FINANCIAL LITERACY AMONG RETAIL INVESTORS IN THE UNITED STATES

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PREFACE

The purpose of this report is to respond to a requirement of Section 917 of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 that charges the Securities and Exchange Commission (SEC) to identify "the existing level of financial literacy of retail investors, including subgroups of investors identified by the Commission." The SEC's Office of Investor Education and Advocacy (OIEA) is the sponsor of this research. The goal is not only to assess general financial knowledge, but also to determine specific knowledge of investment fraud, fees, and risk. Besides assessing the financial literacy of retail investors in general, the research evaluates the knowledge of subgroups defined by age, gender, and race.

The researcher derived the data for this analysis from a series of quantitative studies conducted since 2006 to determine the financial literacy of U.S. retail investors. The Federal Research Division (FRD) of the Library of Congress would like to acknowledge the contributions of Annamaria Lusardi, Professor of Accountancy and Economics, George Washington University; Pamela Herd, Associate Professor of Public Affairs and Sociology, University of Wisconsin at Madison; and Lisa G. Schneider, Senior Research Associate, Mathew Greenwald and Associates, who called attention to relevant research studies.

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KEY FINDINGS

General Knowledge

- According to the Financial Industry Regulatory Authority (FINRA) Investor Education Foundation's 2009 National Financial Capability Study, which consisted of a national sample of 1,488 respondents, Americans lack basic financial literacy. FINRA is a nongovernmental self-regulatory organization for the financial services industry that monitors broker-dealers and their associated persons. Although a significant majority of respondents indicated that they were knowledgeable about finance and highly competent in handling day-to-day financial matters, they performed poorly on basic financial literacy questions requiring an understanding of inflation, bond prices, interest rates, mortgages, and risk.[1] A series of later surveys confirmed this finding.

- In general, financial literacy increases with age. For example, in a 2008 survey for the American Savings Education Council (ASEC) and the AARP, Mathew Greenwald and Associates surveyed young Americans from the demographic groups known as Generation X (born between 1968 and 1979) and Generation Y (born between 1980 and 1988).[2] The survey included questions used in the 2003 Investor Literacy Research survey prepared for FINRA's predecessor organization, the National Association of Securities Dealers (NASD), by Applied Research and Consulting.[3] Comparing the results from both surveys, the researchers found that young people tested in 2008 did not perform as well as the adult investors in the earlier survey. These results implied that financial literacy improves with financial experience. However, other studies showed a drop-off in performance among the elderly. For example, in FINRA's 2009 National Financial Capability Study, adults from 45 to 49 years old performed the best of all age-groups, including respondents ages 50 and older, while young adults performed the worst.[4]

- An analysis of the 2008 Health and Retirement Survey (HRS) identified several categories of respondents who performed worse than average on the survey. These respondents included women, the elderly, African Americans, Hispanics, and those with less education than the general sample.[5] This finding was consistent across several studies.

[1] Applied Research and Consulting, "Financial Capability in the United States: Initial Report of Research Findings from the 2009 National Survey" (survey prepared for the Financial Industry Regulatory Authority (FINRA) Investor Education Foundation, New York, December 1, 2009), 1–58, http://www.finrafoundation.org/web/groups/foundation/@foundation/documents/foundation/p120536.pdf (accessed September 9, 2011).
[2] American Savings Education Council (ASEC) and AARP, "Preparing for Their Future; A Look at the Financial State of Gen X and Gen Y" (survey, Washington, DC, March 2008), 1-59, http://www.ebri.org/surveys/preparing.pdf (accessed October 21, 2011).
[3] Applied Research and Consulting, "NASD Investor Literacy Research Executive Summary" (survey prepared for the National Association of Securities Dealers (NASD), New York, 2003), 1-10, http://www.finra.org/web/groups/investors/@inv/@protect/documents/investors/ p011459.pdf (accessed November 9, 2011).
[4] "Financial Capability in the United States: Initial Report of Research Findings from the 2009 National Survey," 41.
[5] Annamaria Lusardi, Olivia S. Mitchell, and Vilsa Curto, "Financial Literacy and Financial Sophistication Among Older Americans" (NBER Working Paper No. 15469, National Bureau of Economic Research, Cambridge, MA, November 2009), 11–15, http://www.nber.org/papers/w15469.pdf (accessed September 12, 2011).

Fraud

- In 2006 the NASD Investor Education Foundation (now known as the FINRA Investor Education Foundation) conducted a study that focused on consumer fraud directed at older Americans. The NASD Investor Fraud Study distinguished between victims and nonvictims of financial fraud. Contrary to expectations, the study found that fraud victims actually scored higher than nonvictims on a financial literacy quiz, indicating that even knowledgeable investors are susceptible to fraud.[6]
- The elderly are especially susceptible to fraud because, according to a 2007 study by the Investor Protection Trust, almost half of them erroneously believe that securities registered with the Securities and Exchange Commission (SEC) are safe.[7]
- According to the 2009 National Financial Capability Study, only 15 percent of respondents indicated that they had "checked an advisor's background or credentials with a state or federal regulator."[8]
- Certain demographic groups are more vulnerable to fraud. The Investor Protection Trust's 2007 survey found that con artists more frequently target individuals who are young, Southern, or poorly educated.[9]

Fees

- According to the Mandatory Disclosure Document Telephone Survey conducted by Abt SRBI for the SEC in 2008, only 25 percent of respondents knew that classes of mutual funds vary by the levels of fees they charge.[10]
- Among older Americans (at least 55 years old) questioned in the 2008 Health and Retirement Survey, two-thirds understood the significant impact of mutual-fund fees on long-term returns. Slightly fewer than 40 percent considered it easy to find mutual funds charging annual fees of less than 1 percent of assets, suggesting that a large number of respondents may have been unaware of the existence of index funds.[11]

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[6] National Association of Securities Dealers (NASD) Investor Education Foundation, "Investor Fraud Study Final Report" (survey prepared by Consumer Fraud Research Group for WISE Senior Services and the NASD Investor Education Foundation, Washington, DC, May 12, 2006), 5–6, http://www.sec.gov/news/press/extra/seniors/nasdfraudstudy 051206.pdf (accessed September 9, 2011).
[7] Infogroup/ORC, "Elder Investment Fraud and Financial Exploitation" (survey, Infogroup, Papillion, NE, July 15, 2010), 42, http://www.investorprotection.org/downloads/pdf/learn/research/EIFFE_Survey_Report.pdf (accessed September 9, 2011).
[8] Applied Research and Consulting, "Financial Capability in the United States: Initial Report of Research Findings," 46.
[9] *MoneyTrack* and Investor Protection Trust, "The *MoneyTrack*/IPT Investing Secrets Survey" (survey prepared by Opinion Research Corporation, Washington, DC, May 10, 2007), 21, http://www.investorprotection.org/downloads/pdf/learn/research/Secrets_Survey_Report.pdf (accessed September 9, 2011).
[10] U.S. Securities and Exchange Commission (SEC), "Mandatory Disclosure Documents Telephone Survey" (survey prepared by Abt SRBI, Washington, DC, July 30, 2008), 100, http://www.sec.gov/pdf/disclosuredocs.pdf (accessed September 9, 2011).
[11] Lusardi, Mitchell, and Curto, "Financial Literacy and Financial Sophistication Among Older Americans," 8–9.

- Surprisingly, the 2006 NASD Investor Fraud Study found that fraud victims were more likely than nonvictims to know that no-load mutual funds actually do involve sales charges or other fees. However, only 45 percent of victims and 21 percent of nonvictims answered the corresponding question correctly.[12]

Risks

- In FINRA's 2009 National Financial Capability Study, a slight majority (52 percent) of respondents understood that mutual funds provide a safer return than a single company stock.[13] This is a fundamental tenet of diversification theory.
- In the 2008 Mandatory Disclosure Document Telephone Survey conducted for the SEC, 79 percent of respondents understood that high-risk investments are expected to provide higher returns over time. In the same survey, 62 percent recognized that if a company files for bankruptcy, the company's common stock is most at risk of becoming virtually worthless.[14]
- The 2008 Health and Retirement Survey included a series of questions designed to determine the sophistication of older Americans (average age of 67) regarding the impact of diversification on risk. Of the sample, 64.8 percent agreed that investing in many stocks rather than just a few stocks reduces risk (risk spread); 61.0 percent correctly answered a similar question about risk spread; and a bare majority of 50.2 percent understood that diversification enables an investor to invest in more stocks. Finally, 68.2 percent correctly disagreed that it would be a wise strategy to invest all of one's money in the safest asset.[15]
- In the 2007 *MoneyTrack*/IPT Investing Secrets Survey of adult Americans, 39 percent selected the correct definition of diversification: balancing both risk and return in pursuit of financial returns.[16]
- In the 2006 NASD Investor Fraud Study, 33.8 percent of victims and 28.7 percent of nonvictims realized that diversification reduces risk.[17]

Research Gaps

- Researchers have identified several categories of respondents who performed worse than average on investor-literacy surveys. These respondents included women, African Americans and Hispanics, the oldest segment of the elderly population, and individuals with low levels of educational attainment. It would be helpful to investigate the root causes of these patterns.
- In particular, researchers have no plausible explanation for why women consistently perform worse than men on investor-literacy quizzes. One study determined that women

[12] NASD Investor Education Foundation, "Investor Fraud Study Final Report," 1–31.
[13] Applied Research and Consulting, "Financial Capability in the United States: Initial Report of Research Findings," 40.
[14] SEC, "Mandatory Disclosure Documents Telephone Survey," 102, 107.
[15] Lusardi, Mitchell, and Curto, "Financial Literacy and Financial Sophistication Among Older Americans," 23.
[16] *MoneyTrack* and Investor Protection Trust, "The *MoneyTrack*/IPT Investing Secrets Survey," 20.
[17] NASD Investor Education Foundation, "Investor Fraud Study Final Report," 18–19.

underperform men by 0.7 standard deviations. Differences in male and female attitudes toward risk offer a partial explanation of this discrepancy. However, while some questions involve investor behavior, others deal with objective knowledge. One preliminary finding is that men and women may follow different paths to becoming financially literate. These differences merit further study.[18]

[18] Lusardi, Mitchell, and Curto, “Financial Literacy and Financial Sophistication among Older Americans.”

INTRODUCTION

This report assesses the financial literacy of retail investors in the United States. Economists have developed various definitions of financial literacy. In an article in the *Journal of Consumer Affairs* published in 2010, Sandra J. Huston, associate professor of personal financial planning at Texas Tech University, reviewed these definitions, seeking to arrive at a consensus definition.[19] Huston distinguished between "financial knowledge" and "literacy." Financial knowledge denotes a "stock of knowledge acquired through education and/or experience specifically related to essential personal finance concepts and products."[20] Literacy involves the "ability and confidence to effectively apply or use knowledge related to personal finance concepts and products."[21] She went on to explain that financial literacy leads to "personal financial behaviors," which in turn have an impact on "financial well-being."[22] The crux of the matter is that a lack of financial literacy can have a very harmful effect on financial well-being. However, the focus of this report is on investor knowledge narrowly defined, rather than on Huston's expanded, behavior-based definition.

Investor knowledge is particularly important in an age in which retirement programs in the United States have moved from defined-benefit plans, in which the employer bears investment responsibility, to defined-contribution plans, in which this responsibility has shifted to employees. If employees do not have the requisite knowledge, they will not be prepared to make informed decisions regarding the management of their financial affairs, including investing for a secure retirement. Given the stakes in the defined-contribution age, quantifying the level of financial literacy of retail investors is critical.

Since 2006, academic researchers, financial-industry associations, and other interested organizations have conducted various surveys of financial literacy among retail investors in the United States. These studies have consistently found that American investors do not understand the most basic financial concepts, such as the time value of money, compound interest, and inflation. Investors also lack essential knowledge about more sophisticated financial concepts, such as the meaning of stocks and bonds; the role of interest rates in the pricing of securities; the

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19 Sandra J. Huston, "Measuring Financial Literacy," *Journal of Consumer Affairs* 44, no. 2 (Summer 2010): 296–316, http://onlinelibrary.wiley.com/doi/10.1111/j.1745-6606.2010.01170.x/pdf (accessed September 9, 2011).
20 Huston, "Measuring Financial Literacy," 307.
21 Huston, "Measuring Financial Literacy," 307.
22 Huston, "Measuring Financial Literacy," 308.

function of the stock market; and the value of portfolio diversification (spreading investments across asset classes to reduce risk). Surveys also demonstrate that investors lack essential knowledge about investment fraud and the importance of investment costs and expenses.

Two researchers, Annamaria Lusardi of George Washington University's School of Business and Olivia S. Mitchell of the University of Pennsylvania's Wharton School of Business, have conducted many years of focused research in this area. Lusardi and Mitchell devised a financial-literacy module, which subsequent researchers have incorporated into a number of surveys, such as the 2008 Health and Retirement Study and the FINRA Investor Education Foundation's 2009 National Financial Capability Study. This module initially consisted of a few questions about basic financial concepts, but later surveys covered more sophisticated concepts.

FINANCIAL LITERACY RESEARCH

Financial literacy studies fall into three categories, depending on the population or special topic under investigation. Most studies survey the general population. Others focus on particular subgroups, such as women, or specific age-groups or minority groups. A third type of study deals specifically with investment fraud. Accordingly, the researcher has grouped the studies selected for analysis in this report according to these three categories: general population, subgroups, and investment fraud.

General Population

2009 National Financial Capability Study

The FINRA Investor Education Foundation's 2009 National Financial Capability Study, which consisted of a national sample of 1,488 respondents, included four self-assessment questions and five basic financial literacy questions—the latter derived from the questionnaire designed by Lusardi and Mitchell.[23] The responses to the self-assessment questions indicated that 70 percent of those surveyed rated themselves highly in terms of overall financial knowledge. They also considered themselves highly competent in using mathematics, dealing with day-to-day financial matters (such as checking accounts, credit and debit cards, and

[23] Applied Research and Consulting, "Financial Capability in the United States: Initial Report of Research Findings," 1–58.

expenses), and following economic and financial news. However, FINRA found a disparity between self-reported knowledge and the knowledge demonstrated in responses to the survey's five basic financial-literacy questions. In their answers to these five questions, the respondents demonstrated their lack of understanding of inflation, bond prices, interest rates, mortgages, and risk.[24]

Table 1 summarizes the results of this survey, and Appendix 1 shows the original wording of the survey questions and the correct answers.

Table 1. 2009 National Survey of Financial Capability in the United States

Question	% Correct	% Incorrect	% Don't Know
Inflation	64	21	13
Bond price	21	44	34
Compound interest	65	21	13
Mortgage	70	16	12
Risk	52	13	34

Source: Financial Industry Regulatory Authority (FINRA) Investor Education Foundation, "Financial Capability in the United States: National Survey—Executive Summary" (Washington, DC, December 2009), http://www.finrafoundation.org/web/groups/foundation/@foundation/documents/foundation/p120535.pdf (accessed October 31, 2011).

The average number of correct answers to the five questions was 2.72. Men averaged 3.00 correct answers, versus 2.46 for women. According to age-group, young adults performed the worst, answering an average of 2.16 questions correctly, and adults aged 45 to 49 performed the best (3.04 correct answers). Performance correlated closely with income and educational level. The average number of correct answers was 3.42 for both high-income and college-graduate respondents. In terms of ethnic background, Asian Americans scored the highest, averaging 2.99 correct answers, followed by Caucasians (2.91), African Americans (2.28), and Hispanics (2.07).[25]

FINRA concluded that these results demonstrated "relatively low levels of financial literacy among Americans."[26] FINRA's explanation for these results provides additional analytic

[24] FINRA Investor Education Foundation, "Financial Capability in the United States: National Survey—Executive Summary" (Washington, DC, December 2009), 19, http://www.finrafoundation.org/web/groups/foundation/@foundation/documents/foundation/p120535.pdf (accessed October 31, 2011).
[25] Applied Research and Consulting, "Financial Capability in the United States: Initial Report of Research Findings," 41.
[26] FINRA Investor Education Foundation, "Financial Capability in the United States: National Survey—Executive Summary," 18.

insights: "While the correct answer to any single question sometimes exceeded 60 percent, fewer than half of respondents (46 percent) correctly answered both a question about interest rates and a question about inflation. Less than one-third (30 percent) correctly answered those questions plus a question about risk and diversification correctly. And fewer than 10 percent of respondents were able to answer all questions correctly."[27]

2010 Northwestern Mutual's Financial Matters Study

In 2010 Mathew Greenwald and Associates conducted a study for Northwestern Mutual Life Insurance to determine Americans' general financial knowledge and, especially, their knowledge of insurance products. The sample consisted of 1,664 Americans aged 25–65.[28] This report analyzes only the questions that the researchers used to compute an overall financial literacy score, excluding those dealing with the fine points of insurance coverage. Table 2 summarizes the results of this survey. Appendix 2 shows the original wording of the survey questions.

Table 2. 2010 Northwestern Mutual's Financial Matters Study

Question	% Correct	% Incorrect	% Don't Know
Asset allocation	79	11	10
Diversification question	88	5	6
Dollar cost averaging	57	18	25
Rate of inflation	35	45	19
Protection against inflation	28	60	13
Bond price	41	39	20
Index fund	32	33	34
Money market funds	35	44	20
529 plans	61	14	25
Disability income insurance	84	10	7
Group disability insurance portability	61	N/A	N/A
Group life insurance portability	53	N/A	N/A
Life-long insurance	53	N/A	N/A
Term life insurance	49	N/A	N/A

[27] FINRA Investor Education Foundation, "Financial Capability in the United States: National Survey—Executive Summary," 18.
[28] Northwestern Mutual Life Insurance, "Northwestern Mutual's Financial Matters Study; Report of Findings" (prepared by Mathew Greenwald and Associates, Milwaukee, WI, June 2010), 1–35, http://www.northwesternmutual.com/learning-center/studies-and-reports/financial-matters-study.aspx (accessed October 21, 2011).

Table 2. 2010 Northwestern Mutual's Financial Matters Study			
Question	**% Correct**	**% Incorrect**	**% Don't Know**
Roth IRA	49	N/A	N/A
Intermediate annuity	26	25	49
Fixed annuity	48	15	37
Variable annuity	35	22	43
Long-term care insurance	63	15	21
Medicare	48	27	25
Nursing home cost	5	72	23

Source: Northwestern Mutual Life Insurance, "Northwestern Mutual's Financial Matters Study; Report of Findings" (prepared by Mathew Greenwald and Associates, Milwaukee, WI, June 2010), http://www. northwesternmutual.com/learning-center/studies-and-reports/financial-matters-study.aspx (accessed October 21, 2011).

The researchers computed an overall financial-literacy score based on the survey data. They found that only 1 percent of the sample answered 90–100 percent of the questions correctly, earning a grade of A. Only 5 percent earned a B (correctly answering 80–89 percent of the questions), 10 percent earned a C (70–79 percent correct answers), and 15 percent earned a D (60–69 percent correct answers). More than two-thirds (69 percent) failed the quiz. Older Americans scored higher than younger ones. In this study, respondents' scores implied that financial literacy steadily increases with age.[29]

2008 Mandatory Disclosure Document Telephone Survey

In 2008 Abt SRBI conducted the Mandatory Disclosure Document Telephone Survey for the SEC, based on a national sample of 1,000 "adults who invest in stocks, bonds, and/or mutual funds, outside of an employer-sponsored retirement plan."[30] The primary goal of the survey was to determine the usefulness of SEC-mandated disclosure documents and whether they conform to "plain English" requirements.[31] However, the survey also sought to measure investor literacy.

The 10 investor-literacy questions, which were similar to those developed by Lusardi and Mitchell, tested respondents' understanding of the meaning of stock and bond ownership, the differences among mutual-fund classes, the relative safety of various types of bonds, the relationship between long-term investment risk and return, the impact of interest rates on bond

[29] Northwestern Mutual, "Financial Matters Study," 26.
[30] SEC, "Mandatory Disclosure Documents Telephone Survey," 1–163.
[31] SEC, "Mandatory Disclosure Documents Telephone Survey," v.

prices, the expected long-term return of a diversified stock mutual fund, the identification of the best average returns by asset class, the lack of any organization insuring investors against investment losses, and the identification of securities most at risk in bankruptcy.[32]

Table 3 summarizes the results of this survey. Appendix 3 shows the original wording of the survey questions and the correct answers.

Table 3. 2008 Mandatory Disclosure Document Telephone Survey

Question	% Correct	% Incorrect	% Don't Know/ Refused
Stock ownership	70	24	7
Bond ownership	57	27	16
Mutual fund share class	25	48	28
Relative safety of bonds	76	14	10
Risk–return relationship	79	17	4
Relationship of bond prices and yields	40	44	16
Expectation of returns on a stock mutual fund	53	40	7
Returns by asset class	60	31	10
Insurance against investment losses	43	40	17
Securities at risk in bankruptcy	62	22	16

Source: U.S. Securities and Exchange Commission (SEC), "Mandatory Disclosure Documents Telephone Survey" (prepared by Abt SRBI, Washington DC, July 30, 2008), http://www.sec.gov/pdf/disclosuredocs.pdf (accessed September 9, 2011).

The average number of correct answers to the 10 questions was 5.6. The distribution of total correct answers was relatively normal, with a standard deviation of 2.2.[33] Respondents did well on questions about the direct relationship between risk and reward, the relative safety of different types of bonds, and the meaning of stock ownership. They did poorly on questions about the inverse relationship between bond prices and yields and the common misperception that certain organizations provide insurance against investment losses.

[32] SEC, "Mandatory Disclosure Documents Telephone Survey," 98–109.
[33] SEC, "Mandatory Disclosure Documents Telephone Survey," 108.

2007 MoneyTrack/IPT Investing Secrets Survey

In April 2007, Opinion Research Corporation conducted a survey of 1,255 adult investors in the continental United States. The study defined "investors" as those who make "decisions about where their savings are placed, including CDs, stocks, bonds, and mutual funds."[34] The survey consisted of 10 questions, but only four dealt directly with investor literacy. Table 4 summarizes the results of the survey. Appendix 6 shows the original wording of the survey questions.

Table 4. 2007 *MoneyTrack*/IPT Investing Secrets Survey

Question	% Correct	% Incorrect	% Don't Know/ Not Sure
Long-term returns	56	34	10
Nest egg	58	35	7
Compound interest	39	59	2
Concept of diversification	39	47	14

Source: *MoneyTrack* and Investor Protection Trust, "The *MoneyTrack*/IPT Investing Secrets Survey" (prepared by Opinion Research Corporation, Washington, DC, May 10, 2007), http://www.investorprotection.org/downloads/pdf/learn/research/Secrets_ Survey_Report.pdf (accessed September 9, 2011).

Investors did well on two questions asking them to affirm the superior long-term performance of stocks, compared to other asset classes. However, it is worth noting that while it was true that stocks outperformed bonds over the long term at the time the survey was administered, bonds outperformed stocks for the first time since before the Civil War in the 30-year period through September 30, 2011, according to Professor Jeremy Siegel of the University of Pennsylvania's Wharton School.[35] Therefore, future surveys probably should exclude this question. Investors did poorly on questions about compound interest and diversification.

Early-Life Schooling and Cognition and Late-Life Financial Literacy in the Wisconsin Longitudinal Study

In September 2010, the University of Wisconsin at Madison's Center for Financial Security released a study on "Early-Life Schooling and Cognition and Late-Life Financial

[34] *MoneyTrack* and Investor Protection Trust, "The *MoneyTrack*/IPT Investing Secrets Survey," 7.
[35] Cordell Eddings, "Say What? In 30-Year Race, Bonds Beat Stocks," *Bloomberg News*, October 31, 2011, http://www.bloomberg.com/news/2011-10-31/bonds-beating-u-s-stocks-over-30-years-for-first-time-since-19th-century.html (accessed November 18, 2011).

Literacy in the Wisconsin Longitudinal Study." Pamela Herd and Karen Holden conducted the study, which took an unconventional approach to investigating investor literacy. Instead of determining the respondents' knowledge of fundamental financial concepts, the study sought to measure respondents' awareness of their own financial situation, such as their knowledge of how much money they held in retirement and bank accounts. This alternative, behavior-based measure of financial literacy assumes that such awareness is a "prerequisite for making good financial decisions."[36]

The sample consisted of 6,276 cases from the Wisconsin Longitudinal Survey (WLS), which tracked a cohort of 10,317 Wisconsin high school graduates, mostly born in 1939, over time. The researchers had collected the latest survey data in 2004. The WLS is not only the longest-running longitudinal survey of its kind in the United States, but also unusually detailed. The survey identifies the respondents by high school class rank, curriculum, IQ range, and educational attainment. The data collected in this study enabled the researchers to explore potential correlations between financial literacy, as defined by the study, and early-life schooling and cognition. One limitation to the data is the sample's homogeneity—the survey reflects a predominantly white, non-Hispanic population.[37]

The researchers asked respondents whether they knew the amounts in their retirement and bank accounts. Table 5 summarizes the results.

[36] Pamela Herd and Karen Holden, "Early-Life Schooling and Cognition and Late-Life Financial Literacy in the Wisconsin Longitudinal Study" (Working Paper No. WP 10-1, Center for Financial Security, University of Wisconsin at Madison, Madison, WI, September 2010), http://www.rand.org/content/dam/rand/www/external/events/2010/11/18/early-life-schooling-cognition-late-life-financial-literacy.pdf (accessed September 12, 2011).
[37] Herd and Holden, "Early-Life Schooling and Cognition and Late-Life Financial Literacy" (Working Paper WP No. 10-1).

Table 5. Wisconsin Longitudinal Study: The Relationship of Financial Knowledge Variables to Key Characteristics								
	Retirement Plans Amounts			**Bank Account Amounts**			**Percentage of Assets Precisely Reported**[38]	
	% Know	**% Don't Know**	**% Refused**	**% Know**	**% Don't Know**	**% Refused**	**Mean %**	**Frequency**
Proportion of the whole sample	**71.79**	**18.65**	**9.57**	**80.66**	**12.76**	**6.58**	**89**	**6,276**
Male	81.38	9.96	8.66	85.51	8.5	5.99	93	2,958
Female	63.06	26.55	10.39	76.4	16.51	7.09	84	3,318
College degree	76.9	14.43	8.67	82.9	10.47	6.63	91	1,760
Non-college degree	69.63	20.42	9.94	79.79	13.66	6.56	87	4,516
IQ < 90	63.25	24.7	12.05	75.74	16.34	7.92	85	1,254
IQ 90–110	71.86	19.13	9.01	81.12	12.97	5.9	89	3,241
IQ 110–120	75.15	15.24	9.61	83.48	9.62	6.9	92	942
IQ > 120	78.89	12.87	8.24	83.28	9.99	6.73	92	839
2 Semesters of high-school Algebra	70.18	20.71	9.12	80.01	13.59	6.4	88	3,449
<2 Semesters of high-school Algebra	65.31	22.51	12.18	77.79	14.49	7.72	86	1,412
>2 Semesters of high-school Algebra	81.1	10.61	8.29	85.18	8.97	5.85	93	1,415
8 Semesters of high-school English	72.35	18.42	9.24	81.3	12.05	6.65	0.89	4,351

[38] Proportion of the total sample.

Table 5. Wisconsin Longitudinal Study: The Relationship of Financial Knowledge Variables to Key Characteristics								
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6–7 Semesters of high-school English	71.63	19.1	9.27	79.2	14.37	6.43	0.88	1,569
<6 Semesters of high-school English	65.45	19.6	14.95	79.29	14.39	6.31	0.88	356

Source: Pamela Herd and Karen Holden, "Early-Life Schooling and Cognition and Late-Life Financial Literacy in the Wisconsin Longitudinal Study" (Working Paper WP No. 10-1, Center for Financial Security, University of Wisconsin at Madison, Madison, WI, September 2010), http://www.rand.org/content/dam/rand/www/external/events/2010/11/18/early-life-schooling-cognition-late-life-financial-literacy.pdf (accessed September 12, 2011).

Based on a statistical analysis of these results, the authors concluded that, particularly for those in the lowest IQ range, schooling and cognition in early life are related to financial literacy later in life. Specifically, they found that low intelligence and the lack of exposure to mathematics courses in high school correlate with difficulty later in life managing finances and saving for retirement. However, they did not establish a causal relationship between early-life learning and later-life financial literacy. The researchers determined that the number of mathematics classes taken in high school was a statistically significant factor, whereas English classes had no measurable impact on financial literacy. Gender was also a significant factor, with men outperforming women on the test. The authors called for additional study of the impact of gender on financial literacy.[39] In view of the importance of developing basic cognitive and quantitative skills early in life, the authors called attention to the study's policy implications: "If

[39] Herd and Holden, "Early Life Schooling and Cognition and Late Life Financial Literacy in the Wisconsin Longitudinal Study," (CFS Research Brief No. FLRC 10-1).

the trend toward more complex retirement planning continues, scholars and policy makers must generate strategies to help those with limited cognitive functioning to manage their finances."[40]

Subgroups

2008 Health and Retirement Survey—Focus on Older Americans

In research published in October 2009, Annamaria Lusardi, Olivia Mitchell, and Vilsa Curto focused on older Americans (average age 67) who had participated in the 2008 Health and Retirement Study.[41] A subset of 1,332 participants from this age range responded to a set of questions designed to measure their financial sophistication. These questions went beyond the customary basic financial literacy questions. The 18 questions in the survey instrument belonged to five different categories: knowledge of capital markets, understanding of risk diversification, knowledge of fees, investment savvy/numeracy, and attitudes toward investing and risk. The questions required true or false responses to statements. The researchers varied the wording of each question to ensure the survey's integrity. Table 6 summarizes the results of this survey. Appendix 4 shows the original wording of the survey questions.

Table 6. 2008 Health and Retirement Survey—Focus on Older Americans

Question	% Sophisticated	% Unsophisticated	% Don't Know/ Refused
Knowledge of Capital Markets			
Stock-market understanding	29.9	69.4	0.8
Company stock	52.0	39.3	8.7
Foreign stocks	50.9	41.7	7.4
Bond value vs. interest rate	40.0	38.0	22.0
Risk Diversification			
Few or many stocks	64.8	26.6	8.6
Stock risk spread	61.0	26.9	12.1
Stock diversification	50.2	29.0	20.8
Knowledge of Fees			
Importance of annual fees	66.0	20.7	13.3
Index funds	39.4	31.2	29.5

[40] Herd and Holden, "Early Life Schooling and Cognition and Late Life Financial Literacy" (CFS Research Brief No. FLRC 10-1).
[41] Lusardi, Mitchell, and Curto, "Financial Literacy and Financial Sophistication among Older Americans."

Table 6. 2008 Health and Retirement Survey—Focus on Older Americans			
Question	**% Sophisticated**	**% Unsophisticated**	**% Don't Know/ Refused**
Savvy/Numeracy			
Buy/sell stocks often	62.8	29.1	8.0
Enough life insurance	69.7	22.7	7.5
Use savings in bank to pay off credit cards	58.3	36.4	5.3
Power of compound interest	61.4	21.1	15.9
Attitudes toward investing and risk			
All money in safest asset	68.2	28.8	3.0
Older retired people should hold stocks	74.8	20.2	5.0
Smart people select stock with good returns	56.2	31.7	12.1
Stock market equals lottery	75.4	19.0	5.6
Advisers take unfair advantage	57.9	28.7	13.3
Source: Annamaria Lusardi, Olivia S. Mitchell, and Vilsa Curto, "Financial Literacy and Financial Sophistication Among Older Americans" (NBER Working Paper No. 15469, National Bureau of Economic Research, Cambridge, MA, November 2009), http://www.nber.org/papers/w15469.pdf (accessed September 12, 2011).			

In terms of knowledge of the capital markets, 52.0 percent recognized the risk associated with investing in company stock, while 50.9 percent appreciated the diversification benefits of investing in foreign equities. In addition, 40.0 percent understood the relationship between bond prices and yields.[42] Performance on a series of questions measuring knowledge of risk diversification was more encouraging. Some 64.8 percent agreed that investing in many stocks through a mutual fund is better than investing in a few stocks, while 61.0 percent understood that investing in more stocks reduces risk. A slight majority—50.2 percent—agreed that diversification enables a greater investment in stocks.[43]

Regarding knowledge of mutual-fund fees, approximately two-thirds—66 percent—understood that fees have a significant impact on fund returns over the long run. In response to another question about mutual-fund fees, many respondents appeared to be unaware of the existence of index funds because only 39.4 percent found it easy to find mutual funds with

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[42] Lusardi, Mitchell, and Curto, "Financial Literacy and Financial Sophistication Among Older Americans,"6–8.
[43] Lusardi, Mitchell, and Curto, "Financial Literacy and Financial Sophistication Among Older Americans," 8.

annual fees representing less than 1 percent of assets.[44] With respect to investment savvy/numeracy, 62.8 percent of respondents recognized that buying and selling stocks frequently is ill advised; 69.7 percent properly estimated the need for life insurance; 58.3 percent realized that using savings in the bank to pay off credit card debt is beneficial; and 61.4 percent correctly calculated the answer to a complex, compound-interest calculation.[45]

Regarding attitudes toward investment risks, 68.2 percent considered it disadvantageous for investors to place all their money in the safest asset; 74.8 percent agreed with the notion that older retirees should hold some stocks; and 56.2 percent rejected the notion that smart people are able to identify stocks with above-average returns. In addition, 75.4 percent declined to equate investing in the stock market with buying a lottery ticket, and 57.9 percent disagreed with the statement that there is no way to avoid people taking advantage of you if you invest in the stock market.[46]

The researchers concluded that older Americans "lack even a rudimentary understanding of stock and bond prices, risk diversification, portfolio choice, and investment fees. Furthermore, people that got one question correct were not particularly likely to get others correct, and 'do not know' responses were quite widespread."[47] The researchers also identified several categories of respondents who performed worse than average on the survey. These respondents included women, African Americans and Hispanics, the oldest segment of the elderly population, and individuals with less education than other respondents.[48] Women's incorrect responses to some questions may reflect their attitudes toward risk. The respondents' performance on the survey correlated with their educational level on all questions except the one determining their knowledge of index funds. To conclude, the researchers recommended greater emphasis on investor education programs. However, they also suggested that educators customize financial literacy programs to suit the needs of different demographic groups.[49]

[44] Lusardi, Mitchell, and Curto, "Financial Literacy and Financial Sophistication among Older Americans," 8–9.
[45] Lusardi, Mitchell, and Curto, "Financial Literacy and Financial Sophistication among Older Americans," 9–10.
[46] Lusardi, Mitchell, and Curto, "Financial Literacy and Financial Sophistication among Older Americans," 10–11.
[47] Lusardi, Mitchell, and Curto, "Financial Literacy and Financial Sophistication among Older Americans," 15.
[48] Lusardi, Mitchell, and Curto, "Financial Literacy and Financial Sophistication among Older Americans," 11–15.
[49] Lusardi, Mitchell, and Curto, "Financial Literacy and Financial Sophistication Among Older Americans," 16.

2008 Jump$tart National Survey of High-School Seniors and College Students

The Jump$tart Coalition for Personal Financial Literacy began conducting a financial literacy survey of high school seniors and college students in the 1997−98 school year.[50] Since then, the coalition has conducted the same 31-question survey every two years, most recently in 2008. In the 2008 survey, the average score had declined to an all-time low of 48.3 percent from an all-time high of 57.3 percent in 1997−98.[51] Table 7 summarizes the results of this survey. Appendix 5 shows the original wording of the survey questions and the correct answers.

Table 7. 2008 Jump$tart Survey of High School Seniors and College Students

Question	% Correct	% Incorrect
Inflation	40.0	59.5
Sales tax	41.9	57.6
Savings safety	87.7	12.2
Purchasing-power protection	35.8	62.8
Beneficial borrowing	55.8	44.3
Right to know credit history	47.7	52.3
Take-home pay	56.4	43.6
Pension	36.2	63.8
Emergency savings	40.1	59.9
Personal budgeting	60.2	39.8
Long-term investing	16.8	83.3
Lack of credit history	45.9	54.0
Income tax	47.1	52.9
Sources of income	75.3	24.7
Credit counseling	70.5	29.5
Compound interest	51.1	49.0
Health insurance	40.4	59.6
Continuing education	67.9	32.1
Stolen credit card	13.0	87.0
ATM	68.0	32.0
State business tax rate	57.3	42.8
Automotive insurance	36.8	63.2
Finance charge	43.1	56.9
Value of college degree	47.6	52.5
Federally insured savings	28.4	71.6
Life insurance	51.1	48.8

[50] Lewis Mandell, "The Financial Literacy of Young American Adults: Results of the 2008 National Jump$tart Survey of High School Seniors and College Students" (survey, Jump$tart Coalition for Personal Financial Literacy, Washington, DC, 2008), 7, http://www.jumpstart.org/assets/files/2008SurveyBook.pdf (accessed September 9, 2011).
[51] Mandell, "The Financial Literacy of Young American Adults," 12.

Table 7. 2008 Jump$tart Survey of High School Seniors and College Students		
Question	**% Correct**	**% Incorrect**
Accounts for spending	82.1	17.9
Credit card finance charge	48.0	52.1
Missed loan payments	53.7	46.3
College borrowing	32.5	67.5
Savings account interest	27.3	72.7

Source: Lewis Mandell, "The Financial Literacy of Young American Adults: Results of the 2008 National Jump$tart Survey of High School Seniors and College Students" (Jump$tart Coalition for Personal Financial Literacy, Washington, DC, 2008), http://www.jumpstart.org/assets/files/2008SurveyBook.pdf (accessed September 9, 2011).

This survey analyzed respondents' performance according to demographic group. Among high school seniors, the groups ranked in descending order, as follows: white (52.5 percent), Asian American (47.2 percent), Hispanic American (45.1 percent), African American (41.3 percent), and Native American (37.7 percent).[52] Among college students, the groups ranked as follows: white (63.3 percent), Hispanic American (59.8 percent), Asian American (57.1 percent), and African American (56.3 percent).[53]

2008 American Savings Education Council and AARP Survey

In 2008 Mathew Greenwald and Associates conducted a survey for the American Savings Education Council (ASEC) and the AARP to assess the financial state of young Americans. The survey sample consisted of 1,752 Americans born between 1968 and 1979 (Generation X) and between 1980 and 1988 (Generation Y).[54] Although the actual wording of the survey questions and the data regarding the responses are not available, one of the areas addressed in the survey was financial literacy.

Only 15 percent of young people in the sample considered themselves knowledgeable about saving for retirement, but their performance on the actual quiz showed that they knew more than they thought. The quiz featured questions from the 2003 NASD Investor Literacy Research survey prepared for the National Association of Securities Dealers (NASD) by Applied

[52] Mandell, "The Financial Literacy of Young American Adults," 14.
[53] Mandell, "The Financial Literacy of Young American Adults," 31.
[54] ASEC and AARP, "A Look at the Financial State of Gen X and Gen Y," 2.

Research and Consulting. In that survey, the researchers asked 1,086 adult investors more than 50 questions about investing in stocks, bonds, and mutual funds.[55]

The ASEC and AARP study found that 57 percent of their young respondents understood that when a person buys a company stock, he or she owns part of the company.[56] However, only 28 percent correctly identified stocks as the investment vehicle that has "historically generated the best annual returns."[57] Only 24 percent understood the inverse relationship between interest rates and bond prices.[58] The relative performance of the young people questioned in this survey as compared to the adult population tested in the 2003 NASD Investor Literacy Research survey implies that financial literacy increases with experience.[59]

Military Survey of Financial Capability in the United States

Separately from the national survey, the FINRA Investor Education Foundation conducted an online survey of 700 current military servicemembers and 100 spouses. In contrast to the civilian population, a high percentage of military respondents were younger than 50, male, high school graduates, and employed full-time.[60] The survey consisted of both behavioral and financial literacy questions. The focus here is on the latter. On FINRA's financial literacy quiz, the military survey respondents performed better on all five questions than civilian respondents in an identical survey.[61] Table 8 summarizes the results of this survey, and Appendix 4 shows the original wording of the survey questions and the correct answers.

Table 8. 2010 Military Survey of Financial Capability in the United States

Question	% Civilians Correct	% Military Correct	% Military Incorrect	% Military Don't Know
Interest rate	75	87	7	5
Inflation	62	72	15	12
Bond price	26	30	37	32
Mortgage	73	88	5	7
Risk	61	70	6	24

[55] Applied Research and Consulting, "NASD Investor Literacy Research Executive Summary," 1–10.
[56] ASEC and AARP, "A Look at the Financial State of Gen X and Gen Y," 48.
[57] ASEC and AARP, "A Look at the Financial State of Gen X and Gen Y," 49.
[58] ASEC and AARP, "A Look at the Financial State of Gen X and Gen Y," 49.
[59] ASEC and AARP, "A Look at the Financial State of Gen X and Gen Y," 50.
[60] Financial Industry Regulatory Authority (FINRA) Investor Education Foundation, "Financial Capability in the United States—Military Survey—Executive Summary," Washington, DC, October 2010, 7, http://www.finra.org/web/groups/foundation/@foundation/documents/foundation/p122257.pdf (accessed December 21, 2011).
[61] "Financial Capability in the United States—Military Survey—Executive Summary," 20.

Overall 58 percent of military respondents answered at least four questions correctly.[62] The following demographic segments performed below average on the quiz: women, the young, enlisted personnel, and junior NCOs.[63]

Ariel Education Initiative and Hewitt Associates—401(k) Plans in Living Color Study

This study of 401(k) savings disparities across racial and ethnic groups focuses on the financial status and behavior of minority investors. The main finding of this study by the Ariel Education Initiative and Hewitt Associates is that African-American and Hispanic workers in the United States have lower 401(k) balances and participation rates than their white and Asian counterparts.[64] Although financial status and behavior lie outside the purview of this report, the study is noteworthy due to its recommendation to address these disparities through financial education. Specifically, the study recommends the introduction of mandatory K-12 financial literacy curricula in public and private schools.[65]

Investment Fraud

Some 43 percent of investors canvassed in the 2007 *MoneyTrack*/IPT Investing Secrets Survey demonstrated a susceptibility to investment fraud. These respondents indicated that they would be likely to invest in one of three get-rich-quick schemes promoted as “can’t lose” opportunities.[66] Among those most likely to invest in such schemes were young people from age 18 to 24 (79 percent), Southerners (47 percent), and people with less than a high school education (63 percent).[67] The elderly are also a popular target for investor fraud. According to Infogroup/ORC’s survey for the Investor Protection Trust, conducted on May 20−24, 2010, almost half of the 2,022 elderly Americans who responded believe, erroneously, that securities

[62] “Financial Capability in the United States—Military Survey,” 20.
[63] “Financial Capability in the United States—Military Survey,” 21.
[64] Ariel Education Initiatives and Hewitt Associates, “401(k) Plans in Living Color—A Study of 401(k) Savings Disparities across Racial and Ethnic Groups,” July 2009, 4, http://www.arielinvestments.com/images/stories/PDF/arielhewittstudy_finalweb_7.3.pdf (accessed December 22, 2011).
[65] “401(k) Plans in Living Color,” 15.
[66] *MoneyTrack* and Investor Protection Trust, “The *MoneyTrack*/IPT Investing Secrets Survey,” 21−22
[67] *MoneyTrack* and Investor Protection Trust, “The *MoneyTrack*/IPT Investing Secrets Survey,” 21.

registered with the SEC are safe.[68] According to the 2006 AARP Michigan Investor Protection Trust Survey, 25 percent of AARP members in Michigan mistakenly believed that the law protects them against losses on stock and bond investments.[69]

Investors who fail to check the credentials of their financial advisers leave themselves vulnerable to fraud. According to the 2009 National Financial Capability Study, only 15 percent of respondents indicated that they had "checked an advisor's background or credentials with a state or federal regulator."[70] Among the 55 percent of respondents who indicated that they had used a financial professional in the past five years, the tendency to interview advisers before selecting one tended to decline with age.[71] According to the 2008 Mandatory Disclosure Documents Telephone Survey conducted by Abt SRBI for the SEC, investors rely on their financial advisers for investment information more than on any other source. Just under half (48 percent) regarded their financial advisers as their most important source of investment information, compared to the 11 percent who said that they obtained their investment information from the Internet or the computer—the second most popular choice.[72]

2006 National Association of Securities Dealers Investor Fraud Study

In May 2006, the National Association of Securities Dealers (NASD) Investor Education Foundation published the results of its Investor Fraud Study, which focused on consumer fraud directed at older Americans.[73] Contrary to expectations, the NASD Investor Fraud Study found that fraud victims actually scored higher on a financial-literacy quiz than nonvictims. Fraud victims answered 57.75 percent of the questions correctly, while nonvictims did so for only 41 percent.[74] Fraud victims even scored higher than a subgroup of nonvictims who were "likely active investors." They answered 48.29 percent of the questions correctly.[75]

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[68] Infogroup/ORC, "Elder Investment Fraud and Financial Exploitation," 5.
[69] Susan L. Silberman, "2006 AARP Michigan Investor Protection Trust Survey" (AARP, September 2006), http://assets.aarp.org/rgcenter/econ/mi_invest_2006.pdf (accessed September 12, 2011), 2.
[70] Applied Research and Consulting, "Financial Capability in the United States: Initial Report of Research Findings," 46.
[71] Applied Research and Consulting, "Financial Capability in the United States: Initial Report of Research Findings," 45–46.
[72] SEC, "Mandatory Disclosure Documents Telephone Survey," 5.
[73] NASD Investor Education Foundation, "Investor Fraud Study Final Report," 3.
[74] NASD Investor Education Foundation, "Investor Fraud Study Final Report," 17.
[75] NASD Investor Education Foundation, "Investor Fraud Study Final Report," 5–6.

NASD reported the results of this survey according to the following respondent categories: all nonvictims (the entire sample), likely active investor (LAI) nonvictims, investor victims, and lottery fraud victims. Table 9 summarizes the survey results. Appendix 7 shows the original wording of the survey questions.

Table 9. 2006 NASD Investor Fraud Study

Question	% All Nonvictims	% LAI Nonvictims	% Investor Victims	% Lottery Fraud Victims
Credit card	49.33	38.36	49.30	51.06
Long-term	32.67	45.21	57.75	12.77
Compound interest	60.67	75.34	73.24	59.67
Diversification	28.67	38.36	33.80	9.57
Mutual-fund returns	39.33	54.79	73.24	30.85
No-load mutual fund	21.33	23.29	45.07	37.23
Bond price	26.67	35.62	53.52	6.38
Loan characteristics	69.33	75.34	76.06	44.68
TOTAL	**41.00**	**48.29**	**57.75**	**31.53**

Source: National Association of Securities Dealers (NASD) Investor Education Foundation, “Investor Fraud Study Final Report” (Consumer Fraud Research Group for WISE Senior Services and the NASD Investor Education Foundation, Washington, DC, May 12, 2006), http://www.sec.gov/news/press/extra/seniors/nasdfraudstudy051206.pdf (accessed September 9, 2011).

The NASD Investor Fraud Study addressed the implications of the survey anomaly that fraud victims scored higher on the financial literacy quiz than nonvictims. The first implication was relatively straightforward—“there is more work to do in general in educating investors on financial literacy.”[76] However, the second implication was rather unconventional—that the potential for increased financial literacy to prevent fraud might be limited. The tendency of some savvy investors to fall victim to con artists, failing to make use of their own knowledge, suggests that providing investors with financial information is not enough to protect them from fraud.

The "expert snare," in which con artists praise victims for their financial expertise in order to discourage them from asking questions, is one of the tactics used to lure investors into unsavory investments.[77] Individuals with a high degree of financial literacy may still be vulnerable to this approach. Other common tactics of con artists are “source credibility (claiming to be from a known legitimate business); phantom fixation (dangling the prospect of wealth and

[76] NASD Investor Education Foundation, “Investor Fraud Study Final Report,” 19.
[77] NASD Investor Education Foundation, “Investor Fraud Study Final Report,” 20.

riches); and social consensus (showing examples of others who have invested)."[78] Other tactics include "authority role; commitment; comparison; dependent role; fear; friendship; landscaping; profiling; reciprocity and scarcity."[79] Therefore, the study recommended expanding financial literacy programs to educate investors specifically about persuasion tactics.[80]

RESEARCH GAPS

Women, African Americans and Hispanics, the elderly, and the poorly educated consistently underperform on investor literacy tests. It would be helpful for researchers to investigate the root causes of these patterns. Some of the possible explanations might be the impact of low levels of wealth on investing experience and of diminishing cognitive ability with old age. The poor performance of women may reflect men's and women's different attitudes toward risk. Women tend to be more risk-averse investors than men, who often suffer from overconfidence. However, only some of the survey questions point to a behavior-based explanation, indicating that researchers need to explore other possible causes for this finding. Pamela Herd and Karen Holden of the University of Wisconsin at Madison have specifically called for such research.[81]

In 2010 Rand Corporation sponsored a study that sought to explain the gender gap in financial literacy.[82] Using data from the Rand American Life Panel, the researchers found a significant gender gap in financial literacy, with women underperforming men by almost 0.7 standard deviations. Using a special statistical technique focued on explaining differences between groups, they found that "the great majority of the gender gap is due to differences in coefficients rather than differences in characteristics between men and women. Thus, men and women seem to have very different production processes for financial literacy." For the purposes of this study, "coefficients" represented the "differential *effects* of characteristics such as age,

[78] NASD Investor Education Foundation, "Investor Fraud Study Final Report," 6.
[79] NASD Investor Education Foundation, "Investor Fraud Study Final Report," 6.
[80] NASD Investor Education Foundation, "Investor Fraud Study Final Report," 20.
[81] Herd and Holden, "Early Life Schooling and Cognition and Late Life Financial Literacy" (CFS Research Brief No. FLRC 10-1).
[82] Raquel Fonseca et al., "What Explains the Gender Gap in Financial Literacy? The Role of Household Decision-Making" (RAND Working Paper No. WR-762, Santa Monica, CA, June 1, 2010), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1633689## (accessed October 20, 2011).

education, and income,"[83] and "production processes" described how men and women develop financial literacy.

The Rand study also found that 25 percent of the gender gap was attributable to "education, income and current and past marital status."[84] The researchers did not find much evidence of gender specialization in financial decision making. Instead, they found that spouses or partners share this responsibility, except when one spouse has a higher level of education. In that case, the better-educated spouse assumes more responsibility. The study called for additional research to find an explanation for the differences in how men and women become financially literate.

However, before conducting such research an effort should be made to fix a methodological flaw seen in many studies: the failure to differentiate rigorously among cognitive ability, numeracy, and financial knowledge. Too often researchers take shortcuts by trying to assess numeracy through a series of questions requiring simple calculations to solve financial problems. For example, a question requiring the computation of compound interest is not strictly a math problem. No matter how sophisticated the statistical analysis may be in a given study, the study will still be flawed if it is not set up properly to make these fine distinctions.

CONCLUSION

Quantitative studies conducted from 2006 to the present on the financial literacy of U.S. retail investors conclude overwhelmingly that American investors lack essential knowledge of the most rudimentary financial concepts: inflation, bond prices, interest rates, mortgages, and risk. Consequently, it is not surprising that investors do not understand advanced financial concepts such as differences between stocks and bonds, the role of the stock market, and the value of portfolio diversification. In addition, investors often do not appreciate the impact of mutual-fund fees on long-term returns, nor are they aware of the existence of index funds, which minimize such fees. Many investors, believing that organizations like the SEC protect them against investment losses, are susceptible to fraud. Studies consistently demonstrate that the

[83] Fonseca et al., "What Explains the Gender Gap in Financial Literacy? The Role of Household Decision-Making," 8–9.
[84] Fonseca et al., "What Explains the Gender Gap in Financial Literacy? The Role of Household Decision-Making," 1.

young, the very elderly, the poorly educated, minorities, and women perform below average on investor-literacy quizzes.

Low levels of investor literacy have serious implications for the ability of broad segments of the population to retire comfortably, particularly in an age dominated by defined-contribution retirement plans. Therefore, intensifying efforts to educate investors is essential. However, researchers should tailor investor education programs to specific subgroups to maximize their effectiveness.

APPENDIX 1. 2009 NATIONAL FINANCIAL CAPABILITY STUDY[85]

FINRA's 2009 study "Financial Capability in the United States" included the following questions. Correct answers to the questions are also below, along with the percentage of respondents who answered correctly (in parentheses):

1) Inflation: "Imagine that the interest rate on your savings account was 1 percent per year and inflation was 2 percent per year. After 1 year, how much would you be able to buy with the money in this account?"

   Correct answer: **Less than today (64 percent)**

2) Bond prices: "If interest rates rise, what will typically happen to bond prices?"

   Correct answer: **They will fall (21 percent)**

3) Compound interest: "Suppose you had $100 in a savings account and the interest rate was 2 percent per year. After 5 years, how much do you think you would have in the account if you left the money to grow?"

   Correct answer: **More than $102 (65 percent)**

4) Mortgages: "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."

   Correct answer: **True (70 percent)**

5) Risk: "Buying a single company's stock usually provides a safer return than a stock mutual fund."

   Correct answer: **False (52 percent)**

[85] Applied Research and Consulting, "Financial Capability in the United States: Initial Report of Research Findings."

APPENDIX 2. 2010 NORTHWESTERN MUTUAL'S FINANCIAL MATTERS STUDY[86]

The 2010 "Northwestern Mutual's Financial Matters Study" included the following questions. Correct answers to the questions are also below, along with the percentage of respondents who answered correctly (in parentheses):

1) Asset allocation: "Which of the following statements best describes what asset allocation is?"

   Correct answer: **A method of assigning your financial contributions to different risk classes of investments (79 percent)**

2) Diversification: "What is the best way to minimize losses in your investments when the stock market declines?"

   Correct answer: **Have a diversified portfolio (88 percent)**

3) Dollar cost averaging: "Which of the following statements best describes what dollar cost averaging is?"

   Correct answer: **Purchasing the same dollar amount of investments each month so, when share prices are low, you get more shares, and when share prices are high, you get fewer shares (57 percent)**

4) Rate of inflation: "Over the past 10 years has the annual rate of inflation been closer to …?"

   Correct answer: **3 percent (35 percent)**

5) Protection against inflation: "Which type of investment has historically provided the best protection against inflation over the long term?"

   Correct answer: **Stocks (28 percent)**

6) Bond prices: "When interest rates decline, the price of a bond or bond fund generally …?"

   Correct answer: **Increases (41 percent)**

7) Index funds: "Index funds do which of the following?"

   Correct answer: **Seek to match the investment returns of a specified stock or bond benchmark (32 percent)**

8) Money market funds: "Which of the following types of investments are typically found in a money market fund?"

   Correct answer: **Short-term instruments (35 percent)**

[86] Northwestern Mutual, "Financial Matters Study."

9) 529 plans: “Which of the following best describes what a 529 plan is for?”

Correct answer: **Education (61 percent)**

10) Disability income insurance: “Which of the following statements is most true about disability income insurance?”

Correct answer: **It can cover part of your lost income while you are disabled (84 percent).**

11) Group disability insurance portability: “If you leave your employer, you can still keep the group disability insurance coverage you had through your job.”

Correct answer: **False (61 percent)**

12) Group life insurance portability: “If you leave your employer, you can still keep the group life insurance coverage you had through your employer.”

Correct answer: **False (53 percent)**

13) Life-long insurance: “For life-long insurance protection, a permanent life insurance policy would likely be the best choice.”

Correct answer: **True (53 percent)**

14) Term life insurance: “Term life insurance is more likely to have cash value than is permanent life insurance.”

Correct answer: **False (49 percent)**

15) Roth IRAs: “A Roth IRA is purchased with after-tax dollars.”

Correct answer: **True (49 percent)**

16) Immediate annuities: “Which of the following statements is an attribute of an immediate annuity?”

Correct answer: **Guaranteed income for as long as you live (26 percent)**

17) Fixed annuities: “Fixed annuities are generally considered safe because …?”

Correct answer: **The insurance company invests conservatively and sets aside reserves of capital to make sure your investment is safe (48 percent).**

18) Variable annuities: “Variable annuities are only suitable for short-term investors.”

Correct answer: **False (35 percent)**

19) Long-term care insurance: “Which of the following statements best describes long-term care insurance?”

Correct answer: **It can help protect assets from the cost of assisted living (63 percent).**

20) Medicare: “To the best of your knowledge, are long-term-care expenses covered in whole or in part, by Medicare, or does Medicare not cover this type of expense?”

    Correct answer: **In part (48 percent)**

21) Nursing home costs: “Approximately, how much do you think a year-long stay in a nursing home in your state costs today?”

    Correct answer: **$70,000 to $79,999 (5 percent)**

APPENDIX 3. 2008 MANDATORY DISCLOSURE DOCUMENT TELEPHONE SURVEY[87]

The 2008 Mandatory Disclosure Document Telephone Survey included the following questions. Correct answers to the questions are also below, along with the percentage of respondents who answered correctly (in parentheses):

1) Stock ownership: "When you buy a company's stock, you …."

   Correct answer: **Own a part of the company (70 percent)**

2) Bond ownership: "When you buy a company's bond, you …."

   Correct answer: **Have lent money to the company (57 percent)**

3) Mutual fund share classes: "The principal difference between mutual fund share classes is …."

   Correct answer: **The fees they charge (25 percent)**

4) Relative safety of bonds: "Which of the following types of bonds are the safest?"

   Correct answer: **A U.S. Treasury bond (76 percent)**

5) Relationship between risk and return: "Please tell me if the following statement is true or false. In general, investments that have a higher risk are expected to provide higher returns over time."

   Correct answer: **True (79 percent)**

6) Relationship of bond prices and yields: "In general, if interest rates go down, the bond prices …."

   Correct answer: **Go up (40 percent)**

7) Expectation of returns on a stock mutual fund: "Which of the following is the most reasonable shareholder return that you would expect from a broadly diversified U.S. stock mutual fund over the long run? Would you expect …?"

   Correct answer: **10 percent (53 percent)**

8) Returns by asset class: "Over the last 20 years in the United States, the best average returns have been generated by …."

   Correct answer: **Stocks (60 percent)**

9) Insurance against investment losses: "Which of the following organizations insures you against your losses in the stock market?"

   Correct answer: **None of the above (43 percent)**

[87] SEC, "Mandatory Disclosure Documents Telephone Survey."

10) Securities at risk in bankruptcy: "If a company files for bankruptcy, which of the following securities is most at risk of becoming virtually worthless?"

    Correct answer: **The company's common stock (62 percent)**[88]

[88] SEC, "Mandatory Disclosure Documents Telephone Survey," 157–59.

APPENDIX 4. 2010 MILITARY SURVEY OF THE FINANCIAL CAPABILITY IN THE UNITED STATES

FINRA's 2010 Military Survey of the Financial Capability in the United States included the following questions. [89] Correct answers to the questions are also below, along with the percentage of respondents who answered correctly (in parentheses):

1) Interest rate: "Supposed you have $100 in a savings account earning 2 percent interest a year. After five years, would you have more than $102, exactly $102 or less than $102?"

   Correct answer: **More than $102 (87%)**

2) Inflation: "Imagine that the interest rate on your savings account is 1 percent a year and inflation is 2 percent a year. After one year, would the money in the account buy more than it does today, exactly the same or less than today?"

   Correct answer: **Less than today (72%)**

3) Bond price: "If interest rates rise, what will typically happen to bond prices? Rise, fall, stay the same, or is there no relationship?"

   Correct answer: **Fall (30%)**

4) Mortgage: "True or false: A 15-year mortgage typically requires higher monthly payments than a 30-year mortgage but the total interest over the life of the loan will be less."

   Correct answer: **True (88%)**

5) Risk: "True or false: Buying a single company's stock usually provides a safer return than a stock mutual fund."

   Correct answer: **False (70%)**

[89] "Financial Capability in the United States—Military Survey."

APPENDIX 5. 2008 HEALTH AND RETIREMENT SURVEY—FOCUS ON OLDER AMERICANS[90]

In their study published in 2009, "Financial Literacy and Financial Sophistication Among Older Americans," researchers Annamaria Lusardi, Olivia Mitchell, and Vilsa Curto asked the following questions, which required respondents to give an answer of "True" or "False." The researchers varied the questions' wording to protect the survey's integrity. The correct answers are in bold.

Knowledge of Capital Markets

1) Understanding of the stock market: "I understand the stock market reasonably well."
2) Company stock: "An employee of a company with publicly traded stock should have [a lot/**little or none**] of his or her retirement savings in the company's stock."
3) Foreign stocks: "It is [best to avoid owning/**a good idea to own**] stocks of foreign companies."
4) Relationship between bond value and interest rates: "If the interest rate falls, bond prices will [**rise**/fall]."

Risk Diversification

5) Investing in few or many stocks: "You should invest [most of your money in a few good stocks that you select rather than in lots of stocks or in mutual funds/**in either mutual funds or a large number of different stocks instead of just a few stocks**]."
6) Stock risk spread: "When an investor spreads money between 20 stocks, rather than 2, the risk of losing a lot of money [**decreases**/increases]."
7) Stock diversification: "The more you diversify among stocks, the [**more**/less] of your money you [**can**/should] invest in stocks."

Knowledge of Fees

8) Importance of annual fees: "If you invest for the long run, the annual fees of mutual funds are [unimportant/**important**]."
9) Index funds: "It is [hard/**easy**] to find mutual funds that have annual fees of less than one percent of assets."

Savvy/Numeracy

10) How often to buy and sell stocks: "To make money in the stock market, you [**should not**/have to] buy and sell stocks [**too**] often."

[90] Lusardi, Mitchell, and Curto, "Financial Literacy and Financial Sophistication Among Older Americans."

11) How much life insurance is enough: “For a family with a working husband and a wife staying home to take care of their young children, life insurance that will replace three years of income is [**not**/more than] enough life insurance.”

12) Using bank account savings to pay off credit cards: “Using money in a bank savings account to pay off credit card debt is usually a [**good**/bad] idea.”

13) Power of compound interest: “If you start out with $1,000 and earn an average return of 10 percent per year for 30 years, after compounding, the initial $1,000 will have grown to [**more**/less] than $6,000.”

Attitudes toward Investing and Risk

14) Putting all one’s money into the safest asset: “You should put all your money into the safest investment you can find and accept whatever return it pays.” [**False**]

15) Whether older retired should hold stocks: “[**Even older**/Older] retired people should [**hold some**/not hold any] stocks.”

16) Whether smart people select stocks with good returns: “[If/**Even if**] you are smart, it is [easy/**hard**] to pick individual company stocks that will have better than average returns.”

17) Whether the stock market is equivalent to the lottery: “Financially, investing in the stock market is [no better/**better**] than buying lottery tickets.”

18) Whether advisers take unfair advantage: “[There is no way to avoid people taking advantage of you if you invest in the stock market./**It is possible to invest in the stock market in a way that makes it hard for people to take unfair advantage of you.**]”

APPENDIX 6. 2008 JUMP$TART NATIONAL SURVEYOF HIGH-SCHOOL SENIORS AND COLLEGE STUDENTS[91]

The 2008 Jump$tart National Survey of High-School Seniors and College Students included the following questions. Correct answers to the questions are also below, along with the percentage of respondents who answered correctly (in parentheses):

1) Inflation: Inflation can cause difficulty in many ways. "Which group would have the greatest problem during periods of high inflation that last several years?"

   Correct answer: **Older people living on fixed retirement income (40.0 percent)**

2) Sales tax: "Which of the following is true about sales taxes?"

   Correct answer: **It makes things more expensive for you to buy (41.9 percent)**

3) Savings safety: "Rebecca has saved $12,000 for her college expenses by working part-time. Her plan is to start college next year and she needs all of the money she saved. Which of the following is the safest place for her college money?"

   Correct answer: **A bank savings account (87.7 percent)**

4) Protecting one's purchasing power: "Which of the following types of investment would best protect the purchasing power of a family's savings in the event of a sudden increase in inflation?"

   Correct answer: **A house financed with a fixed-rate mortgage (35.8 percent)**

5) Beneficial borrowing: "Under which of the following circumstances would it be financially beneficial to you to borrow money to buy something now and repay it with future income?"

   Correct answer: **When you need to buy a car to get to a much better paying job (55.8 percent)**

6) The right to know one's credit history: "Which of the following statements best describes your right to check your credit history for accuracy?"

   Correct answer: **You can check your credit record once a year for free (47.7 percent)**

7) Take-home pay: "Your take-home pay from your job is less than the total amount you earn. Which of the following best describes what amounts are taken out of your total pay?"

   Correct answer: **Federal income tax, Social Security, and Medicare contributions (56.4 percent)**

[91] Mandell, "The Financial Literacy of Young American Adults."

8) Pensions: "Retirement income paid by a company is called: …."

   Correct answer: **Pension (36.2 percent)**

9) Emergency savings: "Many people put aside money to take care of unexpected expenses. If Juan and Elva have money put aside for emergencies, in which of the following forms would it be of LEAST benefit to them if they needed it right away?"

   Correct answer: **Invested in a down payment on the house (40.1 percent)**

10) Personal budgeting: "David just found a job with a take-home pay of $2,000 per month. He must pay $900 for rent and $150 for groceries each month. He also spends $250 per month on transportation. If he budgets $100 each month for clothing, $200 for restaurants and $250 for everything else, how long will it take him to accumulate savings of $600?"

    Correct answer: **4 months (60.2 percent)**

11) Long-term investing: "Sara and Joshua just had a baby. They received money as baby gifts and want to put it away for the baby's education. Which of the following tends to have the highest growth over periods as long as 18 years?"

    Correct answer: **Stocks (16.8 percent)**

12) Lack of credit history: "Barbara has just applied for a credit card. She is an 18-year-old high school graduate with a few valuable possessions and no credit history. If the credit card company grants Barbara a credit card, which of the following is the most likely way that the credit card company will reduce *its* risk?"

    Correct answer: **The bank will start Barbara out with a small line of credit to see how she handles the account (45.9 percent)**

13) Income tax: "Chelsea worked her way through college earning $15,000 per year. After graduation, her first job pays $30,000. The total dollar amount Chelsea will have to pay in federal income taxes in her new job will: …?

    Correct answer: **Double, at least, from when she was in college (47.1 percent)**

14) Sources of income: "Which of the following best describes the primary sources of income for most people 20−35?"

    Correct answer: **Salaries, wages, tips (75.3 percent)**

15) Credit counseling: "If you are behind on your debt payments and go to a responsible credit counseling service such as the Consumer Credit Counseling Services, what help can they give you?"

    Correct answer: **They can work with those who loaned you money to set up a payment schedule that you can meet (70.5 percent)**

16) Compound interest: "Rob and Mary are the same age. At age 25, Mary began saving $2,000 a year while Rob saved nothing. At age 50, Rob realized that he needed money for retirement and started saving $4,000 per year while Mary kept saving her $2,000. Now they are both 75 years old. Who has the most money in his or her retirement account?"

    Correct answer: **Mary, because her money has grown for a longer time at compound interest (51.1 percent)**

17) Health insurance: "Many young people receive health insurance benefits through their parents. Which of the following statements is true about health insurance coverage?"

    Correct answer: **If your parents become unemployed, your insurance coverage may stop, regardless of your age (40.4 percent).**

18) Continuing education: "Don and Bill work together in the finance department of the same company and earn the same pay. Bill spends his free time taking work-related classes to improve his computer skills; while Don spends his free time socializing with friends and working out at a fitness center. After five years, what is likely to be true?"

    Correct answer: **Bill will make more money because he is more valuable to his company (67.9 percent).**

19) Stolen credit cards: "If a thief steals your credit card and runs up a total debt of $1,000, but you notify the issuer of the card as soon as you discover it is missing, what is the maximum amount that you can be forced to pay, according to federal law?"

    Correct answer: **$50 (13.0 percent)**

20) ATM cards: "Which of the following statements is *not* correct about most ATM (Automated Teller Machine) cards?"

    Correct answer: **You can get cash anywhere in the world with no fee (68.0 percent).**

21) State business tax rates: "Matt has a good job on the production line of a factory in his home town. During the past year or two, the state in which Matt lives has been raising taxes on its businesses to the point where they are much higher than in neighboring states. What effect is this likely to have on Matt's job?"

    Correct answer: **Matt's company may consider moving to a lower-tax state, threatening Matt's job (57.3 percent).**

22) Automobile insurance: "If you have caused an accident, which type of automobile insurance would cover damage to your own car?"

    Correct answer: **Collision (36.8 percent)**

23) Finance charges: “Scott and Eric are young men. Each has a good credit history. They work at the same company and make approximately the same salary. Scott has borrowed $6,000 to take a foreign vacation. Eric has borrowed $6,000 to buy a car. Who is likely to pay the lowest finance charge?”

    Correct answer: **Eric will pay less because the car is collateral for the loan (43.1 percent).**

24) Value of a college degree: “If you went to college and earned a four-year degree, how much more money could you expect to earn than if you only had a high school diploma?”

    Correct answer: **A lot more; about 70 percent more (47.6 percent)**

25) Federally insured savings: “Many savings programs are protected by the federal government against loss. Which of the following is not?”

    Correct answer: **A bond issued by one of the 50 states (28.4 percent)**

26) Life insurance: “If each of the following persons had the same amount of take home pay, who would need the greatest amount of life insurance?”

    Correct answer: **A young single woman with two young children (51.1 percent)**

27) Accounts for spending: “Which of the following instruments is *not* typically associated with spending?”

    Correct answer: **Certificate of deposit (82.1 percent)**

28) Credit card finance charges: “Which of the following credit card users is likely to pay the GREATEST dollar amount in finance charges per year, if they all charge the same amount per year on their cards?”

    Correct answer: **Erin, who only pays the minimum amount each month (48.0 percent)**

29) Missed loan payments: “Which of the following statements is true?”

    Correct answer: **Banks and other lenders share the credit history of their borrowers with each other and are likely to know of any loan payments that you have missed (53.7 percent).**

30) College borrowing: “Dan must borrow $12,000 to complete his college education. Which of the following would NOT be likely to reduce the finance charge rate?”

    Correct answer: **If he went to a state college rather than a private college (32.5 percent).**

31) Savings account interest: "If you had a savings account at a bank, which of the following would be correct concerning the interest that you would earn on this account?"

Correct answer: **Income tax may be charged on the interest if your income is high enough (27.3 percent).**

APPENDIX 7. 2007 MONEYTRACK/IPT INVESTING SECRETS SURVEY[92]

"The *MoneyTrack*/IPT Investing Secrets Survey," prepared in 2007 by Opinion Research Corporation for *MoneyTrack* and Investor Protection Trust, included the following questions. Correct answers to the questions are also below, along with the percentage of respondents who answered correctly (in parentheses):

1) Long-term returns: "Which of the following has offered the best returns over the last 20 years?"

   Correct answer: **Stocks (56 percent)**

2) Nest egg: "How do you think a 25-year-old American is *most* likely to come up with a half-million-dollar or one-million-dollar nest egg for retirement? Would you say …?"

   Correct answer: **Investing in the stock market over time (58 percent)**

3) Compound interest: "Would you rather have one million dollars now or one penny that would double in value every day for a month?"

   Correct answer: **Penny that doubles every day for a month (39 percent)**

4) Concept of diversification: "What does the term "diversification" mean …?"

   Correct answer: **Balancing both risk and return in pursuit of financial returns (39 percent)**

[92] *MoneyTrack* and Investor Protection Trust, "The *MoneyTrack*/IPT Investing Secrets Survey."

APPENDIX 8. 2006 NATIONAL ASSOCIATION OF SECURITIES DEALERS (NASD) INVESTOR FRAUD STUDY

The quiz consisted of the following eight questions. However, because of the nature of the survey, the total number of correct responses is not available. Instead, the percentage responding correctly is shown in Table 6, broken down according to category of respondent.

1) Credit card rates: "The APR (annual percentage rate) is the most important thing to look for when comparing credit card offers."

   Correct answer: **True**

2) Long-term returns: "Over a 40-year period, which do you think gave the highest return? Bonds, stocks, bank savings account, IRA, no answer?"

   Correct answer: **Stocks**

3) Compound interest: "With compound interest, you earn interest on interest in addition to your principal."

   Correct answer: **True**

4) Diversification: "When an investor diversifies his or her investment, does the risk of losing money decrease, increase, or stay the same?"

   Correct answer: **Decrease**

5) Mutual-fund returns: "Mutual funds pay a guaranteed rate of return."

   Correct answer: **False**

6) No-load mutual funds: "A no-load mutual fund involves no sales charges or other fees."

   Correct answer: **False**

7) Bond prices: "What happens to bond prices when interest rates go up? Do bond prices fall, remain the same, or go up?"

   Correct answer: **Fall**

8) Loan characteristics: "Which do you consider the most important factor in selecting a loan? The overall interest rate or the monthly loan payment?"

   Correct answer: **The overall interest rate**

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