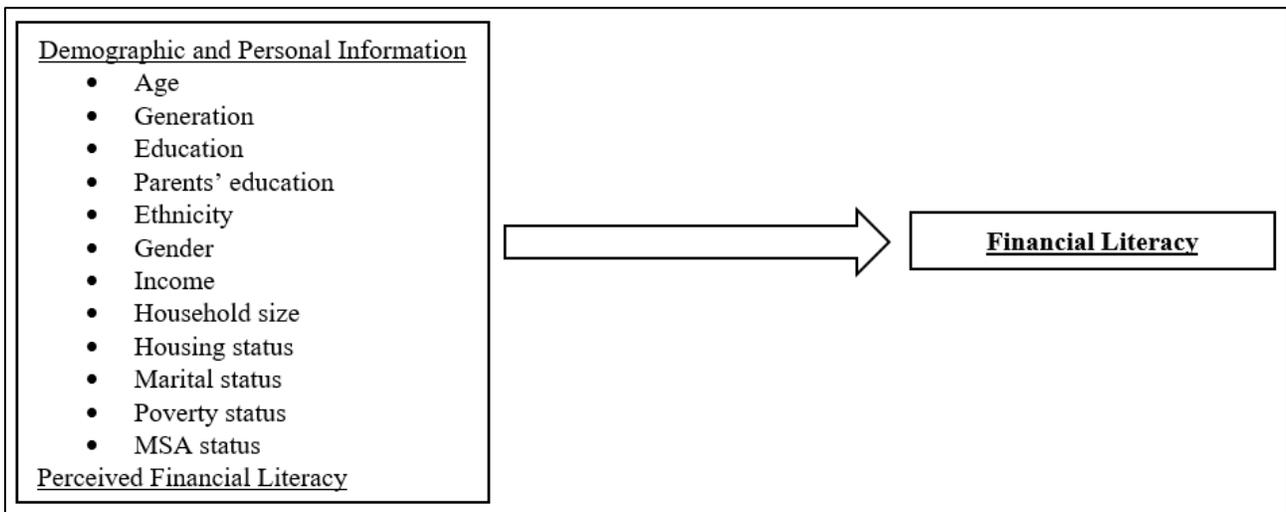
It is vital for individuals in the United States to be financially literate given the expansion and increased accessibility of today's consumer financial products. Without financial literacy, individuals may not benefit from products and policies aimed to help promote economic success, ultimately leaving some worse off (Mandell & Klein 2009). This compounding phenomenon of financial illiteracy can have stark economic consequences, as exemplified in the run up to and the fallout from the Great Recession (Mandell & Klein 2009).

Because financial illiteracy can hinder socioeconomic growth, it is imperative that U.S. policymakers target affected subpopulations in order to promote prosperity. Without an elementary understanding of financial concepts, individuals may continue to lack the ability to make informed financial decisions, widening wealth inequality gaps in the U.S. (Lusardi & Mitchell 2011).

While federal programs and agencies have been developed since the turn of the millennium to help mitigate financial literacy discrepancies in the U.S., there is an increasing volume of work to be done to remedy this deficit (Consumer Financial Protection Bureau 2020; "Financial Literacy and Education Commission," 2020). Without a financial literate population,

the U.S. cannot thrive as a global economy, jeopardizing its worldly status as a financial superpower.

In order to assess where the United States needs to improve, this thesis examines financial literacy and socioeconomic mobility through financial knowledge levels, using demographic and personal information, while also accounting for perceived financial literacy.



**Figure 1: Conceptual Model**

## **5. DATA AND METHODS**

### **5.1. Data**

To assess the level of financial literacy and its potential impacts in the United States, this thesis uses the CFPB's 2017 National Financial Well-Being Survey. An essential part of the CFPB's mission is educating and empowering individuals to take control of their financial lives (Consumer Financial Protection Bureau 2020). In addition to a safe, transparent marketplace, individuals need to navigate that marketplace (Consumer Financial Protection Bureau 2020). The goal of this database is to help practitioners and policymakers understand factors that support

financial well-being and empower individuals to lead better financial lives to serve their own goals (“Financial Well-Being in America,” 2017).

The 2017 National Financial Well-Being Survey uses the CFPB’s financial well-being scale to measure the financial well-being of a national sample of adults selected to reflect the U.S. noninstitutionalized population.<sup>5</sup> It includes measures of individual and household characteristics that research suggests may influence adults’ financial well-being, such as income and employment, savings and safety nets, past financial experiences and financial behaviors, skills, and attitudes.

Specifically, the survey was conducted online in English and Spanish between October 27, 2016 and December 5, 2016 using the GfK Knowledge Panel (GfK panel). The GfK panel is a recruited internet sample designed to be nationally representative of U.S. households. The panel does its recruitment using address-based sampling and landline and cell phone random digit dialing methods. The GfK panel is considered the largest national probability-based non-volunteer internet panel, totaling approximately 55,000 panel members. Due to the survey’s online nature, GfK provided non-internet households with a computer and free internet service so that they could participate as online panel members.

Overall, 14,402 panelists were selected for the 2017 National Financial Well-Being Survey, 11,513 for the general population sample, 1,647 for the age 62 and older oversample, and another 1,242 for adults who were either below 200 percent of the federal poverty level, black, or Hispanic. From the 14,402, the CFPB’s final sample includes information on 6,394 completed surveys, which is designed to represent the noninstitutionalized adult population – aged 18 and older – of the 50 states and the District of Columbia. It includes 5,000 surveys from

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<sup>5</sup> Financial Well-Being Survey Data. (2017). *Consumer Financial Protection Bureau*. Washington, DC. Retrieved from <https://www.consumerfinance.gov/data-research/financial-well-being-survey-data/>.

the general population sample, 999 from the oversample of those aged 62 or older, and 395 from the sample focusing on panel members who were either below 200 percent of the federal poverty level, black, or Hispanic.

According to the CFPB, oversampling ensures that there are sufficient data from members of small groups in the final sample so that statistically valid analyses may be conducted. The CFPB also accounted for differential sampling and differential non-response rates by applying weights to ensure that its sample accurately reflects the U.S. population across geographic and demographic dimensions.

In order to measure a potential relationship between financial literacy and socioeconomic mobility, this thesis examines demographic and personal information and perceived financial literacy on financial knowledge levels, which are described in the following subsection.

## **5.2. Measures**

### *5.2.1. Dependent Variable*

This thesis uses a 10-item version of the Knoll-Houts Financial Knowledge Scale (KFS) dubbed the financial knowledge score to measure an individual's financial literacy. Before the development of the KFS, the field of consumer finance lacked an accepted measure of financial literacy developed through rigorous analyses (Knoll & Houts 2012).

The financial knowledge score is a scale score formulated as a response to answering a 10-question questionnaire about various aspects of personal finance. These questions help to quantify a baseline understanding of financial concepts, such as risk, interest rates, and inflation. In coding the financial knowledge score for this survey, the CFPB converted raw scores on the questionnaire to item response theory (IRT) scores that range from -2.053 to 1.267. This thesis takes these scores and categorizes financial knowledge into four levels (low, below average,

above average, high) to provide an understanding of financial literacy. Figure A1 detailed the full questionnaire with its correct responses.

### *5.2.2. Independent Variables*

The key characteristics of interest in this thesis include demographic and personal information and perceived financial literacy.

*Demographics:* Various demographic and personal factors are important to consider when measuring financial literacy. These factors can shed light on potential underlying trends associated with socioeconomic mobility. This thesis plans to identify how age, generation, education, parental education, race and ethnicity, gender, income, household size, homeownership, marital status, poverty status, and metropolitan statistical area (MSA) status may be associated with financial literacy. The CFPB's 2017 National Financial Well-Being Survey uses data already collected by the GfK panel referenced previously for these 12 measurements.

For the purposes of this thesis, the independent variables are either categorical or binary. The age variable describes respondents' ages calculated based on their date of birth at the onset of the CFPB's survey. It is coded into eight categories: 18 to 24, 25 to 34, 35 to 44, 45 to 54, 55 to 61, 62 to 69, 70 to 74, and 75 and older. Generation, while similar to age, is divided into four categories, where Pre-Boomer consists of ages 71 and above, Boomer as ages 52 to 70, Gen X as ages 36 to 51, and Millennial as ages 18 to 35, representing respondents' generation at the beginning of the survey.

Ranging from less than high school to graduate/professional degree, education is separated into distinct five categories. The education variable describes respondents' highest level of education completed. Parental education describes the highest level of education

completed by the person or people who raised the respondent, whether that be a parent or legal guardian. It is divided similarly but includes a category for respondents who refused to provide information.

This thesis' race and ethnicity variable mirrors the four categories analogous to the GfK panel's survey data: white, black, Hispanic, and other. The gender variable is binary and differentiates between men and women in the sample.

Income is coded into nine categories based on respondents' household income, where the lowest category consists of incomes less than \$20,000. Categories increase incrementally by \$10,000 until income reaches \$60,000, where categories begin to exponentially increase until they reach the highest coded category—incomes of \$150,000 or more.

Household size, referring to the number of people in a given household, is separated into five categories. Respondents who live alone have a household size of one, while those who live with a spouse and two children have a household size of four.

Homeownership is binary, distinguishing between whether respondents own their place of residence. The marital status variable is binary as well, where one is associated with respondents who are married and zero is associated with those who are not married.

Poverty status is measured by a respondent's proximity to the federal poverty level (FPL). According to the U.S. Department of Health and Human Services (HHS), the FPL is set at different levels of income based on household size and composition.<sup>6</sup> This variable is divided into three categories: those who have incomes less than 100 percent of the FPL, those between above 100 percent but below 200 percent of the FPL, and those with incomes 200 percent FPL or greater.

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<sup>6</sup> Annual Update of the HHS Poverty Guidelines; Notice, 81 Fed. Reg. 4036-4037 (2016).

Lastly, MSA status, delineated by the U.S. Office of Management and Budget (OMB) as having at least one urbanized area with a minimum population of 50,000, is a binary variable.<sup>7</sup> This variable equals one for respondents who live in a metropolitan areas and zero for those who do not live in metropolitan areas. A more detailed numerical analysis of these demographic and personal factors can be found in Table 1.

*Perceived Financial Literacy:* How do respondents assess their overall financial knowledge? This question may help to explain aspects of financial literacy. Perceived financial literacy is measured on a scale from one to seven, where a response of one indicates low confidence in overall financial knowledge, while a score of seven indicates high confidence of overall financial knowledge. A category is also included for respondents who refused to provide a response to this inquiry.

### **5.3. Empirical Strategies**

This thesis conducts a secondary data analysis to assess characteristics associated financial knowledge.

First, its descriptive analysis examines financial knowledge levels across 12 individualistic demographic and personal factors. The descriptive analysis also separately explores the association between financial knowledge and the perceived financial literacy. Table A1 contains select Pearson Product-Moment Correlation coefficients in order to measure the strength and direction of linear associations between variables.

Second, this thesis utilizes analysis of variance (ANOVA) to evaluate various demographic and personal variables and perceived financial literacy on financial knowledge levels. ANOVA is used to compare the mean of financial knowledge levels with each of the

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<sup>7</sup> 2010 Standards for Delineating Metropolitan and Micropolitan Statistical Areas; Notice, 75 Fed. Reg. 37246-37252 (2010).

independent variables in this thesis, where the alpha level ( $\alpha$ ) is set at 5% significance. ANOVA outputs are included in the appendix for further reference.

Lastly, since the measurement of the dependent variable, financial knowledge levels, is of an ordinal scale in nature, this thesis uses an ordered logit model to estimate financial knowledge on demographic and personal variables and perceived financial literacy. For each of the financial knowledge levels, assume that there is an observed variable that represents an individual's financial knowledge score, which is categorized into four levels. This observed variable is associated with demographic and personal characteristics and perceived financial literacies ( $X$ ). Let  $Y^*$  represent this observed variable and assume  $Y^*$  is a linear function of  $X_i$ , then,

$$Y^* = \sum_{i=1}^n \beta X_i + \mu$$

where  $Y^*$  is the categorical outcome, indicating financial knowledge level;  $X$  represents demographic and personal characteristics along with perceived financial literacy; and  $\mu$  denotes the error term.<sup>8</sup>

## 6. RESULTS

### 6.1. Descriptive Statistics

Descriptive results evaluate the characteristics of financial knowledge among respondents in the sample, delineating between demographic and personal information and perceived financial literacy. Table 1 presents descriptive results of demographic and personal factors for the 6,394 respondents to the CFPB's 2017 National Financial Well-Being Survey, while Figure A14 illustrates perceived financial literacy.

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<sup>8</sup> Greene, W.H. (2018). *Econometric Analysis (Eight Edition)*. New York: Pearson.

### *6.1.1. Demographics*

Table 1 describes financial knowledge levels by demographic and personal variables. The results show that younger age groups have less financial knowledge than older age groups. There is a steady increase of financial knowledge across age groups (Figure A2). Approximately 40 percent of 18 to 24-year-olds are seen to have low financial knowledge; while the inverse is evident regarding age groups 62 years old and above, where between 35 and 40 percent of these groups have high financial knowledge. It is noted that between 25 and 30 percent of all age groups have below average financial knowledge.

Respondents are also divided across generation, where Pre-Boomer consists of ages 71 and above, Boomer as ages 52 to 70, Gen X as ages 36 to 51, and Millennial as ages 18 to 35. As shown in Figure A3, the same trend seems to hold: the older the respondents are, the more financially knowledgeable they tend to be.

Further, education levels of both the respondent and the respondent's parents and/or legal guardians provide stark results (Figure A4). Respondents who did not complete high school or whose highest educational degree received was either a high school degree or a General Educational Development test (GED) have much lower rates of financial knowledge compared to those with college or graduate/professional degrees. Over 50 percent of those who did not complete high school have low levels of financial knowledge, while 45 percent and 50 percent of college graduates and those with graduate/professional degrees, respectively, have high levels of financial knowledge.

This trend remains true when taking respondents' parental education into consideration (Figure A5). Respondents whose parents have lower education levels also have lower levels of financial knowledge. To clarify, if a respondent's parents/guardians failed to complete high

school, the respondent is much more likely to have low levels of financial knowledge compared to a respondent whose parents/guardians have higher levels of education. Even though the numerical value (N=49) is trivial compared to the other five categories of parental education, those who refused to provide an answer to this question are more than twice as likely have low financial knowledge.

The data is divided into four race and ethnicity categories: white, black, Hispanic, and other. Black and Hispanic respondents have considerably lower financial knowledge rates compared to other races and ethnicities in this sample. Rates of low financial knowledge for both black and Hispanic respondents near 50 percent, while less than 15 percent of these subgroups have high levels of financial knowledge. White respondents do not have particularly high rates of financial knowledge; however, their rates are significantly higher than the rates for black and Hispanic respondents (Figure A6).

Men have much higher rates of financial knowledge compared to women (Figure A7). While approximately 17 percent of men and 28 percent of women have low financial knowledge, about 38 percent of men and 19 percent of women have high levels of financial knowledge.

As seen in Figure A8, financial knowledge levels rise with household income levels. Nine categories divide respondents by household income. Low levels of financial knowledge are sizeable among income groups below \$30,000. Below average levels of financial knowledge are noticeable among income groups below \$100,000. However, income groups above \$60,000 have a considerable population of respondents with high levels of financial knowledge. Those with household incomes above \$150,000 have substantially high levels of financial knowledge.

While household size refers to the number of people in an individual household and is separated into five categories, it does not provide much relevant insight on financial knowledge (Figure A9).

In contrast to household size, homeownership has a descriptive impact on financial knowledge levels. The differences between respondents who own a home compared to those who do not is striking. Figure A10 conveys this difference in homeownership.

Similar to homeownership, there is a deviation between marital status. Respondents who are married have much higher levels of financial knowledge than those who are not married (Figure A11).

Figure A12 shows the breakdown of respondents around poverty status. Poverty metrics are set by HHS and are measured by a respondent's proximity to the federal poverty level (FPL). Almost 90 percent of respondents who have incomes that are less than 100 percent of the FPL have low or below average levels of financial knowledge and only three percent of these respondents have a high level of financial knowledge. Respondents between 100 and 200 percent of the FPL follow similar trends though not as distinct.

While there are more than five times as many respondents who live in designated metropolises—defined by OMB as living in an urbanized area of at least 50,000 residents—compared to those who live in rural areas, descriptive statistics provide inconclusive differences in results based on Metropolitan Statistical Areas (MSA) status (Figure A13).

**Table 1: Financial Knowledge Levels by Demographic and Personal Variables**

	<b>Low</b>	<b>Below Average</b>	<b>Above Average</b>	<b>High</b>
<b>Financial Knowledge Level, N (%)</b>	<b>1405 (21.97%)</b>	<b>1864 (29.15%)</b>	<b>1259 (19.69%)</b>	<b>1866 (29.18%)</b>
<b>Age (%)</b>				
18-24	39.37	33.82	13.29	13.53
25-34	33.69	30.11	16.40	19.80
35-44	27.29	31.16	19.81	21.74
45-54	20.47	29.49	19.35	30.70
55-61	17.94	27.82	22.32	31.92
62-69	13.81	27.13	21.45	37.61
70-74	11.69	26.61	21.77	39.92
75+	12.77	28.13	22.28	36.82
<b>Generation<sup>1</sup> (%)</b>				
Pre-Boomer	12.23	27.97	21.49	38.31
Boomer	16.38	27.21	22.06	34.35
Gen X	23.64	31.19	18.67	26.50
Millennial	35.15	30.89	16.01	17.95
<b>Education (Highest Degree Received) (%)</b>				
Less than high school	51.52	34.50	9.32	4.66
High school degree/GED <sup>2</sup>	33.42	35.08	16.09	15.41
Some college/Associate	22.66	33.01	20.69	23.64
Bachelor's degree	9.91	22.26	22.87	44.97
Graduate/professional degree	6.74	19.76	23.50	50.00
<b>Highest level of education by person(s) who raised respondent (%)</b>				
Refused	51.02	22.45	16.33	10.20
Less than high school	35.11	30.24	16.26	18.39
High school degree/GED	27.13	32.28	17.99	22.61
Some college/Associate	24.43	32.11	19.67	23.79
Bachelor's degree	11.83	24.04	24.23	39.91
Graduate/professional degree	8.09	23.05	20.83	48.03
<b>Race/Ethnicity (%)</b>				
White, Non-Hispanic	14.45	28.23	22.10	35.22
Black, Non-Hispanic	44.09	30.95	13.43	11.53
Other, Non-Hispanic	22.32	28.27	16.67	32.74
Hispanic	43.20	32.80	13.37	10.63
<b>Gender (%)</b>				
Female	27.55	33.93	19.49	19.03
Male	16.92	24.82	19.87	38.39
<b>Household Income (%)</b>				
Less than \$20,000	57.30	28.37	8.34	5.98
\$20,000-\$29,999	36.96	34.19	15.42	13.44
\$30,000-\$39,999	29.15	36.48	20.36	14.01
\$40,000-\$49,999	25.27	34.69	20.13	19.91
\$50,000-\$59,999	16.44	34.85	22.18	26.53
\$60,000-\$74,999	15.51	32.10	21.66	30.72
\$75,000-\$99,999	14.03	30.37	21.57	34.03
\$100,000-\$149,999	11.30	24.22	23.05	41.43
\$150,000+	7.54	18.10	21.58	52.78
<b>Household Size<sup>3</sup> (%)</b>				
1	23.84	29.54	19.12	27.50
2	16.42	28.11	21.38	34.10
3	24.70	30.92	18.27	26.10
4	25.79	29.95	19.19	25.06
5+	32.61	29.06	16.54	21.79
<b>Homeownership (%)</b>				
Does Not Own	38.16	32.56	13.86	15.43
Owns	13.30	27.33	22.81	36.55
<b>Marital Status (%)</b>				
Not Married	30.72	31.35	17.48	20.44
Married	16.10	27.68	21.17	35.05

<b>(Table 1 continued)</b>				
	<b>Low</b>	<b>Below Average</b>	<b>Above Average</b>	<b>High</b>
<b>Financial Knowledge Level, N (%)</b>	<b>1405 (21.97%)</b>	<b>1864 (29.15%)</b>	<b>1259 (19.69%)</b>	<b>1866 (29.18%)</b>
<b>Poverty Status (%)</b>				
<100% FPL <sup>4</sup>	60.82	28.44	7.26	3.48
100%-199% FPL	37.83	33.29	16.18	12.69
200%+ FPL	13.91	28.52	21.99	35.58
<b>Metropolitan Statistical Area Status (%)</b>				
Non-Metro	20.09	35.05	21.73	23.13
Metro	22.26	28.24	19.38	30.12

**Note:** Statistics based on data from the CFPB’s 2017 National Financial Well-Being Survey [<https://www.consumerfinance.gov/data-research/financial-well-being-survey-data/>]; <sup>1</sup>Generation is categorized as Pre-Boomer (ages 71+), Boomer (ages 52-70), Gen X (ages 36-51), and Millennial (ages 18-35); <sup>2</sup>GED denotes General Educational Development test; <sup>3</sup>Household Size refers to the number of persons in a household; <sup>4</sup>FPL denotes federal poverty level.

### 6.1.2. Perceived Financial Literacy

Figure A14 depicts respondents’ financial knowledge by their perceived financial literacy. It is evident that those with low individual perception of financial ability also have low levels of financial knowledge. Those who refused to provide an answer have lower levels of financial knowledge as well. Conversely, while it is true that those with high levels of perceived financial literacy tend to possess higher levels of financial knowledge, it is not always the case.

Comparing the differences between perceptions, respondents who rank themselves one out of seven on the perception scale are overwhelmingly financially illiterate, while those who rank themselves seven out of seven on this scale are not demonstrably more financially literate in comparison. However, descriptive results show an overall positive association between perception and reality.

## 6.2 Regression Results

This thesis uses ordered logit regression analysis to examine the association of demographic and personal information and perceived financial literacy on financial knowledge.

Table 2 presents results from this ordered logit model in terms of odds ratios. Transforming the initial ordered logit probability to odds ratios attempts to minimize issues that may arise from the restricted range of a probability, which has a range of zero to one.

**Table 2: Ordered Logit Regression Results for Financial Knowledge**

INDEPENDENT VARIABLES	Odds Coeff
<b>Age Groups</b>	
(Reference: 75+ years old)	
18 to 24 years old	0.531* (0.197)
25 to 34 years old	0.588 (0.208)
35 to 44 years old	0.506*** (0.130)
45 to 54 years old	-0.687 (0.160)
55 to 61 years old	0.820 (0.180)
62 to 69 years old	1.069 (0.231)
70 to 74 years old	1.211 (0.157)
<b>Generation</b>	
(Reference: Pre-Boomer)	
Boomer	0.929 (0.176)
Gen X	0.994 (0.227)
Millennial	0.732 (0.244)
<b>Education Dummy</b> (Bachelor's Degree & above = 1)	1.587*** (0.113)
<b>Parents' Education Dummy</b> (Bachelor's Degree & above = 1)	0.940 (0.0688)
<b>Race/Ethnicity</b>	
(Reference: White)	
Black	0.332*** (0.0315)
Other	0.769** (0.103)
Hispanic	0.443*** (0.0403)
<b>Gender Dummy</b> (Male = 1)	1.949*** (0.109)
<b>Household Income</b>	
(Reference: \$150,000+)	
Below \$39,999	0.249*** (0.0320)

(Table 2 continued)

INDEPENDENT VARIABLES	Odds Coeff
\$40,000 to \$74,999	0.421*** (0.0409)
\$75,000 to \$149,999	0.559*** (0.0530)
<b>Household Size</b> (Reference: 1 Individual)	
2 Individuals	0.947 (0.0804)
3 Individuals	0.915 (0.0951)
4 Individuals	0.944 (0.109)
5+ Individuals	0.985 (0.127)
<b>Homeownership Dummy</b> (Own = 1)	1.629*** (0.121)
<b>Marital Status Dummy</b> (Married = 1)	1.024 (0.0730)
<b>Poverty Status Dummy</b> (200%+ FPL = 1)	1.608*** (0.171)
<b>MSA Status Dummy</b> (Metropolitan = 1)	1.068 (0.0863)
<b>Perceived Financial Literary</b> (Reference: High)	
Low	0.593*** (0.0608)
Medium	0.798*** (0.0583)
<b>Estimated Cut Points</b>	
$\tau_1$	-1.936*** (0.222)
$\tau_2$	-0.202 (0.221)
$\tau_3$	0.871*** (0.220)
<b>Observations</b>	6,394

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Note:** Results based on data from the CFPB's 2017 National Financial Well-Being Survey [<https://www.consumerfinance.gov/data-research/financial-well-being-survey-data/>]; Generation is categorized as Pre-Boomer (ages 71+), Boomer (ages 52-70), Gen X (ages 36-51), and Millennial (ages 18-35); Household Size refers to the number of persons in a household; FPL denotes federal poverty level; Metropolitan Statistical Area Status is abbreviated as MSA Status.

Only two age groups—ages 18 to 24 years old and ages 35 to 44 years old—are statistically significant when compared to the highest age group (75+ years old) as it relates to financial knowledge levels in the ordered logit regression. It should be noted that ages 18 to 24 years old are only significant at the 10 percent level, but ages 35 to 44 years old are statistically significant at the one percent level. Table A2 illustrates that while a one-way ANOVA analysis ( $F(7,6386)=57.69, p=0.00$ ) yields a statistically significant difference between age groups, pairwise comparisons of means yield some statistically insignificant results.

On average, respondents who are highly educated—defined as having a Bachelor’s degree or a graduate/professional degree—are more likely to have a high level of financial knowledge compared to those who did not graduate from college (1.587). There is a statistically significant difference between education groups as determined by one-way ANOVA ( $F(4,6389)=318.00, p=0.00$ ), described in Table A4.

While the relationship between financial knowledge and education is significant, the relationship between financial knowledge and parents’/guardians’ education proves to be statistically insignificant at conventional levels.

When compared to white respondents, respondents who identify as black, Hispanic, and other races are less likely to have a high level of financial knowledge. Especially for black and Hispanic respondents, the odds of having a high level of financial knowledge are 0.332 and 0.443 times lower, respectively, than those who identify as white. One-way ANOVA analysis ( $F(3,6390)=252.95, p=0.00$ ) in Table A6 also provides a statistically significant difference between the race and ethnicity categories.

Underscoring descriptive statistics, regression results demonstrate that gender is strongly associated with financial knowledge. Men, on average, are almost twice as likely to have a high

level of financial knowledge compared to women (1.949). Additionally, gender is statistically significant at the one percent level of significance. Table A7 displays its ANOVA analysis ( $F(1,6392)=326.45, p=0.00$ ).

Incomes are associated with financial knowledge levels. On average, respondents with higher household incomes tend to exhibit higher levels of financial knowledge. While this holds true and is statistically significant for all income levels when compared against respondents who have incomes of \$150,000+, for those who make less than \$40,000, the odds of having a high level of financial knowledge are much lower than respondents who make \$150,000+. Table A8 presents an ANOVA analysis ( $F(8,6385)=168.78, p=0.00$ ).

It is more likely that respondents who own a home have higher odds of having a high level of financial knowledge when compared to those who do not own their places of residence. Both the ordered logit regression and Table A10's ANOVA analysis ( $F(1,6393)=738.13, p=0.00$ ) present statistically significant measures for homeownership as it relates to financial knowledge.

Though the association is not as strong as the association between financial knowledge and gender or homeownership, poverty status serves to be statistically significant when measuring financial knowledge. For respondents who are above the 200 percent federal poverty level (FPL) threshold, the odds of having a high level of financial knowledge are 1.068 times higher than those who are below the 200 percent FPL threshold. ANOVA analysis ( $F(2,6391)=550.96, p=0.00$ ) shows statistically significant differences within these poverty status categories as well, which can be reviewed in Table A12.

Comparing different categories of perceived financial literacy using ordered logit, this thesis combines the seven categories into three: Low, Medium, and High. Both categories dubbed Low and Medium are statistically significant. For respondents who perceive their

financial literacy as these two categories, the odds of having a high level of financial knowledge are 0.593 and 0.798 times lower, respectively, than those who perceive their financial literacy as High. Table A14 describes perceived financial literacy's ANOVA analysis ( $F(6,6335)=72.74$ ,  $p=0.00$ ).

As mentioned throughout this subsection, all results discussed are significant at the conventional levels of statistical significance, meaning five percent or one percent, unless otherwise specified. Analyses also were conducted using STATA version 16.1 (StataCorp LLC, College Station, TX).

## **7. DISCUSSION**

Consistent with empirical models, the results in this thesis demonstrate that a variety of factors help shape financial knowledge.

As put forth by previous research, education levels have a strong association with overall financial knowledge (Bumcrot, et. al. 2011; Lusardi, et. al 2009; Mandell 2008; Mandell & Klein 2009; Willis 2017). This thesis suggests similar findings, where individuals who graduate from college or hold graduate/professional degrees show higher levels of financial knowledge. While the efficacy of compulsory financial education is mixed, few respondents in the CFPB's survey were young enough to be still in high school during and after the fallout of the Great Recession. Though financial education is not mandated nationwide, it was uncommon to see personal finance classes taught in high school prior to the financial crisis (Kasman, et. al. 2018). More recently, there has been a coordinated national effort pushing financial education, where today, 21 states require personal finance to be incorporated in high school curricula ("Survey of the

States,” 2020). However, only six states require high schoolers to take an independent personal finance course, up from five states in 2014 (Urban 2020).

The discrete associations between race and ethnicity, gender, income, and poverty status on financial knowledge align with past empirical work (Bumcrot, et. al. 2011; Mandell 2008; Mandell & Klein 2009). Since this country’s founding, wealthier white families, especially men, have had the benefit of building generational wealth, while many minority populations have faced de jure and de facto segregation, leading to today’s apertures in financial knowledge (Dettling, et. al. 2017; McKernan, et. al. 2017).

Homeownership, though not widely examined in relation to financial literacy, is also cogently associated with financial knowledge. Homeowners, with the assumption that they may have higher incomes and better credit, tend to shoulder more financial responsibility compared to individuals who do not own property, which may lead to higher levels of financial knowledge though lived financial experience.

This thesis also examines perceived financial literacy on financial knowledge, which is consistent with findings of previous research. It is vital to consider both what individuals may know about financial matters and what they think they know in order to understand potential socioeconomic and demographic hindrances to financial knowledge. Individual perception may indicate confidence in financial understanding and the ability to handle personal financial matters, which may affect financial literacy and impact financial behavior (Agnew & Szykman 2005; Allgood & Walstad 2016; Hung, et. al. 2009; Lusardi 2011).

However, certain demographic and personal variables in this thesis prove no statistical association with financial knowledge. Most prominently, neither parents’/guardians’ education nor marital status produce statistically significant results, which had both served as important

aspects of financial knowledge in previous empirical analyses (Bumcrot, et. al. 2011; Lusardi, et. al. 2009).

The last half-century saw a shift in consumer finance, including a substantial increase in access to financial tools. Yet there has been a stagnation in financial literacy and knowledge in the United States, which has potential to compound over generations. Due to this phenomenon, future research should look at policy solutions around bolstering financial knowledge and protecting consumers in the marketplace.

Avenues in which to look for remedies could include universal access to personal finance education in public school, leading to eventual compulsory education (Pelletier 2017; “Who Has Access to Financial Education,” 2020). This coupled with exposure to financial experiences may lead to pivotal developments in building financial knowledge and capability (Whitebread & Bringham 2013). The CFPB, among others, provides a plethora of information regarding the successful implementation of educational programs (“Advancing K-12 Financial Education,” 2015).

“Nudging” Americans through regulatory measures and investments may yield to promising results regarding financial literacy.<sup>9</sup> Further research could explore regulating markets to root out predatory practices, while also making it simpler for individuals to set out on a path to financial success by investing in institutions, such as community development financial institutions (Cordray 2020; Willis 2008). These policy options may assist those who are struggling make more informed decisions for themselves and their families.

Nevertheless, as the findings of this thesis underscore, financial illiteracy in the U.S. may find itself deeply rooted in American history. Researchers seeking viable, long-term solutions to

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<sup>9</sup> Thaler, R.H. & Sunstein, C.R. (2008). *Nudge: Improving Decisions About Health, Wealth, and Happiness*. Yale University Press.

current inequities may want to expand their scope and look towards social policy and safety net programs in the U.S. It could do a great service for the field of consumer finance if future research can connect improvements in financial opportunity to financial literacy and knowledge.

## **7.1 Limitations**

This thesis has limitations that should be addressed and investigated in further research. It would be flawed for one to draw causal conclusions regarding the relationship between financial knowledge and certain independent variables presented in this thesis, as there may be omitted variables that bias the results. If this thesis had utilized an instrumental variable in its analysis, then the possibility of making plausible causal inferences may be applicable. Establishing such an instrumental variable may be beneficial for further research in the field of consumer finance.

Variables in this thesis may not be mutually exclusive. There are categorical similarities between, for example, the age and generation variables and between the income and poverty status variables.

Because this thesis is cross-sectional, its results are only applicable for the given year in which the data was collected. One may use this thesis to draw correlative, not causal, conclusions regarding 2017 financial knowledge levels, but these results are not applicable to other years. Further research into whether financial knowledge levels fluctuate over a given period may prove to be useful when discussing public policy remedies (Angrisani, et. al. 2020).

Additionally, there may be potential measurement error in the data set used in this thesis. Response bias may be of concern, as the data set used was collected through a self-reported survey. While self-reporting is a common methodological approach, it may provide data that is not entirely accurate. Self-reporting surveys require an individual to respond to posed questions without the researcher's support. It is possible that an individual may have misreported

information or misinterpreted questions. Because the Knoll-Houts Financial Knowledge Scale Questionnaire is in multiple choice format, correct answers are susceptible to luck. In this thesis, if an individual had randomly selected answers, the response would have been factored into financial knowledge and statistically analyzed. Responses may also be inherently biased by an individual's feelings at the time the survey was completed.

This thesis exhibits a strong association between financial knowledge and various demographic and personal variables. However, because this thesis does not contain all potential control variables, the effect of omitted variables could be overstating the effect of the independent variables included. A more in-depth future analysis that considers omitted variables may increase (or decrease) the explanatory power of this thesis' statistically significant independent variables. Adding potential omitted variables may even reveal other insights, which may help experts better understand characteristics that may be associated with financial knowledge.

Further research in the realm of consumer finance should attempt to link the variables used in this thesis to current policy inequities. Future evidence-based research should also analyze how existing and forthcoming policy proposals will take aim at the ever-growing financial literacy epidemic in the United States.

## **8. CONCLUSION**

Using data on financial literacy in the United States, this thesis describes the various aspects associated with financial knowledge levels.

These findings are consistent with consumer finance literature regarding factors that influence financial literacy. Education, race and ethnicity, gender, income, poverty status,

homeownership, and perceived financial literacy all appear to play an important role in determining financial knowledge levels. According to the data from CFPB's 2017 National Financial Well-Being Survey, close to a decade after the Great Recession, there still is a substantial fraction of Americans who are financially illiterate. While this may be through no fault of their own, financial literacy is of great importance to both individuals who aim to live successful and prosperous lives and to a country that aims to role model on the global stage.

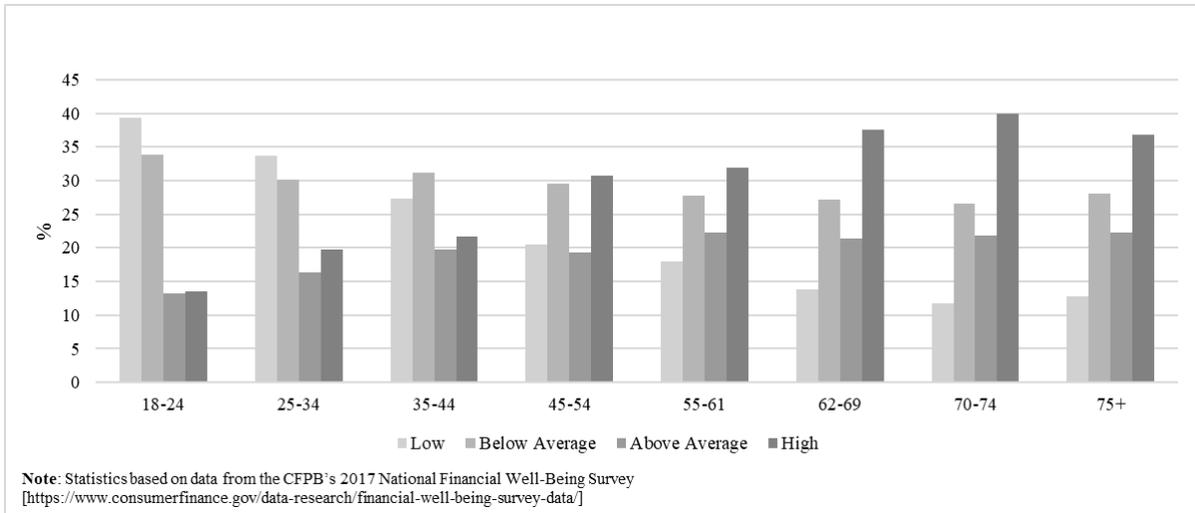
This thesis emphasizes the importance of a financial literate citizenry, by highlighting factors that may affect financial knowledge. While these results are not causal, this thesis suggests that policymakers should explore mechanisms to bolster financial literacy, helping curtail inequities while also supporting socioeconomic mobility. Future research should attempt to link the variables in this thesis to such inequities, while considering practical policies that both minimize and mitigate these gaps. Ultimately, the findings in this thesis may be useful for policymakers to analyze when implementing solutions to help limit the compounding nature of financial illiteracy for future generations in the United States.

## 9. FIGURES AND TABLES

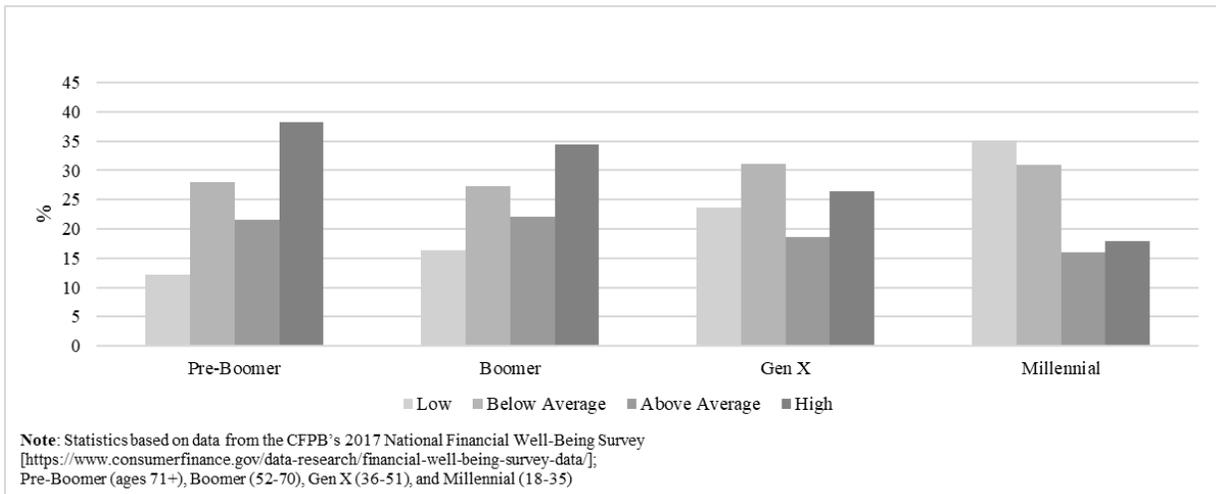
<p>(1) Considering a long time period (for example 10 or 20 years), which asset described below normally gives the highest return?</p> <p>Savings accounts Bonds <b>Stocks</b></p>	<p>(7) Suppose you owe \$3,000 on your credit card. You pay a minimum payment of \$30 each month. At an Annual Percentage Rate of 12% (or 1% per month), how many years would it take to eliminate your credit card debt if you made no additional new charges?</p> <p>Less than 5 years Between 5 and 10 years Between 10 and 15 years <b>Never, you will continue to be in debt</b></p>
<p>(2) Normally, which asset described below displays the highest fluctuations over time?</p> <p>Savings accounts Bonds <b>Stocks</b></p>	<p>(8) If interest rates rise, what will typically happen to bond prices?</p> <p>They will rise <b>They will fall</b> They will stay the same There is no relationship between bond prices and the interest rate</p>
<p>(3) When an investor spreads his or her money among different assets, does the risk of losing a lot of money increase, decrease or stay the same?</p> <p>Increase <b>Decrease</b> Stay the same</p>	<p>(9) Do you think the following statement is true or false? “A 15-year mortgage typically requires higher monthly payments than a 30-year mortgage, but the total interest paid over the life of the loan will be less.”</p> <p><b>True</b> False</p>
<p>(4) Do you think the following statement is true or false? “If you were to invest \$1,000 in a stock mutual fund, it would be possible to have less than \$1,000 when you withdraw your money.”</p> <p><b>True</b> False</p> <p>(5) Do you think the following statement is true or false? “‘Whole life’ insurance has a savings feature while ‘term’ insurance does not.”</p> <p><b>True</b> False</p>	<p>(10) Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account?</p> <p>More than today Exactly the same <b>Less than today</b></p>
<p>(6) Do you think the following statement is true or false? “Housing prices in the US can never go down.”</p> <p>True <b>False</b></p>	

**Note:** Answers that are bolded are correct; Sourced from CFPB’s 2017 National Financial Well-Being Survey [<https://www.consumerfinance.gov/data-research/financial-well-being-survey-data/>]; Knoll & Houts 2012

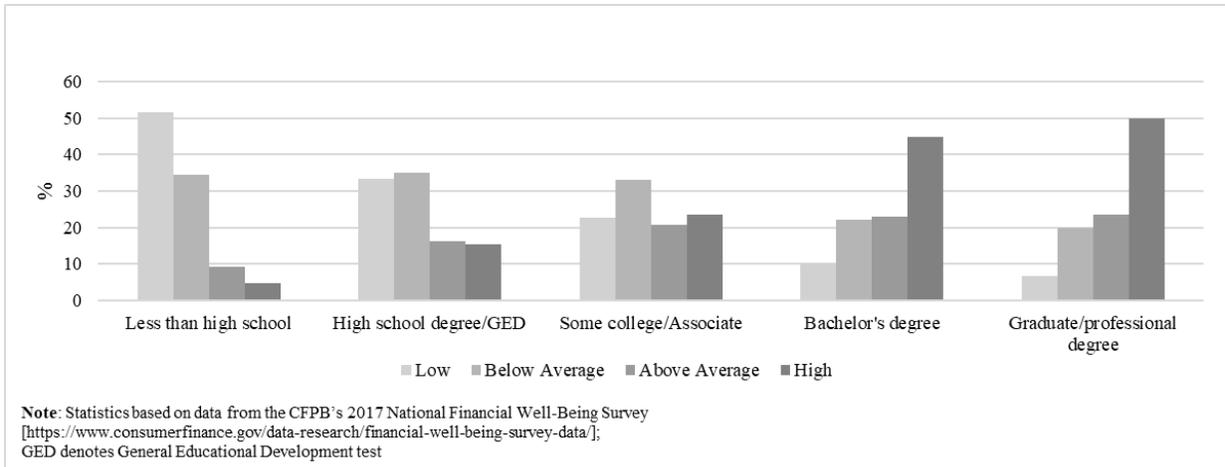
**Figure A1: Knoll-Houts Financial Knowledge Scale Questionnaire**



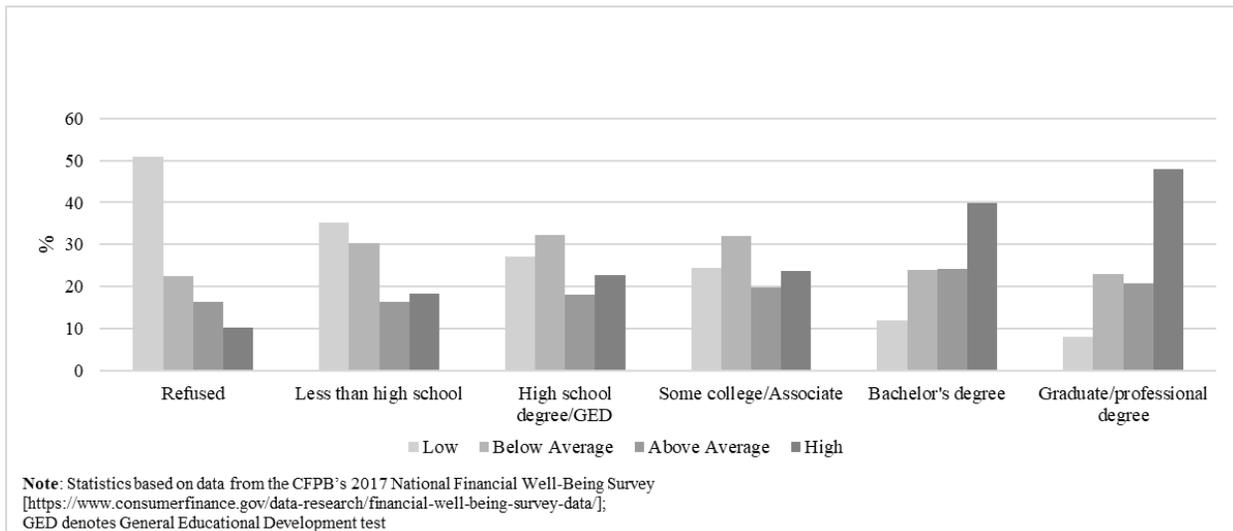
**Figure A2: Financial Knowledge by Age (%)**



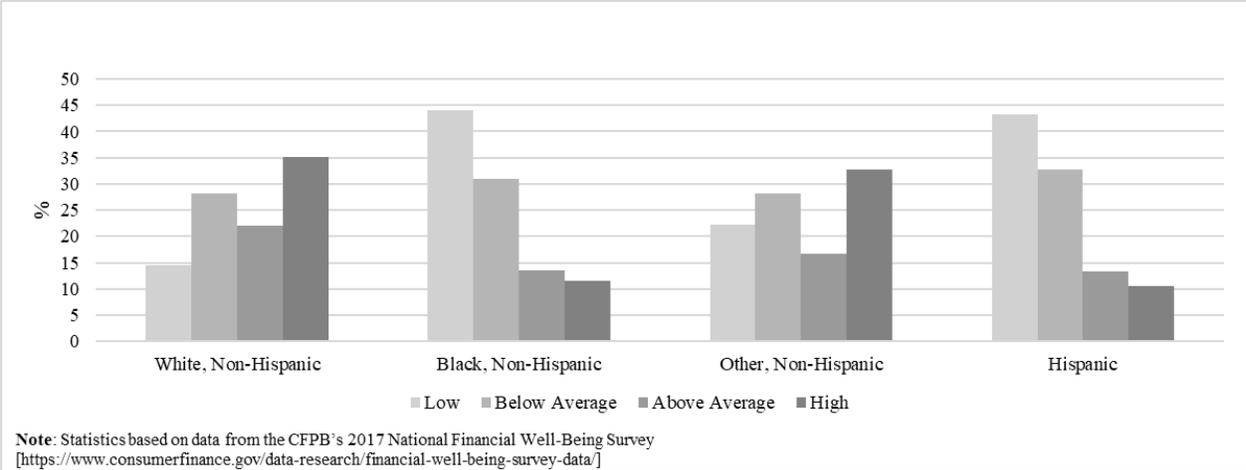
**Figure A3: Financial Knowledge by Generation (%)**



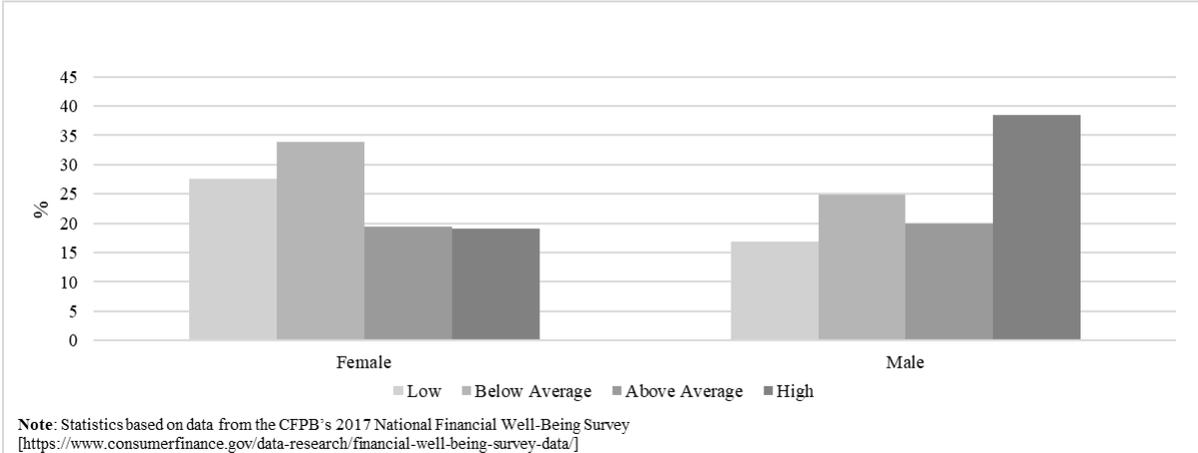
**Figure A4: Financial Knowledge by Education (Highest Degree Received) (%)**



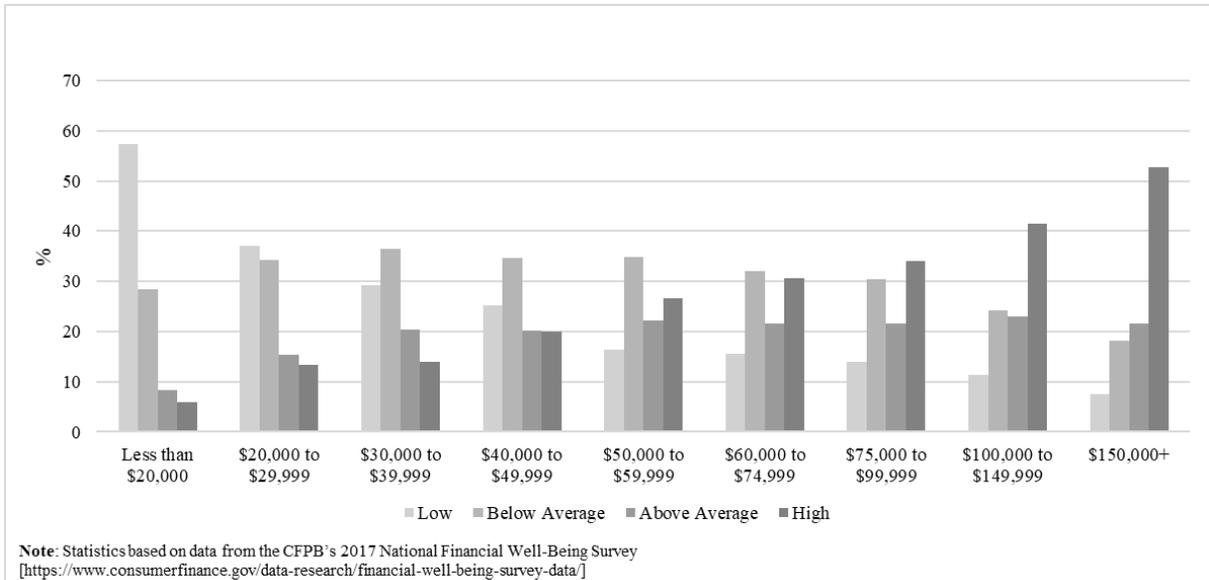
**Figure A5: Financial Knowledge by Highest Level of Education by Person(s) Who Raised Respondent (%)**



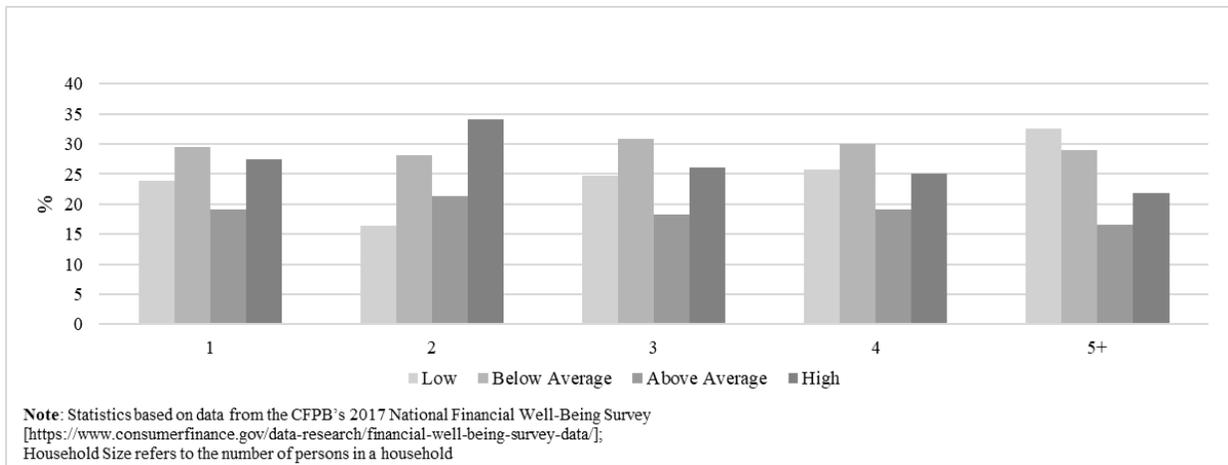
**Figure A6: Financial Knowledge by Race/Ethnicity (%)**



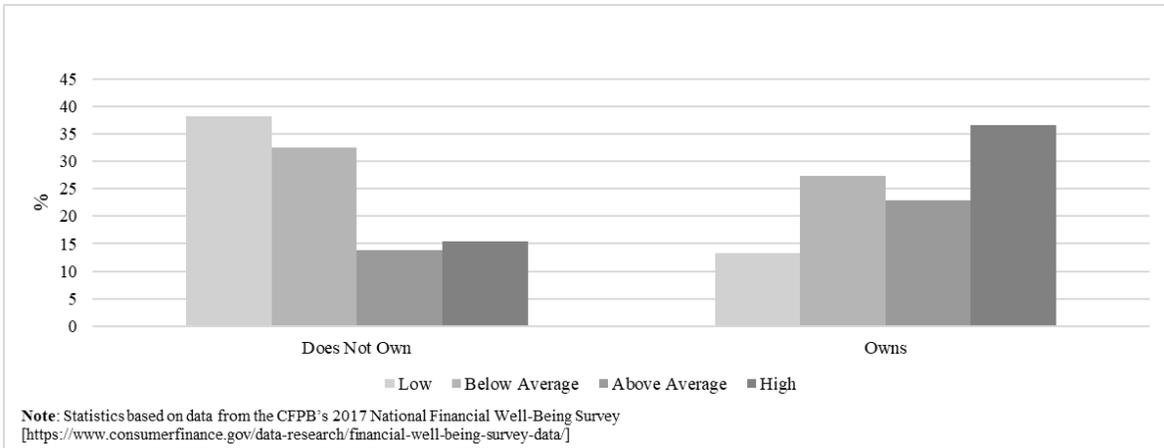
**Figure A7: Financial Knowledge by Gender (%)**



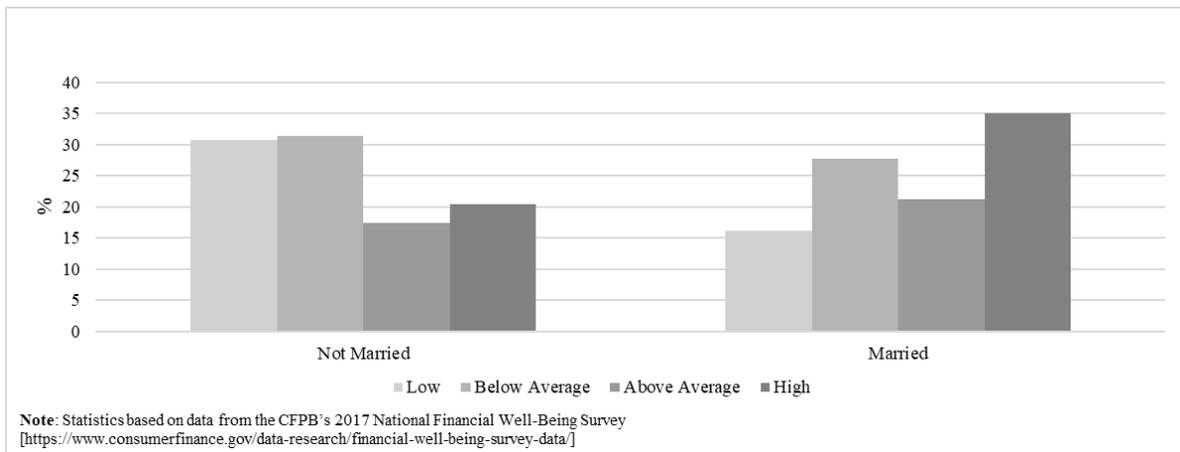
**Figure A8: Financial Knowledge by Household Income (%)**



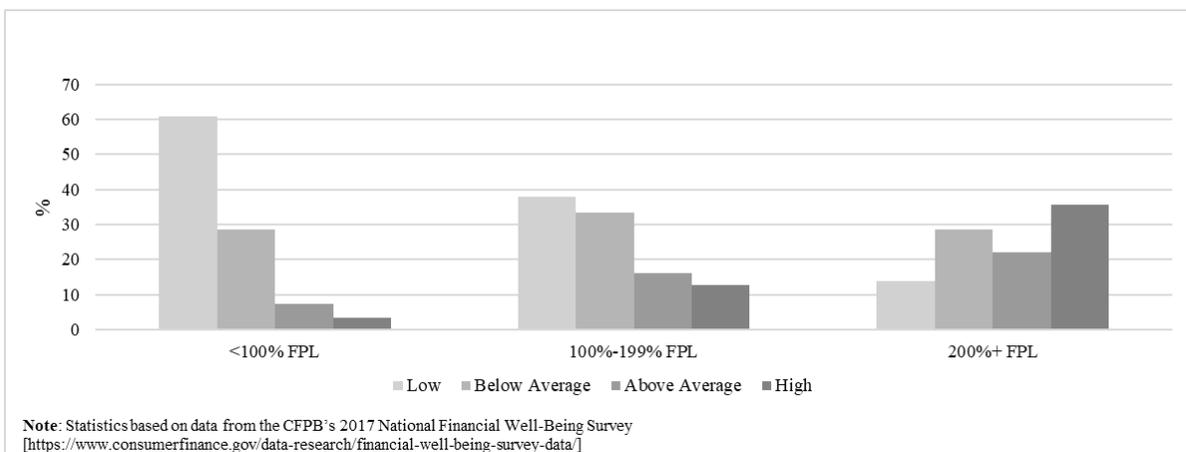
**Figure A9: Financial Knowledge by Household Size (%)**



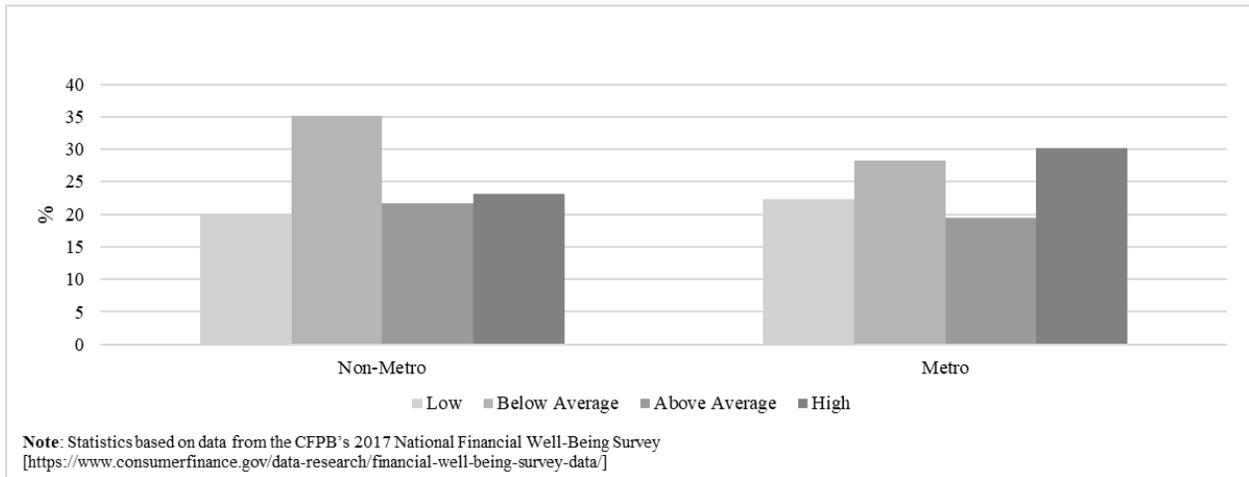
**Figure A10: Financial Knowledge by Homeownership (%)**



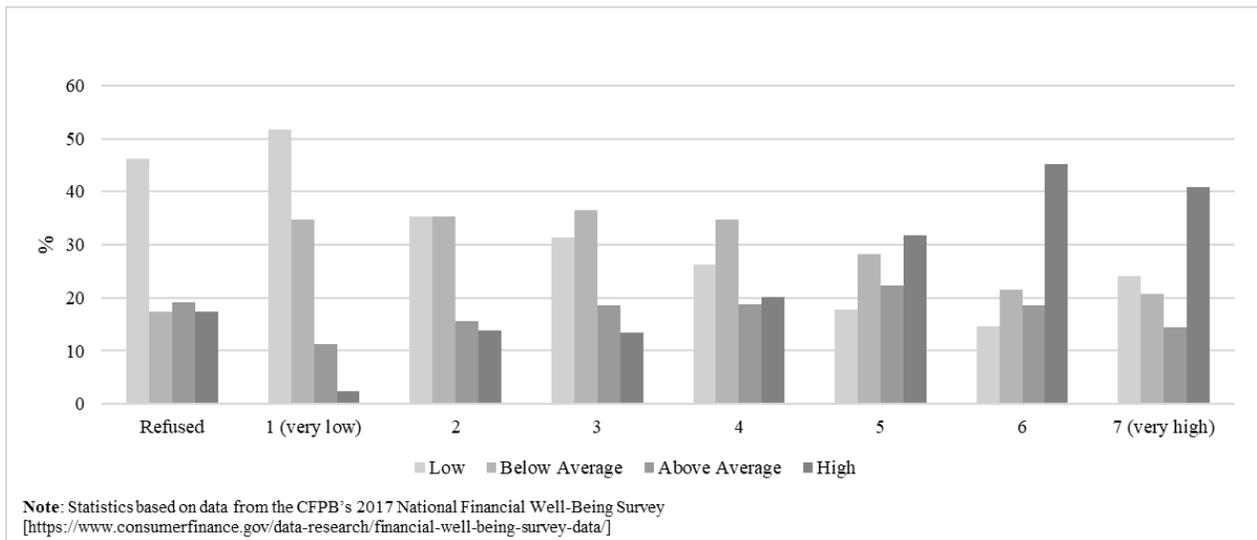
**Figure A11: Financial Knowledge by Marital Status (%)**



**Figure A12: Financial Knowledge by Federal Poverty Level (FPL) (%)**



**Figure A13: Financial Knowledge by Metropolitan Statistical Area (MSA) Status (%)**



**Figure A14: Financial Knowledge by Respondent's Perceived Financial Literacy (%)**

**Table A1: Select Pearson Correlation Coefficients**

	<i>Variables</i>	<b>Low</b>	<b>Below Average</b>	<b>Above Average</b>	<b>High</b>
Financial Knowledge	<b>Low</b>	1.000			
	<b>Below Average</b>	-0.340	1.000		
	<b>Above Average</b>	-0.263	-0.318	1.000	
	<b>High</b>	-0.341	-0.412	-0.318	1.000
Age	<b>18-24 years old</b>	0.111	0.027	-0.042	-0.091
	<b>25-34 years old</b>	0.130	0.010	-0.038	-0.095
	<b>35-44 years old</b>	0.050	0.017	0.001	-0.063
	<b>45-54 years old</b>	-0.016	0.003	-0.004	0.015
	<b>55-61 years old</b>	-0.034	-0.010	0.023	0.021
	<b>62-69 years old</b>	-0.086	-0.019	0.019	0.081
	<b>70-74 years old</b>	-0.072	-0.016	0.015	0.069
Generation	<b>75+ years old</b>	-0.080	-0.008	0.024	0.061
	<b>Pre-Boomer</b>	-0.108	-0.012	0.021	0.092
	<b>Boomer</b>	-0.100	-0.032	0.044	0.084
	<b>Gen X</b>	0.022	0.024	-0.014	-0.032
	<b>Millennial</b>	0.184	0.022	-0.053	-0.143
	<b>Education</b>	-0.110	-0.011	0.048	0.069
	<b>Parent/Guardian Education</b>	-0.053	-0.006	0.038	0.020
Race/Ethnicity	<b>White</b>	-0.280	-0.031	0.093	0.204
	<b>Black</b>	0.185	0.014	-0.055	-0.135
	<b>Other</b>	0.002	-0.005	-0.018	0.018
	<b>Hispanic</b>	0.204	0.032	-0.063	-0.163
	<b>Gender</b>	-0.128	-0.100	0.005	0.213
Household Income	<b>Below \$39,999</b>	0.312	0.049	-0.086	-0.258
	<b>\$40,000-\$74,999</b>	-0.047	0.058	0.025	-0.037
	<b>\$75,000-\$149,999</b>	-0.157	-0.032	0.047	0.135
	<b>\$150,000+</b>	-0.138	-0.096	0.019	0.205
Household Size	<b>1</b>	0.022	0.004	-0.007	-0.018
	<b>2</b>	-0.115	-0.020	0.036	0.093
	<b>3</b>	0.028	0.017	-0.015	-0.029
	<b>4</b>	0.035	0.007	-0.005	-0.035
	<b>5+</b>	0.086	-0.001	-0.027	-0.055
	<b>Homeownership</b>	-0.286	-0.055	0.107	0.222
	<b>Marital Status</b>	-0.173	-0.040	0.045	0.158
	<b>Poverty Status</b>	-0.349	-0.025	0.104	0.252
	<b>MSA Status</b>	0.018	-0.051	-0.020	0.052
Perceived Literacy	<b>Low</b>	0.133	0.050	-0.026	-0.148
	<b>Medium</b>	-0.038	0.043	0.043	-0.046
	<b>High</b>	-0.065	-0.091	-0.028	0.175

**Note:** Results based on data from the CFPB’s 2017 National Financial Well-Being Survey [<https://www.consumerfinance.gov/data-research/financial-well-being-survey-data/>]; Generation is categorized as Pre-Boomer (ages 71+), Boomer (ages 52-70), Gen X (ages 36-51), and Millennial (ages 18-35); Household Size refers to the number of persons in a household; Metropolitan Statistical Area Status is abbreviated as MSA Status.

**Table A2: Financial Knowledge and Age, ANOVA Results**

Summary of Financial Knowledge				Financial Knowledge		Tukey	
Age	Mean	Std. Dev.	Freq.		t	P> t	
18-24	2.0096618	1.0344681	414	Age			
25-34	2.2231183	1.1155017	1,116	25-34 vs 18-24	3.39	0.016	
35-44	2.3599034	1.101142	828	35-44 vs 18-24	5.32	0.000	
45-54	2.6027907	1.1242178	1,075	45-54 vs 18-24	9.38	0.000	
55-61	2.6822034	1.1025852	708	55-61 vs 18-24	9.94	0.000	
62-69	2.8285994	1.0823925	1,021	62-69 vs 18-24	12.86	0.000	
70-74	2.8991935	1.0607408	496	70-74 vs 18-24	12.22	0.000	
75+	2.8315217	1.0646507	736	75+ vs 18-24	12.24	0.000	
Total	2.5608383	1.1267848	6,394	35-44 vs 25-34	2.73	0.114	
				45-54 vs 25-34	8.13	0.000	
				55-61 vs 25-34	8.74	0.000	
				62-69 vs 25-34	12.79	0.000	
				70-74 vs 25-34	11.46	0.000	
				75+ vs 25-34	11.72	0.000	
				45-54 vs 35-44	4.80	0.000	
				55-61 vs 35-44	5.76	0.000	
				62-69 vs 35-44	9.17	0.000	
				70-74 vs 35-44	8.69	0.000	
				75+ vs 35-44	8.51	0.000	
				55-61 vs 45-54	1.50	0.807	
				62-69 vs 45-54	4.73	0.000	
				70-74 vs 45-54	4.99	0.000	
				75+ vs 45-54	4.37	0.000	
				62-69 vs 55-61	2.74	0.112	
				70-74 vs 55-61	3.39	0.016	
				75+ vs 55-61	2.59	0.158	
				70-74 vs 62-69	1.18	0.938	
				75+ vs 62-69	0.06	1.000	
				75+ vs 70-74	-1.07	0.964	

**Table A3: Financial Knowledge and Generation, ANOVA Results**

Summary of Financial Knowledge				Financial Knowledge		Tukey	
Generation	Mean	Std. Dev.	Freq.		t	P> t	
Pre-Boomer	2.8588129	1.0644546	1,112	Generation			
Boomer	2.743897	1.0980421	2,253	Boomer vs Pre-Boomer	-2.86	0.022	
Gen X	2.4804196	1.1195045	1,430	Gen X vs Pre-Boomer	-8.63	0.000	
Millennial	2.1676048	1.0964392	1,599	Millennial vs Pre-Boomer	-16.14	0.000	
Total	2.5608383	1.1267848	6,394	Gen X vs Boomer	-7.11	0.000	
				Millennial vs Boomer	-16.07	0.000	
				Millennial vs Gen X	-7.84	0.000	

**Table A4: Financial Knowledge and Education, ANOVA Results**

Summary of Financial Knowledge				Financial Knowledge	Tukey			
Education (Highest Degree Received)	Mean	Std. Dev.	Freq.		t	P> t		
Less than High School	1.6713287	.82972992	429	Education (Highest Degree Received) High school degree/GED vs Less than high school Some college/Associate vs Less than high school Bachelor's degree vs Less than high school Graduate/prof. degree vs Less than high school Some college/Associate vs High school degree/GED Bachelor's degree vs High school degree/GED Graduate/prof. degree vs High school degree/GED Bachelor's degree vs Some college/Associate Graduate/prof. degree vs Some college/Associate Graduate/prof. degree vs Bachelor's degree	8.30	0.000		
High school degree/GED	2.1350185	1.0459613	1,622					
Some college/Associate	2.4531816	1.0837146	1,933					
Bachelor's degree	3.0289634	1.0337181	1,312					
Graduate/professional degree	3.1675774	.96952928	1,098					
Total	2.5608383	1.1267848	6,394				9.18	0.000
							23.39	0.000
							25.67	0.000
							15.64	0.000
							18.37	0.000
				3.29	0.009			

**Table A5: Financial Knowledge and Parents'/Guardians' Education, ANOVA Results**

Summary of Financial Knowledge				Financial Knowledge	Tukey			
Parents'/Guardians' Education (Highest Degree Received)	Mean	Std. Dev.	Freq.		t	P> t		
Less than High School	2.1793313	1.1040529	658	Parents'/Guardians' Education (Highest Degree Received) High school degree/GED vs Less than high school Some college/Associate vs Less than high school Bachelor's degree vs Less than high school Graduate/prof. degree vs Less than high school Some college/Associate vs High school degree/GED Bachelor's degree vs High school degree/GED Graduate/prof. degree vs High school degree/GED Bachelor's degree vs Some college/Associate Graduate/prof. degree vs Some college/Associate Graduate/prof. degree vs Bachelor's degree	3.74	0.002		
High school degree/GED	2.3607195	1.1071808	2,057					
Some college/Associate	2.4282995	1.1000427	1,576					
Bachelor's degree	2.9220657	1.0524459	1,065					
Graduate/professional degree	3.0879676	1.013745	989					
Total	2.5662727	1.1257884	6,345				4.96	0.000
							13.85	0.000
							16.69	0.000
							1.87	0.336
							13.74	0.000
				17.37	0.000			
				11.51	0.000			
				15.03	0.000			
				3.47	0.005			

**Table A6: Financial Knowledge and Race/Ethnicity, ANOVA Results**

Summary of Financial Knowledge				Financial Knowledge	Tukey	
Race/ Ethnicity	Mean	Std. Dev.	Freq.		t	P> t
White	2.7807915	1.0792337	4,498	Race/Ethnicity		
Black	1.9240876	1.0159924	685	Black vs White	-19.60	0.000
Other	2.5982143	1.159978	336	Other vs White	-3.03	0.013
Hispanic	1.9142857	.99228801	875	Hispanic vs White	-22.01	0.000
-----				Other vs Black	9.50	0.000
Total	2.5608383	1.1267848	6,394	Hispanic vs Black	-0.18	0.998
				Hispanic vs Other	-10.00	0.000

**Table A7: Financial Knowledge and Gender, ANOVA Results**

Summary of Financial Knowledge				Financial Knowledge	Tukey	
Gender	Mean	Std. Dev.	Freq.		t	P> t
Female	2.3001315	1.0686683	3,042	Gender		
Male	2.7974344	1.1261067	3,352	Male vs Female	18.07	0.000
-----						
Total	2.5608383	1.1267848	6,394			

**Table A8: Financial Knowledge and Household Income, ANOVA Results**

Summary of Financial Knowledge						
Household Income	Mean	Std. Dev.	Freq.	Financial Knowledge	Tukey t	P> t
Less than \$20,000	1.6300417	.87170877	719	Household Income \$20,000 to \$29,999 vs Less than \$20,000	7.12	0.000
\$20,000 to \$29,999	2.0533597	1.0298123	506	\$30,000 to \$39,999 vs Less than \$20,000	9.99	0.000
\$30,000 to \$39,999	2.1921824	1.0100009	614	\$40,000 to \$49,999 vs Less than \$20,000	11.77	0.000
\$40,000 to \$49,999	2.3468951	1.0642483	467	\$50,000 to \$59,999 vs Less than \$20,000	16.11	0.000
\$50,000 to \$59,999	2.5881188	1.0506316	505	\$60,000 to \$74,999 vs Less than \$20,000	18.87	0.000
\$60,000 to \$74,999	2.6758833	1.0703065	651	\$75,000 to \$99,999 vs Less than \$20,000	22.26	0.000
\$75,000 to \$99,999	2.7560209	1.0709392	955	\$100,000 to \$149,999 vs Less than \$20,000	26.86	0.000
\$100,000 to \$149,999	2.9461883	1.0519586	1,115	\$150,000 or more vs Less than \$20,000	30.27	0.000
\$150,000+	3.1960557	.98647449	862	\$30,000 to \$39,999 vs \$20,000 to \$29,999	2.26	0.369
Total	2.5608383	1.1267848	6,394	\$40,000 to \$49,999 vs \$20,000 to \$29,999	4.47	0.000
				\$50,000 to \$59,999 vs \$20,000 to \$29,999	8.30	0.000
				\$60,000 to \$74,999 vs \$20,000 to \$29,999	10.25	0.000
				\$75,000 to \$99,999 vs \$20,000 to \$29,999	12.48	0.000
				\$100,000 to \$149,999 vs \$20,000 to \$29,999	16.26	0.000
				\$150,000 or more vs \$20,000 to \$29,999	19.92	0.000
				\$40,000 to \$49,999 vs \$30,000 to \$39,999	2.46	0.252
				\$50,000 to \$59,999 vs \$30,000 to \$39,999	6.43	0.000
				\$60,000 to \$74,999 vs \$30,000 to \$39,999	8.39	0.000
				\$75,000 to \$99,999 vs \$30,000 to \$39,999	10.64	0.000
				\$100,000 to \$149,999 vs \$30,000 to \$39,999	14.65	0.000
				\$150,000 or more vs \$30,000 to \$39,999	18.56	0.000
				\$50,000 to \$59,999 vs \$40,000 to \$49,999	3.67	0.008
				\$60,000 to \$74,999 vs \$40,000 to \$49,999	5.30	0.000
				\$75,000 to \$99,999 vs \$40,000 to \$49,999	7.07	0.000
				\$100,000 to \$149,999 vs \$40,000 to \$49,999	10.61	0.000
				\$150,000 or more vs \$40,000 to \$49,999	14.43	0.000
				\$60,000 to \$74,999 vs \$50,000 to \$59,999	1.44	0.880
				\$75,000 to \$99,999 vs \$50,000 to \$59,999		

<b>(Table A8 continued)</b>	\$50,000 to \$59,999	2.98	0.071
	\$100,000 to \$149,999 vs		
	\$50,000 to \$59,999	6.52	0.000
	\$150,000 or more vs		
	\$50,000 to \$59,999	10.59	0.000
	\$75,000 to \$99,999 vs		
	\$60,000 to \$74,999	1.54	0.837
	\$100,000 to \$149,999 vs		
	\$60,000 to \$74,999	5.35	0.000
	\$150,000 or more vs		
	\$60,000 to \$74,999	9.78	0.000
	\$100,000 to \$149,999 vs		
	\$75,000 to \$99,999	4.21	0.001
	\$150,000 or more vs		
	\$75,000 to \$99,999	9.14	0.000
\$150,000 or more vs			
\$100,000 to \$149,999	5.38	0.000	

**Table A9: Financial Knowledge and Household Size, ANOVA Results**

Summary of Financial Knowledge				Financial Knowledge	Tukey		
Household Size	Mean	Std. Dev.	Freq.		t	P> t	
1	2.5028478	1.1304348	1,229	Household Size			
2	2.7315089	1.0987289	2,704		2 vs 1	5.96	0.000
3	2.4578313	1.1249696	996		3 vs 1	-0.95	0.879
4	2.4352078	1.1244833	818		4 vs 1	-1.34	0.664
5+	2.2751159	1.13557	647		5+ vs 1	-4.20	0.000
Total	2.5608383	1.1267848	6,394		3 vs 2	-6.62	0.000
					4 vs 2	-6.65	0.000
					5+ vs 2	-9.34	0.000
					4 vs 3	-0.43	0.993
					5+ vs 3	-3.24	0.010
				5+ vs 4	-2.73	0.050	

**Table A10: Financial Knowledge and Homeownership, ANOVA Results**

Summary of Financial Knowledge				Financial Knowledge	Tukey	
Homeownership	Mean	Std. Dev.	Freq.		t	P> t
Does not own	2.0654709	1.0646321	2,230	Homeownership		
Owns	2.8261287	1.0681911	4,164		Owns vs Does not own	27.17
Total	2.5608383	1.1267848	6,394			

**Table A11: Financial Knowledge and Marital Status, ANOVA Results**

Summary of Financial Knowledge				Financial Knowledge	Tukey	
Marital Status	Mean	Std. Dev.	Freq.		t	P> t
Not Married	2.2764798	1.106291	2,568	Marital Status		
Married	2.7516989	1.0999838	3,826		Married vs Not Married	16.90
Total	2.5608383	1.1267848	6,394			

**Table A12: Financial Knowledge and Federal Poverty Level (FPL), ANOVA Results**

Summary of Financial Knowledge				Financial Knowledge	Tukey	
Poverty Status	Mean	Std. Dev.	Freq.		t	P> t
<100% FPL	1.5340393	.7770224	661	FPL		
100%-199% FPL	2.0372526	1.0235046	859	100%-199% FPL vs		
200%+ FPL	2.7923677	1.0744764	4,874	<100% FPL	9.34	0.000
-----				200%+ FPL vs		
Total	2.5608383	1.1267848	6,394	<100% FPL	29.17	0.000
-----				200%+ FPL vs		
-----				100%-199% FPL	19.61	0.000

**Table A13: Financial Knowledge and Metropolitan Statistical Area (MSA) Status, ANOVA Results**

Summary of Financial Knowledge				Financial Knowledge	Tukey	
MSA Status	Mean	Std. Dev.	Freq.		t	P> t
Non-Metro	2.478972	1.0560998	856	MSA Status		
Metro	2.5734922	1.136883	5,538	Metro vs		
-----				Non-Metro	2.28	0.022
Total	2.5608383	1.1267848	6,394	-----		

**Table A14: Financial Knowledge and Perceived Financial Literacy, ANOVA Results**

Summary of Financial Knowledge				Financial Knowledge	Tukey	
How would you assess your overall financial knowledge?	Mean	Std. Dev.	Freq.		t	P> t
1 - Very low	1.6451613	.77767162	124	How would you assess your overall financial knowledge?		
2	2.0784314	1.0293675	153	2 vs 1	3.29	0.017
3	2.1401515	1.0100339	528	3 vs 1	4.55	0.000
4	2.3277367	1.0732777	1,489	4 vs 1	6.70	0.000
5	2.6812689	1.09899	2,648	5 vs 1	10.35	0.000
6	2.9440299	1.1188237	1,072	6 vs 1	12.57	0.000
7 - Very high	2.7195122	1.2268593	328	7 vs 1	9.36	0.000
-----				3 vs 2	0.62	0.996
Total	2.5648061	1.1256682	6,342	4 vs 2	2.70	0.099
-----				5 vs 2	6.66	0.000
-----				6 vs 2	9.19	0.000
-----				7 vs 2	6.01	0.000
-----				4 vs 3	3.40	0.012
-----				5 vs 3	10.42	0.000
-----				6 vs 3	13.88	0.000
-----				7 vs 3	7.57	0.000
-----				5 vs 4	10.02	0.000
-----				6 vs 4	14.12	0.000
-----				7 vs 4	5.90	0.000
-----				6 vs 5	6.66	0.000
-----				7 vs 5	0.60	0.997
-----				7 vs 6	-3.27	0.019

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