

## **Financial Literacy: Do People Know the *ABCs* of Finance?**

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### Abstract

Increasingly, individuals are in charge of their own financial security and are confronted with ever more complex financial instruments. However, there is evidence that many individuals are not well-equipped to make sound saving decisions. This paper looks at financial literacy, which is defined as the ability to process economic information and make informed decisions about financial planning, wealth accumulation, debt, and pensions. Failure to plan for retirement, lack of participation in the stock market, and poor borrowing behavior can all be linked to ignorance of basic financial concepts. Financial literacy impacts financial decision-making, with implications that apply to individuals, communities, countries, and society as a whole. Given the lack of financial literacy among the population, it may be important to remedy it by adding financial literacy to the school curriculum.

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## **Introduction**

Just as it is not possible to navigate an industrialized society without literacy, the ability to read and write, so it is not possible to fully participate in today's world without being *financially literate*. Throughout the globe, financial markets have become increasingly complex and individuals are presented with new and ever-more-sophisticated financial products. Access to credit is easier than ever before and opportunities to borrow are plentiful. Moreover, individuals have been put in charge of their own financial security following retirement. The shift to defined contribution (DC) pensions and private retirement accounts has meant that workers today have to decide both how much they need to save for retirement and how to allocate pension wealth. But are individuals well equipped to make financial decisions? In other words, do they possess the basic financial knowledge required to make these decisions?

This paper investigates levels of financial knowledge, using questions that were specifically designed to measure comprehension of the *ABCs* of finance as well as more sophisticated financial concepts. The paper shows that most individuals in both the United States and across countries cannot perform simple economic calculations and do not understand basic financial concepts, such as interest compounding, the difference between nominal and real values, and the basics of risk diversification. Knowledge of more complex concepts, such as the difference between bonds and stocks, the working of mutual funds, and basic asset pricing, is even scarcer. Illiteracy is widespread among the general population and particularly acute among specific demographic groups, such as women, the young and the old, and those with low educational attainment.

These findings are important because financial literacy affects financial decision-making and financial decision-making, in turn, influences individuals' well being and, even more

importantly, societal well being. Ignorance about basic financial concepts can be linked to lack of retirement planning, lack of participation in the stock market, and poor borrowing behavior. The paper concludes with a brief discussion on the importance of incorporating financial literacy into school curricula and directions for future work.

### **Financial Literacy**

Complex financial products have spread rapidly to the retail marketplace. These products include student loans, mortgages, credit cards, pension accounts, and annuities. While these developments carry their advantages, they also impose on households a much greater responsibility to borrow, save, invest, and decumulate assets sensibly. These decisions require people to have the set of skills and knowledge that has become known as financial literacy. Specifically, financial literacy is simply defined as peoples' *ability to process economic information and make informed decisions about financial planning, wealth accumulation, debt, and pensions.*<sup>2</sup>

Assessing whether people are financially literate has proved difficult. Existing surveys provide details about wealth accumulation, assets, debt, and many other financial variables but they lack information about knowledge of finance and financial concepts. That said, which questions should be asked to determine whether respondents possess financial literacy? Moreover, which data allow researchers to most accurately assess the effect of literacy on behavior? In an effort to combine data on financial literacy with data on financial behavior, Lusardi and Mitchell (2011a) pioneered the inclusion of questions measuring financial literacy into major U.S. surveys.

Four principles informed the design of these questions. The first is *Simplicity*: The questions should measure knowledge of the building blocks fundamental to decision-making in

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<sup>2</sup> See Lusardi and Mitchell (2014)

an intertemporal setting. The second is *Relevance*: The questions should relate to concepts pertinent to peoples' day-to-day financial decisions over the life cycle. Moreover, they must capture general rather than context-specific ideas. The third is *Brevity*: The number of questions must be kept short to secure widespread adoption, and fourth is *Capacity to differentiate*, meaning that questions should differentiate financial knowledge to permit comparisons across people. These criteria are met by the three financial literacy questions designed by Lusardi and Mitchell (2008, 2011b):

- 1) Suppose you had \$100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow: [more than \$102, exactly \$102, less than \$102? Do not know, refuse to answer.]
- 2) Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, would you be able to buy: [more than, exactly the same as, or less than today with the money in this account? Do not know; refuse to answer.]
- 3) Do you think that the following statement is true or false? 'Buying a single company stock usually provides a safer return than a stock mutual fund.' [Do not know; refuse to answer.]

The first two questions (*compound interest* and *inflation*) evaluate whether respondents display knowledge of fundamental economic concepts and competence with basic financial numeracy. The third question (*stock risk*) evaluates respondents' knowledge of risk diversification, a crucial element of any informed investment decision.

These questions were introduced in a special module on financial literacy for the 2004 Health and Retirement Study (HRS). They were subsequently added to national surveys not only in the United States but in as many as eleven other countries (Lusardi and Mitchell, 2011b, 2014). The inclusion of these types of questions into existing surveys allows researchers to evaluate levels of financial knowledge both domestically and internationally. Most importantly,

it also makes it possible to link financial literacy to a rich set of information about household financial behavior.

The 2004 HRS module covered respondents who are 50 or older, with the average age being 65. Results from that survey module revealed an alarmingly low level of financial literacy among older individuals in the United States. One in five respondents could not do a simple 2 percent calculation, and one in four did not understand the effects of inflation (Table 1). Only 50 percent of respondents in the sample were able to correctly answer the first two questions, and only one-third of respondents were able to answer all three questions correctly. Respondents had the most difficulty with the question about risk diversification; more than one-third reported that they did not know the answer. The finding that most respondents do not grasp the concept of risk diversification is an important one. But the question is valuable for another reason: Posing difficult questions allows researchers to differentiate among different levels of financial sophistication, even when using a limited number of questions to measure financial literacy.

Lusardi and Mitchell (2007a) have also examined numeracy and financial literacy among a younger segment of the population, the Early Baby Boomers, who were 51 to 56 years old in 2004. This segment of the population is particularly useful to study as respondents in this age group should be close to the peak of their wealth accumulation and should have already undertaken many financial decisions already (mortgages, car loans, credit cards, pension contributions, etc.). The questions posed to these respondents in the 2004 core HRS are again very simple:

*1) If the chance of getting a disease is 10 percent, how many people out of 1,000 would be expected to get the disease?*

2) *If 5 people all have the winning number in the lottery and the prize is 2 million dollars, how much will each of them get?*

For respondents who answered either the first or the second question correctly, the following question was asked:

3) *Let's say you have 200 dollars in a savings account. The account earns 10 percent interest per year. How much would you have in the account at the end of two years?*

Table 2 summarizes how Early Boomers answered these questions. Again, numeracy is found to be low among these respondents; only about half could divide \$2 million by 5, confirming the findings from the HRS module. Moreover, the large majority did not have a good grasp of the power of interest compounding: Only 18 percent correctly computed the compound interest question. Of those who answered the interest question wrong, 43 percent used a simple interest calculation, ignoring that interest accrues on both principal and interest payments. These are not comforting findings, especially considering that these respondents have already dealt with many financial decisions during their lifetimes. However, as described in Lusardi (2012), interest compounding is a difficult concept to grasp for many individuals, a finding that holds true across countries.

Several other studies confirm these findings. Bernheim (1995, 1998) was one of the first to emphasize that most individuals lack basic financial knowledge and numeracy. The OECD report (2005), Lusardi and Mitchell (2007b), and Smith and Stewart (2008) examine the evidence on financial literacy in the United States and other countries and report similar findings. Lusardi and Tufano (2009a,b) report that the vast majority of respondents in a representative sample of U.S. households have limited *debt literacy*. Lusardi and Mitchell (2014)

overview of the evidence in the United States and across countries and further document a lack of knowledge of basic financial concepts.

### **Advanced Literacy**

To competently make savings and investment decisions, individuals need knowledge beyond the previously discussed fundamental financial concepts. They need to understand the relationship between risk and return; how bonds, stocks, and mutual funds work; and basic asset pricing. To quantify how knowledgeable individuals are in these areas, Lusardi devised several additional questions for the American Life Panel (ALP) in the United States. Most of these questions had earlier been added to the Dutch DNB Household Survey<sup>3</sup> and are similar to questions used in other U.S. surveys.<sup>4</sup> Because the question about risk diversification was found hard to answer, it was included in the set of questions on advanced financial literacy.

The exact wording of these additional questions is:

#### 1. Function of Stock Market

*Which of the following statements describes the main function of the stock market?*

*(i) The stock market helps to predict stock earnings; (ii) The stock market results in an increase in the price of stocks; (iii) The stock market brings people who want to buy stocks together with those who want to sell stocks; (iv) None of the above; (v) DK; (vi) Refuse.*

#### 2. Knowledge of Mutual Funds

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<sup>3</sup> See van Rooij, Lusardi, and Alessie (2011) for a detailed explanation and review of these questions.

<sup>4</sup> Specifically, questions were taken from the National Council of Economic Education Survey, the NASD Investor Knowledge Quiz, the 2004 Health and Retirement Study module on financial literacy, the Survey of Financial Literacy in Washington State, and the 2001 Survey of Consumers.

*Which of the following statements is correct? (i) Once one invests in a mutual fund, one cannot withdraw the money in the first year; (ii) Mutual funds can invest in several assets, for example invest in both stocks and bonds; (iii) Mutual funds pay a guaranteed rate of return which depends on their past performance; (iv) None of the above; (v) DK; (vi) Refuse.*

### 3. Relationship Between Interest Rates and Bond Prices

*If the interest rate falls, what should happen to bond prices? (i) Rise; (ii) Fall; (iii) Stay the same; (iv) None of the above; (v) DK; (vi) Refuse.*

### 4. Risk Diversification: Company Stock or Mutual Fund?

*True or false? Buying a company stock usually provides a safer return than a stock mutual fund. (i) True; (ii) False; (iii) DK; (iv) Refuse.*

### 5. Riskier: Stocks or Bonds?

*True or false? Stocks are normally riskier than bonds. (i) True; (ii) False; (iii) DK; (iv) Refuse.*

### 6. Long Period Returns

*Considering a long time period (for example 10 or 20 years), which asset normally gives the highest return? (i) Savings accounts; (ii) Bonds; (iii) Stocks; (iv) DK; (v) Refuse.*

### 7. Highest Fluctuations

*Normally, which asset displays the highest fluctuations over time? (i) Savings accounts; (ii) Bonds; (iii) Stocks; (iv) DK; (v) Refuse.*

### 8. Risk Diversification: Spreading Money Among Different Assets

*When an investor spreads his money among different assets, does the risk of losing money: (i) Increase; (ii) Decrease; (iii) Stay the same; (iv) DK; (v) Refuse.*

The average respondent age is 45, some 60 percent of respondents are married, 48 percent are male, 29 percent of the sample has a high school education or less, about 45 percent has a college or higher degree, and 16 percent of the respondents are fully retired. These sample characteristics are partly due to the fact that the survey is done online, and frequent Internet users are not necessarily a representative sample of the U.S. population. Yet it is useful to see how these respondents fare when asked questions about financial concepts they should have dealt with in their financial decisions.<sup>5</sup>

Responses to the more complex battery of advanced financial literacy questions in the ALP are summarized in Table 3. Panel A shows that about three-quarters of respondents get most of the answers right, so they have some knowledge of how the stock market and risk diversification work. They are also more likely to be knowledgeable about fluctuations in assets than they are about patterns of asset returns. But only about one-third of the sample knows about the relationship between bonds and interest rates, indicating lack of knowledge about how assets are priced.<sup>6</sup> Moreover, while the large majority of respondents responded correctly to several of the more advanced questions, only 16 percent of respondents were able to answer all of these questions correctly (Table 3, Panel B). In other words, advanced knowledge is not widespread, even among a sample of highly educated respondents.<sup>7</sup>

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<sup>5</sup> See Lusardi and Mitchell (2009) for details.

<sup>6</sup> Very similar findings are provided by Moore (2003), which also reports that the fraction of correct responses to questions measuring sophisticated knowledge is very low.

<sup>7</sup> When levels of literacy are low, one may wonder whether respondents even understand the meaning of the questions they are asked. To investigate whether the wording of questions matters, two randomly chosen groups of respondents to the ALP were posed the same questions but with different wording. This was implemented for three questions. With a rather simple question about the risk differences between bonds and stocks, a first group was asked “Stock are normally riskier than bonds; true or false?” while a second group was asked “Bonds are normally riskier than stocks; true or false?” For a more difficult question about risk diversification, a first group was asked

Several other surveys covering the U.S. population or specific sub-groups have also documented low levels of advanced financial knowledge across the age spectrum. For example, data from several surveys from the JumpStart Coalition for Personal Financial Literacy show that only a small percentage of high school students score above a passing grade in financial literacy. Low scores are not only pervasive among high school students but have changed little over time (Mandell 2008). These findings are confirmed by the National Council of Economic Education (NCEE), which periodically surveys high school students and working-age adults to measure financial and economic knowledge. The NCEE survey consists of a 24-item questionnaire on topics including “Economics and the Consumer,” “Money, Interest Rates, and Inflation,” and “Personal Finance.” Adults got an average score of C on these questions, while the high school population fared even worse, with most earning an F. Hilgert, Hogarth, and Beverly (2003) examine data from the 2001 Survey of Consumers, where some 1,000 respondents (ages 18–98) were given a 28-question true/false financial literacy quiz covering knowledge about credit, saving patterns, mortgages, and general financial management. Again, most respondents earned a failing score on the quiz, documenting widespread illiteracy among the population. Similar findings are reported in smaller samples or specific groups of the population (Agnew and Szykman 2005). Moore (2003) examines financial literacy in Washington State and reports low levels of financial knowledge in that state.

### **Who Is Financially Literate?**

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“Buying a company stock usually provides a safer return than a stock mutual fund; true or false?” while a second group was asked “Buying a stock mutual fund usually provides a safer return than a single company stock; true or false?” For the most difficult question about the link between bond prices and interest rates, a first group was asked “If the interest rate falls, what should happen to bond prices?” and a second group was asked “If the interest rate rises, what should happen to bond prices?” The wording of the question did not matter for the first two questions, but it did matter for the third question, showing a fair amount of guessing and measurement error in the responses to complex financial literacy questions. See Lusardi and Mitchell (2009) for details.

Financial illiteracy is not only widespread, it is particularly acute among specific demographic groups. For example, financial literacy, as measured by the three questions in the 2004 HRS module, declines strongly with age/cohorts (Figure 1). This is an important finding as individuals are required to make financial decisions until late in the life-cycle and there is mounting concern about the prevalence of financial scams that prey upon the elderly. There are sharp sex differences in financial literacy, with women displaying a lower level of knowledge than men, particularly with regard to risk diversification (Figure 2). Lusardi and Mitchell (2008) examine this issue in more detail and warn about the difficulties a woman may face in making financial decisions, particularly after the death of a spouse. Lusardi and Mitchell (2011b) show that these gender differences hold in financial literacy comparisons across countries.

Financial literacy varies widely among education groups. Only half of respondents with less than a high school correctly answer the question requiring a simple calculation of interest rates, and close to 20 percent state they do not know the answer. The large majority of those without a college degree do not know or incorrectly answer the question about risk diversification. Similarly, there are major differences in financial literacy across racial groups, with African-Americans and Hispanics displaying much lower levels of financial literacy than whites. Approximately half of African-Americans correctly answer the question about interest rate calculations; the proportion of correct answers is even smaller among Hispanics (Lusardi and Mitchell, 2007b). Lusardi and Mitchell (2007a) document similar findings when using different measures of literacy among a sample of Early Baby Boomers.

These results are not specific to the age groups covered in the HRS, but are common to many other surveys on financial literacy.<sup>8</sup> Moreover, the findings outlined above are already present among young respondents. For example, Mandell (2008) focuses on the small group of

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<sup>8</sup> See Lusardi and Mitchell (2007b) for a review.

students defined as being financially literate (all had received a score of 75 percent or more on a financial literacy test) in the 2006 JumpStart Coalition survey. Note that this group represents a tiny fraction of the whole sample: only 7 percent. The financially literate students are overwhelmingly white, male, and the children of college graduates. Thus, the correlation between literacy and gender, race, and education is present at early stages of the life cycle.

### **Does Financial Literacy Matter?**

As mentioned earlier, one of the major advantages of adding questions about financial literacy in major U.S. surveys is that researchers can assess whether literacy influences financial decision-making. Table 4 displays the relationship between financial literacy and retirement planning as measured in the 2004 HRS core data (see Lusardi and Mitchell 2007a). As shown by Lusardi (1999), Lusardi and Beeler (2007), and Lusardi and Mitchell (2007a), retirement planning is a powerful predictor of wealth accumulation: Those who plan have more than double the wealth of those who have not done any retirement planning.

Those who are more financially knowledgeable are much more likely to have planned for retirement. In terms of economic importance, both the knowledge of interest compounding and the ability to perform simple calculations (such as a lottery division) are the strongest predictors of planning. This is to be expected, given that any savings plan requires some numeracy, the ability to calculate present values, and an understanding of the advantages of starting to save early in life. Financial literacy is not simply a proxy for low education, race, or gender. (As has been noted, women, minorities, and those with low education are disproportionately less likely to be financially literate.) Even after accounting for many demographic characteristics, Table 4

(Column III) shows that financial literacy continues to be an important determinant of planning.<sup>9</sup> Similar findings hold true when using the three questions on financial literacy originally designed for the 2004 HRS module. These results have been replicated across countries (Lusardi and Mitchell, 2011b).

One may argue that financial literacy and retirement planning are both decision variables and that the act of planning may enhance financial knowledge. In other words, those who want to plan for retirement may invest in acquiring financial knowledge. To evaluate the relationship between literacy and planning, it is important to have information beyond individuals' current levels of financial literacy. Over the last several decades, several U.S. states have mandated high school financial education (mostly due to political rationales rather than to stimulate retirement planning). Lusardi and Mitchell (2009) use that information to assess the direction of causality between financial literacy and planning and show that it is financial literacy that affects retirement planning and not the other way around.

Advanced financial literacy also matters for financial decision-making. Van Rooij, Lusardi, and Alessie (2011) use questions they designed for a module on financial literacy for the Dutch DNB Household Survey to show that financially sophisticated households are more likely to participate in the stock market. They address the argument that participation in the stock market or success in investing may also influence financial knowledge by relying on individuals' financial knowledge in the past and prior to investing in the stock market and on the knowledge and financial situation of others, such as siblings and parents. They find an effect of financial literacy on stock market participations, even when using different estimation methods.

Other studies have confirmed the positive association between financial knowledge and household financial decision-making. Stango and Zinman (2009) show that those who are unable

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<sup>9</sup> See, also, Lusardi and Mitchell (2011a).

to correctly calculate interest rates out of a stream of payments end up borrowing more and accumulating lower amounts of wealth. Lusardi and Tufano (2009a,b) find that those who severely underestimate the power of interest compounding are more likely to experience difficulties repaying debt. Agarwal et al. (2009) show that financial mistakes are most prevalent among the young and the elderly—demographic groups that display the lowest levels of financial knowledge and cognitive ability. Hilgerth, Hogarth, and Beverly (2003) also document a positive link between financial knowledge and financial behavior. Campbell (2006) further demonstrates that many investors failed to refinance their mortgages during a period of falling interest rates. This finding is consistent with lack of literacy, as those who failed to refinance were disproportionately investors with low education. Moore (2003) also shows that borrowers who took out high-cost mortgages display little financial literacy. According to Gerardi et al (2013), the lack of numerical ability was a strong predictor of mortgage defaults.

## **Discussion**

Financial literacy has become as essential tool for anyone who aspires to succeed in today's society, make sound financial decisions, and—ultimately—be a good citizen. The financial crisis has put economic news on the front pages of newspapers almost daily, requiring individuals to comprehend financial concepts and to evaluate the economic reforms that political leaders are proposing. Given the importance of financial literacy, it is perhaps not surprising that, in 2012, the OECD Program for International Student Assessment (PISA) dedicated an entire module to financial literacy, in addition to the to the topics the assessment normally covers. PISA states: *“Are students well prepared for future challenges? Can they analyze reason and communicate effectively? Do they have the capacity to continue learning throughout life? The*

*OECD Program for International Student Assessment (PISA) answers these questions and more, through its surveys of 15-year-olds in the principal industrialized countries. Every three years, it assesses how far students near the end of compulsory education have acquired some of the knowledge and skills essential for full participation in society.”*

Given the low levels of financial literacy documented in the paper and the consequences of the lack of financial knowledge, it is becoming increasingly urgent to take initiatives to increase the level of financial knowledge in the population. One such initiative is to add financial literacy into schools. The cost of college education has been increasing at a rate faster than inflation, requiring students and their families to start planning for college as soon as possible, to be savvy about financial aid, and to manage student loans effectively. Many young people are required to make one of the most important decisions of their lifetimes—whether to invest in higher education—during high school. They are also confronted with many other decisions carrying economic repercussions, such as owning a car, entering a cell phone contract, managing a bank account, and handling a debit or credit card.

Scholarship addressing financial literacy is growing, but still nascent, and much more research is needed. Given the facts documented in this paper, it would be important to design and evaluate programs aimed to increasing financial literacy. Given the many differences in financial literacy across demographic groups, it may be important to focus on the most vulnerable groups and, for example, design programs targeted to those groups. Given the availability of data on financial literacy, it is also possible to better document the causes and consequences of financial literacy. That information, in turn, can help us enrich the theoretical models we have been using to study financial decision-making.

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**Table 1: Financial Literacy Among the Old**

<i>Question Type</i>	<b>Correct (%)</b>	<b>Incorrect (%)</b>	<b>Do Not Know (%)</b>
Compound Interest	67.1	22.2	9.4
Inflation	75.2	13.4	9.9
Stock Risk	52.3	13.2	33.7

Note: Percentages may not sum to 100 due to a few respondents who refused to answer the questions.  
Source: 2004 Health and Retirement Study. Adapted from Lusardi and Mitchell (2011a).

**Table 2: Financial Literacy Among Early Baby Boomers**

<i>Question Type</i>	<b>Correct (%)</b>	<b>Incorrect (%)</b>	<b>Do Not Know (%)</b>
Percentage Calculation	83.5	13.2	2.8
Lottery Division	55.9	34.4	8.7
Compound Interest*	17.8	78.5	3.2

Note: \*Conditional on being asked the question. Percentages may not sum to 100 due to a few respondents who refused to answer the questions.  
Source: 2004 Health and Retirement Study. Adapted from Lusardi and Mitchell (2007a).

**Table 3A. Advanced financial literacy**

Weighted percentages of total number of respondents (N=989)

	Correct	Incorrect	Do not Know
1) Which statement describes the main function of the stock market? <sup>1)</sup>	71.5	20.2	8.3
2) Function of mutual fund. <sup>1)</sup>	63.0	13.6	23.3
3) If the interest rate falls/rises, what should happen to bond prices: rise/fall/stay the same/none of the above? <sup>2)</sup>	31.6	43.8	24.5
4) Buying a company fund/stock mutual usually provides a safer return than a stock mutual fund/a company fund. True or false? <sup>2)</sup>	71.4	4.0	24.5
5) Stocks/Bonds are normally riskier than bonds/stocks. True or false? <sup>2)</sup>	80.2	5.4	14.4
6) Considering a long time period (for example 10 or 20 years), which asset normally gives the highest return: savings accounts, bonds or stocks?	62.3	27.5	10.1
7) Normally, which asset displays the highest fluctuations over time: savings accounts, bonds, stocks?	88.3	4.5	7.1
8) When an investor spreads his money among different assets, does the risk of losing money increase, decrease or stay the same?	74.9	18.4	6.7

1) See exact wording in the text.

2) This question has been phrased in two different ways.

Note: Correct, incorrect and do not know responses do not sum up to 100% because of refusals.

Source: American Life Panel. Adapted from Lusardi and Mitchell (2009).

**Table 3B. Advanced literacy: Summary of responses**

Weighted percentages of total number of respondents (N=989)

	Number of correct, incorrect, and do not know answers (out of eleven questions)									
	None	1	2	3	4	5	6	7	All	Mean
Correct	.6	3.0	3.6	11.0	10.2	15.4	14.6	22.6	16.5	5.4
Incorrect	30.2	33.0	18.1	10.7	5.2	1.7	1.2	0.0	0.0	1.4
Do not know	50.0	18.5	12.3	9.1	6.1	2.0	0.4	1.2	.4	1.2

Note: Categories do not sum up to 100% because of rounding.

Source: American Life Panel. Adapted from Lusardi and Mitchell (2009).

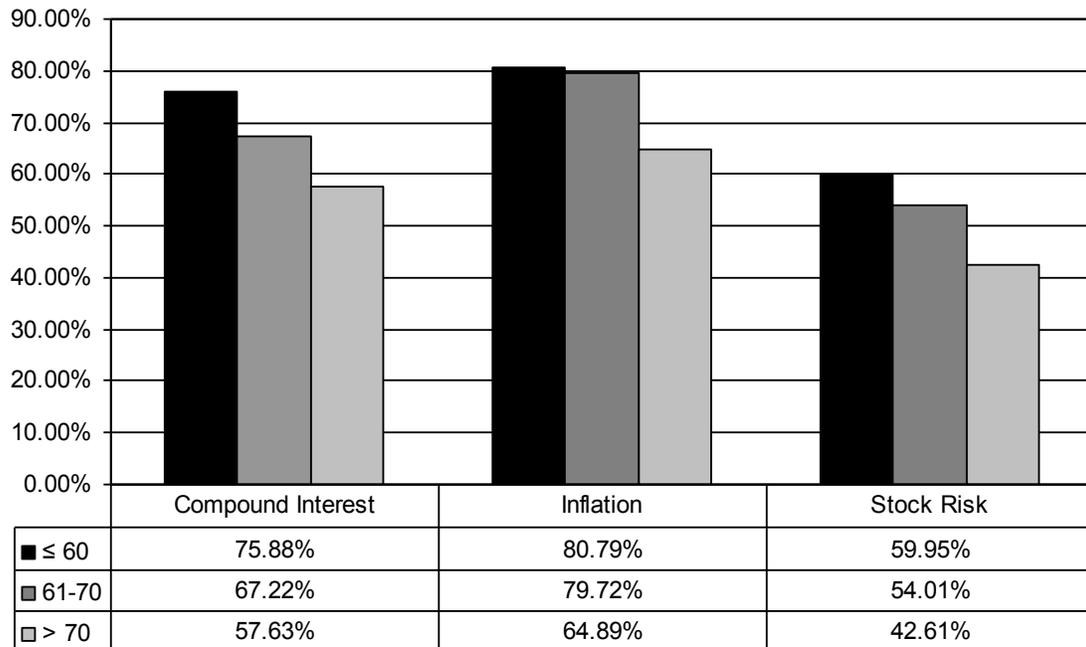
**Table 4: Empirical Effects of Financial Literacy on Retirement Planning**

	<i>Probability of Being a Retirement Planner</i>		
	<b>I</b>	<b>II</b>	<b>III</b>
Correct Percentage Calculation	-.016 (.061)	-.012 (.062)	-.034 (.060)
Correct Lottery Division	.059* (.030)	.034 (.031)	.001 (.032)
Correct Compound Interest	.153*** (.035)	.149*** (.035)	.114*** (.039)
DK Percentage Calculation		.021 (.068)	.054 (.067)
DK Lottery Division		-.154*** (.050)	-.141*** (.051)
DK Compound Interest		-.114 (.080)	-.073 (.081)
Demographic controls	No	No	Yes
Pseudo R <sup>2</sup>	.031	.038	.074

Note: This table reports Probit estimates of the effects of literacy on planning; marginal effects reported. Analysis sample consists of HRS Early Baby Boomers who responded to financial literacy questions. Being a planner is defined as having thought a little, some, or a lot about retirement. Demographic controls include age, education, race, sex, marital status, retirement status, number of children, and a dummy variable for those not asked the question about interest compounding. Regressions also include dummies for political literacy (knowing the President and Vice President of the United States). DK indicates respondent who did not know the answer. Observations weighted using HRS household weights. The total number of observations is 1,716. \* Significant at 10% level; \*\* significant at 5% level; \*\*\* significant at 1% level.

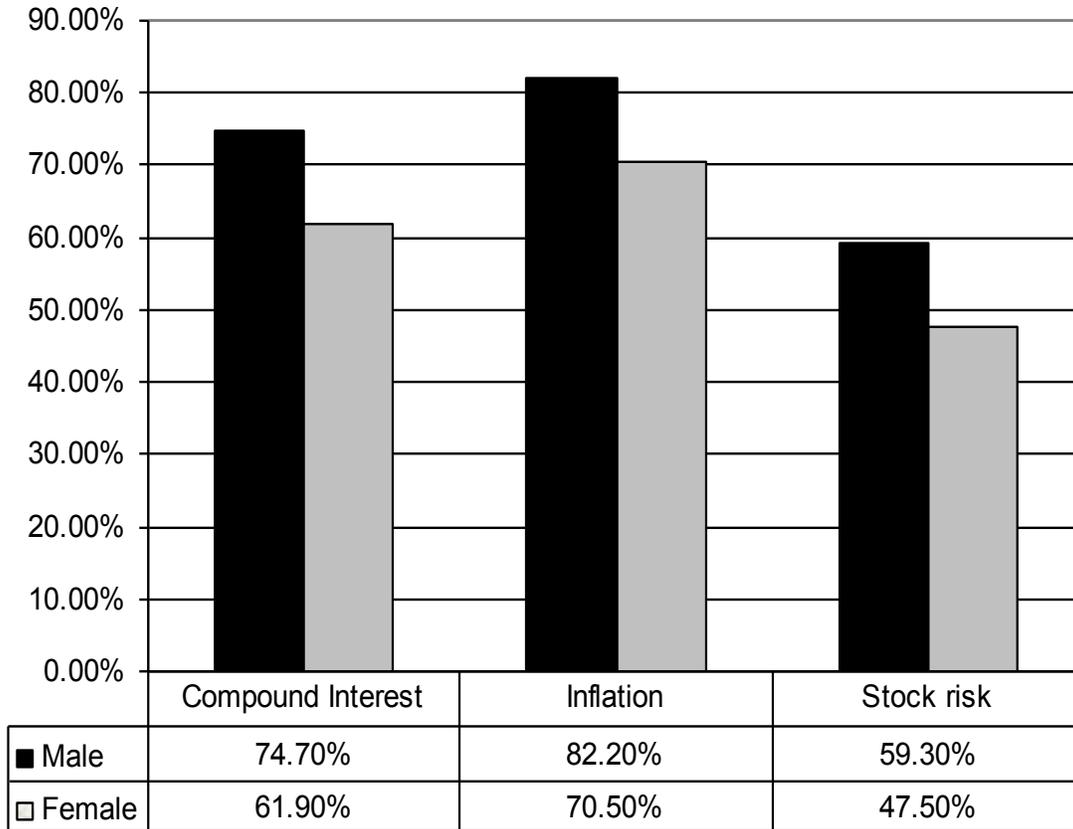
Source: 2004 Health and Retirement Study. Adapted from Lusardi and Mitchell (2007a).

Figure 1: Financial Literacy: By Age



This table reports the fraction of correct answers to the questions about interest compounding, inflation, and risk diversification by age.  
 Source: 2004 Health and Retirement Study.

**Figure 2: Financial Literacy: By Gender**



This table reports the fraction of correct answers to the questions about interest compounding, inflation, and risk diversification by sex.  
 Source: 2004 Health and Retirement Study.

