

ORIGINAL ARTICLE

Financial literacy and financial resilience: Evidence from around the world

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Abstract

We measure financial literacy using questions assessing basic knowledge of four fundamental concepts in financial decision making: knowledge of interest rates, interest compounding, inflation, and risk diversification. Worldwide, just one in three adults are financially literate—that is, they know at least three out of the four financial concepts. Women, poor adults, and lower educated respondents are more likely to suffer from gaps in financial knowledge. This is true not only in developing countries but also in countries with well-developed financial markets. Relatively low financial literacy levels exacerbate consumer and financial market risks as increasingly complex financial instruments enter the market. Credit products, many of which carry high interest rates and complex terms and conditions, are becoming more readily available. Yet only around half of adults in major emerging countries who use a credit card or borrow from a financial institution are financially literate. We discuss policies to protect borrowers against risks and encourage account holders to save.

1 | FINANCIAL LITERACY: WHAT IT IS AND WHY IT MATTERS

Without an understanding of basic financial concepts, people are not well equipped to make decisions related to financial management. People need to be financially literate to make informed financial choices regarding saving, investing, borrowing, and more. Overall, financial literacy matters on many levels. In a world of escalating financial complexity, there is an increasing need for basic financial knowledge (Lusardi & Mitchell, 2014). For example, with governments in many countries pushing to boost access to financial services, the number of people with bank accounts and access to credit products is rising rapidly. Moreover, changes in the pension landscape transfer decision-making responsibility to participants who previously relied on their employers or governments for their financial security after retirement.

The potential benefits of financial literacy are manifold. People with strong financial skills do a better job planning and saving for retirement (Behrman, Mitchell, Soo, & Bravo, 2012; Lusardi & Mitchell, 2014). Moreover, individuals with

greater understanding of financial concepts are more likely to participate in financial markets and to invest in stocks (Almenberg & Dreber 2015; Christelis, Jappelli, & Padula, 2010; Van Rooij, Lusardi, & Alessie, 2011; Yoong, 2011).

Greater financial literacy can increase financial resilience and reduce risks, such as taking on too much debt. For example, lower numerical ability—a crucial element of financial literacy—is strongly associated with mortgage delinquency and default (Gerardi, Goette, & Meier, 2013). Furthermore, adults with higher “debt literacy”—for example, greater understanding of debt concepts and able to do calculations of future debt payments—are more likely to pay their credit cards in full and less likely to be over-indebted (Lusardi & Tufano, 2015). What is more, financially literate individuals are more likely to be savvy about choosing mutual funds and diversifying their savings (Hastings & Mitchell, 2011; Hastings, Mitchell, & Chyn, 2011; Hastings & Tejeda-Ashton, 2008). Financial literacy is also linked to financial fragility and the capacity to handle unexpected shocks (Hasler, Lusardi, & Oggero, 2018).

The consequences of financial ignorance are high. Consumers who fail to understand the concept of interest compounding, for example, pay higher transaction fees, run up bigger debts, and incur higher interest rates on loans (Lusardi & Tufano, 2015; Lusardi and de Bassa Scheresberg, 2013). They also end up borrowing more and saving less (Stango & Zinman, 2009).

Financial literacy, according to Widdowson and Hailwood (2007), may have a considerable influence on the soundness and efficiency of financial systems. For one, consumers who are more financially literate may be better equipped to make investment and product decisions, which, in turn, may motivate financial institutions to offer new and more innovative products and services. Financially literate consumers are also expected to have a greater awareness of risk-return trade-offs. And they may be more emboldened to ask questions and scrutinize financial products and the institutions that they do business with. In response to consumer demand, financial service providers are expected to raise standards of service and their management of investment risks, contributing to greater efficiencies in the financial services marketplace, growth in the sector, and less cyclically volatile economies.

Against this backdrop, our paper uses data from the first and only global survey on financial literacy that we helped design to explore the relation between financial literacy and the financial system at both the individual level (personal finance) and the aggregate level (financial markets). In the first part of the paper, we discuss some country-level correlates of financial literacy. Our findings broaden the extant literature by examining population segments that are the most and the least financially literate across countries of varying income level and financial development. The paper also examines the relation between financial literacy and personal finance.

The paper is organized as follows. Section 2 of the paper describes the variation in financial literacy around the world. Section 3 discusses the variation in financial literacy across demographic and income characteristics. Section 4 analyzes country-level correlates of financial literacy. Section 5 explores ways in which financial literacy relates to the structure of financial systems. Section 6 concludes.

2 | VARIATION IN FINANCIAL LITERACY AROUND THE WORLD

2.1 | The S&P Global FinLit Survey

This paper uses the Standard & Poor's Ratings Services Global Financial Literacy Survey (S&P Global FinLit Survey), which provides information from a wide array of countries.¹ It builds on earlier initiatives and numerous national surveys that collect information on financial literacy.² The S&P survey complements these efforts by delivering the first and most comprehensive global measure of financial literacy to date.

¹ Country-level summary statistics are shown in Appendix B. Complete individual-level data for all countries are available upon request.

² Earlier initiatives include the International Network on Financial Education (INFE)/Organisation for Economic Co-operation and Development (OECD) survey, the World Bank's Financial Capability and Household Surveys, and the Financial Literacy around the World (FLAT World) project.

The financial literacy questions in the S&P Global FinLit Survey focus on four fundamental concepts for financial decision making—risk diversification, inflation, basic numeracy, and interest compounding (Box 1). The data and information about financial literacy are derived from a set of five questions that was added to the Gallup World Poll survey. More than 150,000 nationally representative and randomly selected adults (age 15+) in more than 140 countries were interviewed during 2014. The surveys were conducted face-to-face in most emerging countries and by phone in high-income countries.³

BOX 1. S&P global financial literacy questions

The questions are presented in a multiple-choice format. The correct answer is in bold.

Risk Diversification: Suppose you have some money. Is it safer to put your money into one business or investment, or to put your money into multiple businesses or investments?

- a. One business or investment
- b. **Multiple businesses or investments**
- c. Don't know
- d. Refused to answer

Inflation: Suppose over the next 10 years the prices of the things you buy double. If your income also doubles, will you be able to buy less than you can buy today, the same as you can buy today, or more than you can buy today?

- a. Less
- b. **The same**
- c. More
- d. Don't know
- e. Refused to answer

Numeracy: Suppose you need to borrow \$100. Which is the lower amount to pay back: \$105 or \$100 plus 3%?

- a. \$105
- b. **\$100 plus 3%**
- c. Don't know
- d. Refused to answer

Compound Interest (1): Suppose you put money in the bank for 2 years and the bank agrees to add 15% per year to your account. Will the bank add more money to your account the second year than it did the first year, or will it add the same amount of money both years?

- a. **More**
- b. The same
- c. Don't know

³ See Appendix A for more information on the survey methodology.

d. Refused to answer

Compound Interest (2): Suppose you had \$100 in a savings account and the bank adds 10% per year to the account. How much money would you have in the account after 5 years if you did not remove any money from the account?

- a. More than \$150
- b. Exactly \$150
- c. Less than \$150
- d. Don't know
- e. Refused to answer

These questions measure financial literacy related to concepts pertinent to people's day-to-day financial decisions. These concepts are universal and are applicable to every country. The first and second questions evaluate respondents' knowledge of risk diversification and inflation, crucial elements of any informed investment decision. The third question evaluates whether respondents display competence with basic (financial) numeracy in the context of debt. The fourth and fifth questions test two variants of knowledge of interest compounding.

Knowledge of all four concepts is critical to make financial decisions and to manage risk. In fact, each question tackles an area of personal finance that people face in everyday financial decision making, such as:

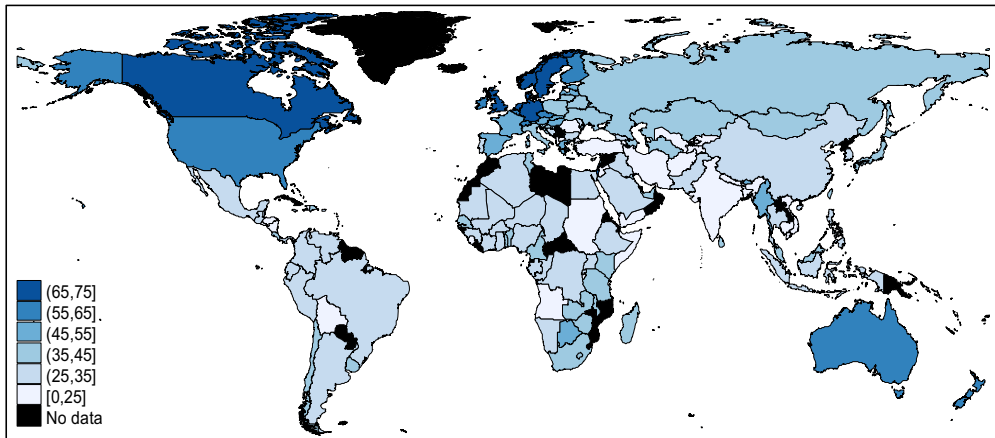
1. the importance of diversifying the risk exposure of business and personal investments ("Risk Diversification");
2. understanding the impact of inflation on purchasing power ("Inflation");
3. the expectation that in order to be a responsible citizen, every adult should have basic financial numeracy, such as the ability to do simple calculations related to interest rates ("Numeracy Interest"); and
4. the concept that interest payments increase exponentially over time ("Interest Compounding").

Our paper analyzes financial literacy in several ways. First, using data derived from the five questions described above, we calculate a composite financial literacy index. We consider people to be financially literate if they know at least three out of four concepts. For robustness, we also discuss the performance of individual scores. Second, we focus on individual topics, such as risk diversification. Because employees and consumers in many countries around the world are being increasingly asked to select their pension investment portfolios, understanding risk diversification is critical. We also focus on interest compounding, essential knowledge for saving and borrowing decisions. Because interest compounding is such a hard concept, we ask two questions measuring knowledge of this concept and respondents need to answer only one out of two questions correctly to get a score of one. To ensure robustness of results, we replicated any regression analysis included in this paper using alternative definitions of being financially literate (e.g., knowing two out of four and all four concepts).

2.2 | Global trends

The findings from the S&P Global FinLit Survey are sobering. Worldwide, just one in three adults are financially literate. This means that around 3.5 billion adults globally—most of them in developing countries—lack an understanding of basic financial concepts. These global figures conceal deep disparities around the world (Map 1). The countries with the highest financial literacy rates are Australia, Canada, Denmark, Finland, Germany, Israel, the Netherlands, Norway, Sweden, and the United Kingdom, where about 65% or more of adults are financially literate. On the other end of the

spectrum, South Asia is home to countries with some of the lowest financial literacy scores, where only a quarter or fewer of adults are financially literate.



MAP 1 Global variations in financial literacy: Percentage of adults who are financially literate [Color figure can be viewed at wileyonlinelibrary.com]

Source: S&P Global FinLit Survey.

Not surprisingly, financial literacy rates differ enormously between the major advanced and emerging countries in the world. On average, 55% of adults in the major advanced countries—Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States (the so-called G7 countries)—are financially literate (Figure 1). But even across these countries, financial literacy rates range widely, from 37% in Italy to 68% in Canada.

In contrast, in the major emerging countries—the so-called BRICS (Brazil, the Russian Federation, India, China, and South Africa)—on average, 28% of adults are financially literate. Disparities exist among these countries, too, with rates ranging from 24% in India to 42% in South Africa.

We also find that financial literacy rates vary widely, even within a specific economic region, such as the European Union (EU; Map 2). On average, 52% of adults in the EU are financially literate, and the understanding of financial

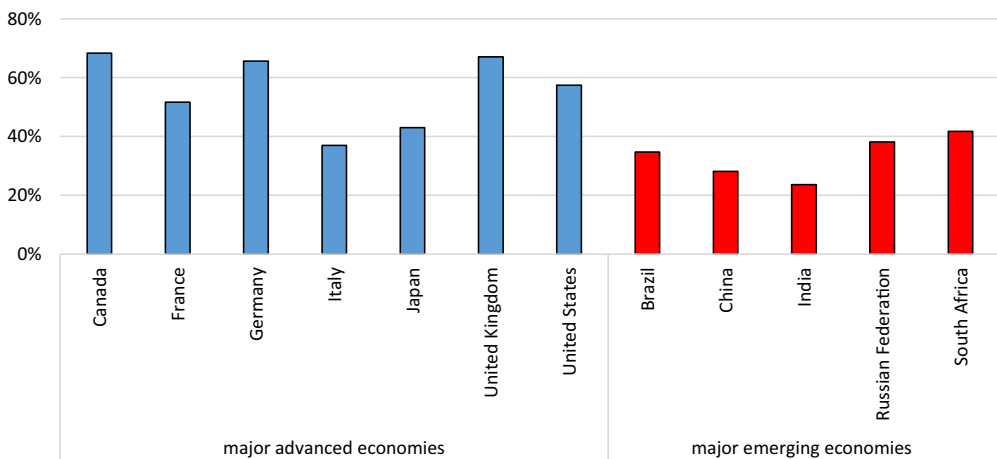
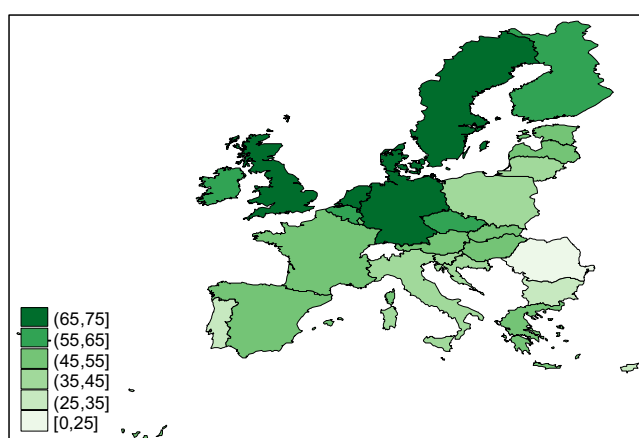


FIGURE 1 Financial literacy in advanced and emerging economies: Percentage of adults who are financially literate [Color figure can be viewed at wileyonlinelibrary.com]

Source: S&P Global FinLit Survey.

concepts is highest in northern Europe. Specifically, Denmark, Germany, the Netherlands, and Sweden have the highest financial literacy rates in the EU: at least 65% of their adults are financially literate. Rates are much lower in southern Europe. For example, in Greece and Spain, financial literacy rate is 45% and 49%, respectively. Italy and Portugal have some of the lowest financial literacy rates in the south. Financial literacy rates are also low among the countries that joined the EU since 2004. In Bulgaria and Cyprus, 35% of adults are financially literate. Romania, with 22% financial literacy, has the lowest rate in the EU.

Among the four topics that define financial literacy, inflation and numeracy (capacity to do simple calculations in the context of interest rates) is what people know the most. Worldwide, half the adult population possess this basic knowledge. Not surprisingly, nearly 60% of people in major advanced countries know about inflation and can do simple calculations, with 71% and 66% of people understanding numeracy and inflation, respectively, in the United Kingdom and 66% of people being familiar with both concepts in Canada. The understanding of these concepts remains very diverse among BRICS. Although nearly 60% of adults are familiar with these concepts in Russia, only 36% and 45% in China respond correctly to the questions on inflation and numeracy, respectively.



MAP 2 Northern Europe leads in financial literacy: Percentage of adults who are financially literate [Color figure can be viewed at wileyonlinelibrary.com]

Source: S&P Global FinLit Survey.

Risk diversification is the least understood concept. Only 35% of adults correctly answered this question. This is also where we find some of the largest disparities among countries. In the major advanced countries, 64% of respondents understand this concept, compared with just 28% in the major emerging countries (Figure 2). Differences between major advanced and emerging countries ranged from 15 percentage points for the inflation question to 10 percentage points for the compound interest concept. Among major advanced countries, approximately 75% of adults in Germany, the United Kingdom, the United States, and Canada respond correctly to the question on risk diversification, whereas only 40% in Italy and 50% in France respond correctly to this question. Moreover, 54% of people respond correctly to the question on risk diversification in the EU, compared with slightly more than 60% of individuals understanding inflation and numeracy.

3 | FINANCIAL LITERACY ACROSS DEMOGRAPHICS

Differences are not only observed at the country level. We also observe a high degree of heterogeneity within countries and demographic groups. For example, women, the poor, and younger respondents are more likely to suffer from gaps in financial knowledge. This is true not only in developing countries but also in countries with well-developed

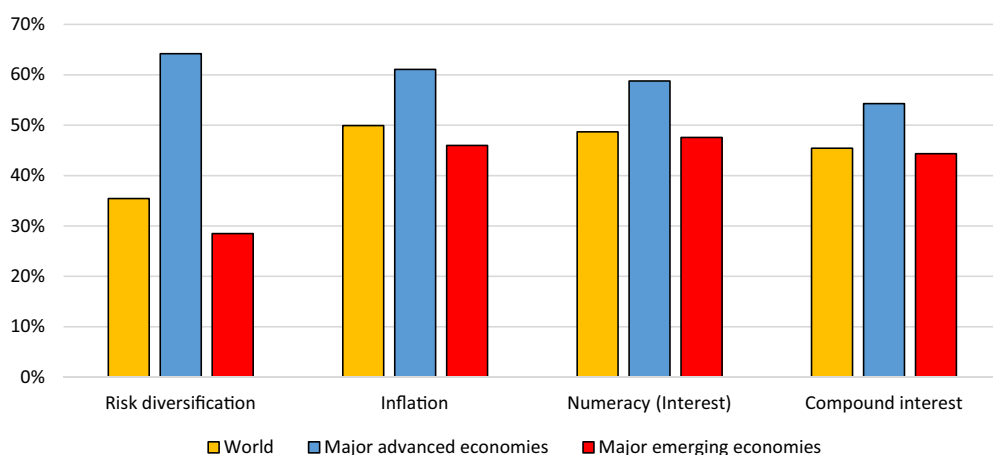


FIGURE 2 What people know the most in advanced and emerging countries: Percentage of adults with correct answers [Color figure can be viewed at wileyonlinelibrary.com]

Source: S&P Global FinLit Survey.

Note. Major advanced and emerging countries are listed in Figure 1.

financial markets. Table 1 shows the relationship of demographic characteristics, employment, and income with financial literacy, using a multivariate framework with individual-level data and country fixed effects.

3.1 | Women trail men in financial literacy

Worldwide, 35% of men are financially literate, compared with 30% of women. Although women are less likely to provide correct answers to the financial literacy questions, they are also more likely to indicate that they “don’t know” the answer, a finding consistently observed in many other studies as well (Lusardi & Mitchell, 2014).

This gender gap is found in both advanced countries and emerging countries (Figure 3). Women continue to display weaker financial skills than men even in multivariate regressions controlling for age, country, education, and income (Table 1).

The average gender gap in financial literacy in emerging countries is 5 percentage points, not different from the worldwide gap, though it is absent in China and South Africa (where financial literacy is equally low for women and men).

3.2 | Financial literacy lowest among adults age 65+

For the major advanced countries, financial literacy rates are lowest among the youngest and oldest adults (Figure 4). On average, 56% of young adults age 35 or younger are financially literate, compared with 63% of those aged 36–50. Financial literacy rates are lower for adults older than 50, and rates are lowest among those older than 65. This pattern is consistent with theoretical models, such as the one by Lusardi, Michaud, and Mitchell (2017), that consider financial literacy as a choice variable in the context of a life-cycle model of wealth accumulation. It is also consistent with a learning-by-doing mechanism, where people learn by experience (Frijns, Gilbert, & Tourani-Rad, 2014; Seru, Shumway, & Stoffman, 2010). The pattern is different for the major emerging countries. In these countries, adults age 65 and older have the lowest financial literacy rates of any age group, but the young have the highest knowledge. At 32%, financial literacy in these countries is much higher for young adults than for the oldest adults of whom only 17% are financially literate. This is likely explained by the introduction and penetration of household financial products in only the past few decades. Multivariate regressions find no relation, on average, between financial literacy and age, except for the subsample of developing countries, where it is significantly negative.

TABLE 1 The relationship of demographic characteristics, employment, and income with financial literacy, individual-level regressions

Variables	3-out-of-4 correct		Risk Diversification	
	ALL COUNTRIES	EU ONLY	ALL COUNTRIES	EU ONLY
Gender: 0 are men & 1 are women	−0.0394*** (0.009)	−0.0534*** (0.012)	−0.0506*** (0.009)	−0.0502*** (0.012)
Age	0.0004 (0.001)	0.0052** (0.002)	0.0016 (0.001)	0.008*** (0.002)
Age, squared	−0.0000** (0.000)	−0.0001*** (0.000)	−0.0001*** (0.000)	−0.0001*** (0.000)
Marital status (1 is married, 0 is other)	0.0293** (0.014)	0.0648*** (0.022)	0.0001 (0.013)	0.0228 (0.023)
Marital status (1 is divorced/separated, 0 is other)	−0.0009 (0.020)	0.0615** (0.028)	−0.0248 (0.021)	0.0391 (0.028)
Marital status (1 is single, 0 is other)	0.0401** (0.017)	0.0783*** (0.025)	−0.0115 (0.019)	0.0321 (0.025)
Logarithm of household size	0.0247*** (0.008)	0.0409*** (0.014)	0.0273*** (0.010)	0.0385*** (0.014)
Education: Primary	−0.1862*** (0.018)	−0.2174*** (0.020)	−0.1468*** (0.016)	−0.1886*** (0.020)
Education: Secondary	−0.1025*** (0.016)	−0.103*** (0.013)	−0.0989*** (0.012)	−0.0736*** (0.013)
Status: self-employed	0.0277** (0.012)	0.0395* (0.021)	0.0135 (0.015)	0.0534** (0.021)
Status: employed for employer	0.0412*** (0.013)	0.0329** (0.016)	0.0155 (0.012)	0.0320** (0.016)
Status: unemployed	0.0126 (0.016)	−0.0404 (0.027)	0.0204 (0.016)	0.0021 (0.029)
Urbanicity: 0 is urban & 1 is rural	−0.0025 (0.013)	−0.0143 (0.013)	−0.0256** (0.013)	−0.0285** (0.012)
Income groups: 0 is top 60%, 1 is bottom 40%	−0.0634*** (0.009)	−0.1067*** (0.014)	−0.0646*** (0.010)	−0.0942*** (0.013)
Constant	0.2565*** (0.043)	0.5435*** (0.061)	0.3193*** (0.049)	0.5334*** (0.059)
Observations	140264	26341	140264	26341
Country no	138	27	138	27
R-squared	0.101	0.149	0.153	0.173

Note. There are two dependent variables capturing financial literacy: (1) 3 out of 4 concepts correct: dummy takes value 1 if individual answers any 3 out of 4 concepts on financial literacy correctly and 0 otherwise and (2) Risk diversification: dummy takes value 1 if individual answers question on risk diversification correctly and 0 otherwise. The definition of demographic characteristics (age, age squared, marital status, employment status, rural dummy, income group dummy, gender and education) are self-explanatory from the table. The regressions are estimated using ordinary least squares with robust standard errors. All regressions include country and year fixed effects. Regressions are run on all countries and on the sample of EU countries only. Standard errors in parentheses. *, **, and *** indicate significance at 10%, 5%, and 1% respectively. Data on demographics is from Global Findex data 2014. Source of data on financial literacy is S&P financial literacy survey.

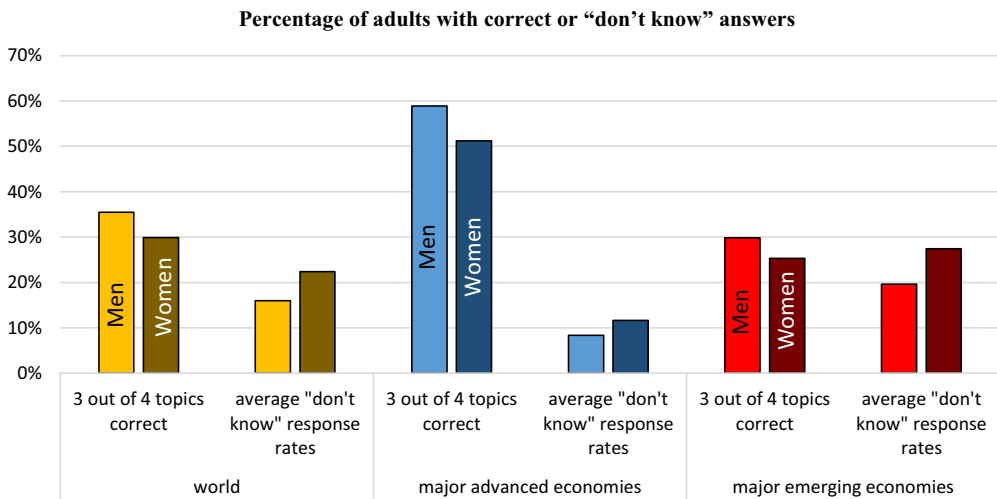


FIGURE 3 Financial literacy, by gender: Percentage of adults with correct or “don’t know” answers [Color figure can be viewed at wileyonlinelibrary.com]

Source: S&P Global FinLit Survey.

Note. Major advanced and emerging countries are listed in Figure 1.

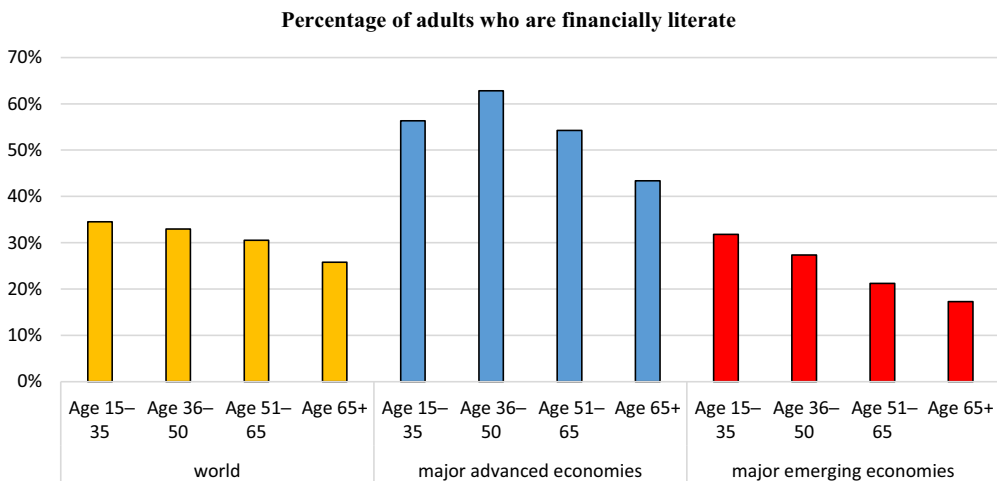


FIGURE 4 Financial literacy, by age: Percentage of adults who are financially literate [Color figure can be viewed at wileyonlinelibrary.com]

Source: S&P Global FinLit Survey.

Note. Major advanced and emerging countries are listed in Figure 1.

3.3 | Financial literacy grows with income and employment

Rich adults have higher financial knowledge than poor adults (Figure 5). Of adults living in the richest 60% of households in the major emerging countries, 31% are financially literate, compared with 23% of adults who live in the poorest 40% of households. The size of the income gap is similar in the major advanced countries, but some suffer from even deeper inequality. For example, in Italy, 44% of adults who live in the richest 60% of households are financially literate compared with 27% of their counterparts who are poor. Lower financial literacy among poor adults is robust to

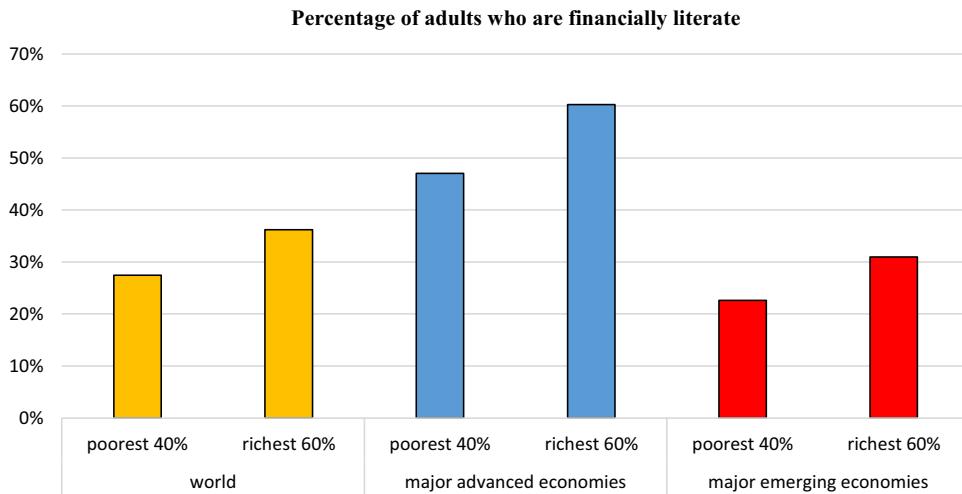


FIGURE 5 Financial literacy, by income: Percentage of adults who are financially literate [Color figure can be viewed at wileyonlinelibrary.com]

Source: S&P Global FinLit Survey.

Note: Major advanced and emerging countries are listed in Figure 1.

TABLE 2 Summary statistics for country level, all countries

Variable	Observations	M	SD
Bank Z-score	138	15.83	9.33
Ratio of nonperforming loans to gross loans	110	0.04	4.32
Programme for International Student Assessment math score	58	518.70	86.25
Uncertainty Avoidance Index	66	51.27	21.92
Disclosure requirement dummy	103	0.99	0.08
Government requires financial institutions to provide financial education	98	0.45	0.50
Consumer protection index	102	0.19	0.50

the inclusion of gender, age, and other characteristics. After controlling for other individual characteristics, financial literacy is also significantly higher for employed and self-employed, relative to adults who are out of the workforce.

4 | UNDERSTANDING HOW COUNTRY-LEVEL INSTITUTIONS RELATE TO FINANCIAL LITERACY

Although age, income, and other personal characteristics are shown to explain some of the variation in financial literacy at the individual level, few studies have explored if economic and financial development and other country-level characteristics explain worldwide differences in financial literacy. For example, the effectiveness of public education and differences in economic circumstances (such as living through periods of high inflation) might affect what and how much people know about financial concepts. Furthermore, because cultural factors shape the mind-set of a population, they might ultimately affect the financial strategies that people employ during their lives. This section uses country-level variables to examine some of these factors. Summary statistics and definitions for all variables are summarized in Table 2.

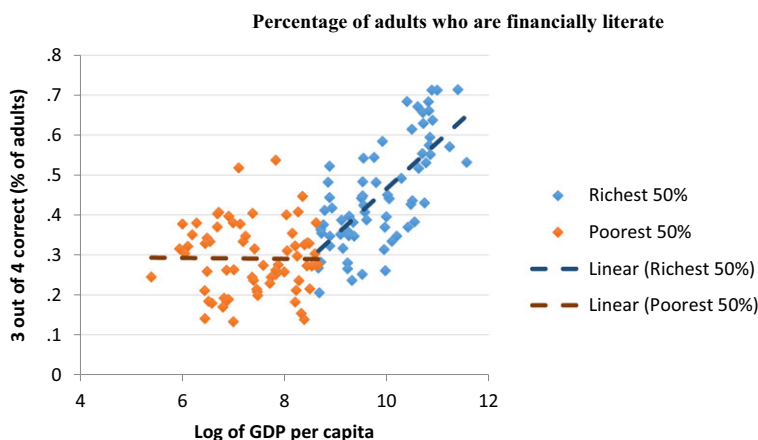


FIGURE 6 GDP per capita and financial literacy: Percentage of adults who are financially literate [Color figure can be viewed at wileyonlinelibrary.com]

Source: S&P Global FinLit Survey and World Bank–World Development Indicators (<http://data.worldbank.org>).

4.1 | Economic development

Using gross domestic product (GDP) per capita as a proxy for income, we observe a significant positive relation between income and financial literacy (Figure 6). However, this relation only holds among the richest 50% of countries. For countries with above-global-median GDP per capita (\$5,830 or more) in 2015, there is strong evidence that income is associated with financial literacy. In fact, in these richer countries, around 48% of the variation in financial literacy rates can be explained by differences in income across countries. On the contrary, for the poorer half of countries with a GDP per capita of about \$5,830 or less, there is no significant relation between income and financial literacy. The positive correlation between income and financial literacy holds only for the richest 50% of countries even when financial literacy is measured simply as knowledge of risk diversification or interest compounding.

4.2 | Government regulations

Financial consumer protection laws, regulations, and supervisory and oversight structures constitute an essential element of the modern financial system (Allen, Demirguc-Kunt, Klapper, & Martinez Peria, 2012). The financial crisis of 2008 demonstrated that adequate financial consumer protection is an important contributor to financial stability. The need for strong supportive policies in this area is driven by the rapid expansion of retail financial markets in emerging markets in recent years and by the fallout from the financial crisis in the developed markets with spillovers to developing markets. For instance, Principle 5 of the G20 High Level Principles on Financial Consumer Protection recognizes the importance of financial literacy as one of the dimensions of consumer protection policies along with other dimensions, such as proper legal framework, institutional arrangements, fair treatment, disclosure requirements, and responsible lending.

We test the relation between indicators of consumer protection and financial literacy for all countries and, separately, countries above median GDP per capita and countries below median GDP per capita. Consumer protection data are extracted from the World Bank Banking and Regulation Database (2015). We construct a variable measuring consumer protection by counting the number of requirements that are met as follows: (a) terms, conditions, fees, and customer rights have to be disclosed prior to the customer entering into a contract or performing a transaction; (b) customers are protected against unauthorized transactions in the form of (limited) customer liability; (c) recourse and dispute resolution mechanisms are clearly articulated and easily available to the public; (d) admissible disclosure of transactional and/or personal data are clearly articulated and easily available to the public; and (e) customers are

TABLE 3 Country-level characteristics and financial literacy, all countries

Variables	(1) 3 out of 4 correct (% of adults)	(2) 3 out of 4 correct (% of adults)	(3) 3 out of 4 correct (% of adults)	(4) 3 out of 4 correct (% of adults)	(5) 3 out of 4 correct (% of adults)	(6) 3 out of 4 correct (% of adults)	(7) 3 out of 4 correct (% of adults)
Bank Z-score	−0.0014 (0.0011)						
Ratio of nonperforming loans to gross loans		−0.0009 (0.0012)					
PISA math scores			0.0000 (0.0003)				
Uncertainty Avoidance Index				−0.0014** (0.0004)			
Financial products disclosure requirement					0.0820** (0.0220)		
Government requires financial institutions to provide financial education						0.0344 (0.0265)	
Consumer protection index							0.0139 (0.0125)
Logarithm of GDP per capita	0.0627** (0.0060)	0.0738** (0.0071)	0.1210** (0.0159)	0.1110** (0.0093)	0.0617** (0.0080)	0.0707** (0.0085)	0.0744** (0.0083)
Observations	134	109	57	65	113	102	83
R ²	0.453	0.526	0.622	0.720	0.431	0.472	0.543

Note. The dependent variable capturing financial literacy as the percentage of adults that know any three out of four financial literacy concepts. Bank Z-score captures the probability of default of a country's commercial banking system (Global Financial Development Database, 2014). Ratio of nonperforming loans is defined as ratio of defaulting loans (payments of interest and principal past due by 90 days or more) to total gross loans (total value of loan portfolio) (Global Financial Development Database, 2014). PISA math score assesses the mathematical competencies of 15-year-olds in 65 countries (OECD, 2014). Uncertainty Avoidance Index captures the extent to which the members of a culture feel threatened by ambiguous or unknown situations and have created beliefs and institutions that try to avoid these (Hofstede, 2001). Financial products disclosure requirement is a dummy that takes value 1 if there are any requirements (law or regulation) for financial institutions to provide customers, in paper or electronic form, specific types of information (e.g., interest rate, fees and penalties, etc.) of the relevant financial product, and zero otherwise. Government requires financial institutions to provide financial education is a dummy that takes value 1 if yes, and zero otherwise. See the text for the definition of the consumer protection index. The country-level regressions are estimated using ordinary least squares with robust standard errors. Standard errors in parentheses. **, * and *** indicate significance at 10%, 5%, and 1% level, respectively.

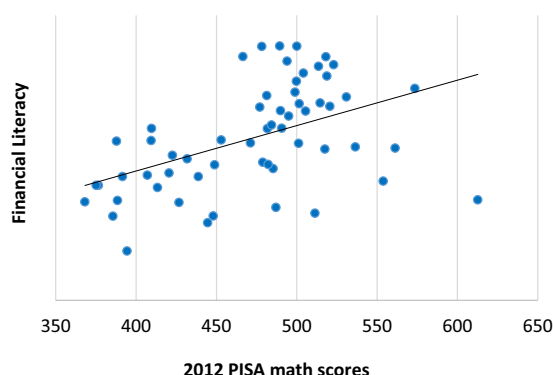


FIGURE 7 Financial literacy and PISA math scores [Color figure can be viewed at wileyonlinelibrary.com]
Source: S&P Global FinLit Survey and OECD PISA database.

protected against third-party claims on customers' funds. We also consider two measures from the World Bank Global Financial Inclusion and Consumer Protection Survey (2017): (a) if there are any requirements (law or regulation) for financial institutions to provide customers, in paper or electronic form, specific types of information (e.g., interest rate, fees and penalties, etc.) of relevant financial products, and (b) if financial institutions are required to provide financial education to customers. We also include the logarithm of GDP per capita in all estimations.

Table 3 shows the regression results for all countries (additional regressions available upon request). Our constructed consumer protection is positively correlated with financial literacy and risk diversification but not interest compounding for the poorest 50% of countries where there is the greatest diversity in consumer protection ratings. Furthermore, we find that disclosure requirements are significantly positively related to higher financial literacy rates. Note, however, there are some important caveats, including that our sample size is small and it is possible that governments respond to growing consumer awareness by introducing consumer protection provisions. Regardless, this is an interesting finding for low-income countries that continue to experience low participation in financial markets. We find no significant relation between mandatory financial education and financial literacy.

4.3 | Educational attainment

Financial literacy also sharply increases with educational attainment—which is strongly associated with math skills as well as age and income. Globally, a gap of about 15 percentage points separates adults with primary, secondary, and tertiary education. In major advanced countries, 52% of adults with secondary education—between 9 and 15 years of schooling—are financially literate. Among adults who have primary education—up to eight years of schooling—that figure is 31%. A similar divide separates adults with secondary education and adults with tertiary education: among adults with at least 15 years of schooling, 73% are financially literate. The education gaps are similar in the major emerging countries. Furthermore, this relation is also confirmed at the country level.

Overall understanding of financial concepts tends to be high in countries where 15-year-old students performed well on the Organisation for Economic Co-operation and Development's (OECD's) 2012 Programme for International Student Assessment (PISA) math test (OECD, 2014). Figure 7 presents the relation linking PISA math test scores with total financial literacy scores, and we observe a strong and significant relation between math scores and financial literacy. However, this relation is not significant after controlling for GDP per capita (Table 3).

4.4 | Historical perspective

People may also have a better understanding of financial concepts when they are confronted with them in their daily lives. The importance of experience is observed in countries that saw periods of hyperinflation. For example, Argentina

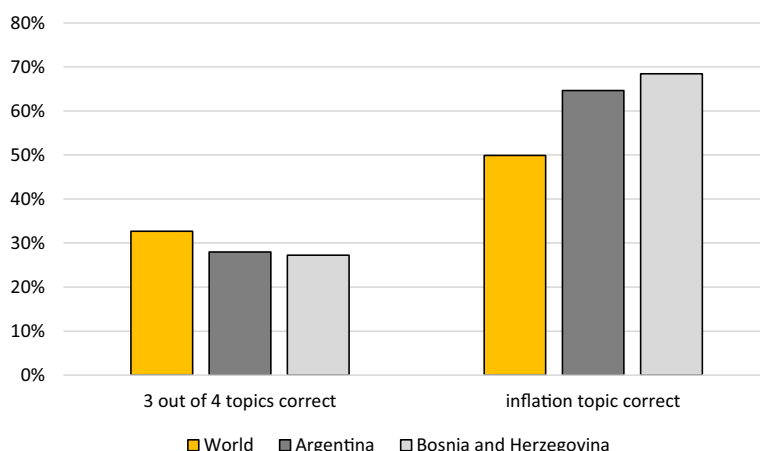


FIGURE 8 Understanding of inflation: Percentage of adults with correct answers [Color figure can be viewed at wileyonlinelibrary.com]
Source: S&P Global FinLit Survey.

struggled with hyperinflation in the late 1980s and early 1990s. At its peak, it took less than 20 days for prices to double (Hanke & Krus, 2013). This experience is reflected in the financial knowledge of people in Argentina. Although their overall financial literacy rate of 28% is lower than the world average, 65% of Argentine adults have an understanding of inflation, exceeding the world average (Figure 8). Similar patterns are observed in Georgia, Bosnia and Herzegovina, and Peru, all of which experienced hyperinflation in the 1990s.⁴

4.5 | Cultural perspective

Other factors may play a role in explaining differences in financial literacy. For example, Chen (2013) finds that languages that grammatically associate the future and the present foster future-oriented behavior. Specifically, he finds that speakers of such languages save more and retire with more wealth.

Many factors other than language may also influence the financial literacy levels. For example, immigrants in a new country may lack familiarity with a country's financial system and its products, which can differ greatly from those in their native countries. Further, a report by the United States Government Accountability Office published in 2010 showed that people with limited English proficiency are less likely than the U.S. population to have accounts at banks and other mainstream financial institutions (US GAO, 2010). They are also more likely to use alternative financial services—such as payday lenders and check-cashing services—that often have unfavorable fees, terms, and conditions.

Cultural differences can also play a role in financial literacy because different populations have dissimilar norms, attitudes, and experiences related to managing money. According to Guiso, Sapienza, and Zingales (2006), culture is a set of beliefs, norms, and preferences that are shared among the members of a cultural group and that transmit unchanged from generation to generation. For instance, in some cultures carrying debt is viewed negatively, which may deter immigrants or people from such cultures from taking loans to purchase homes or cars and build credit histories. Brown, Henchoz, and Spycher (2018) study the effect of culture on financial literacy by comparing secondary school students along the German–French language border within Switzerland. They find that students in the French-speaking area have a lower level of financial literacy than students in the German-speaking area and that students in the German-speaking region are more likely to receive pocket money at an early age and are more likely to have independent access to a bank account.

⁴ Because only a small number of countries experienced recent inflationary periods, we do not conduct a cross-country regression analysis.

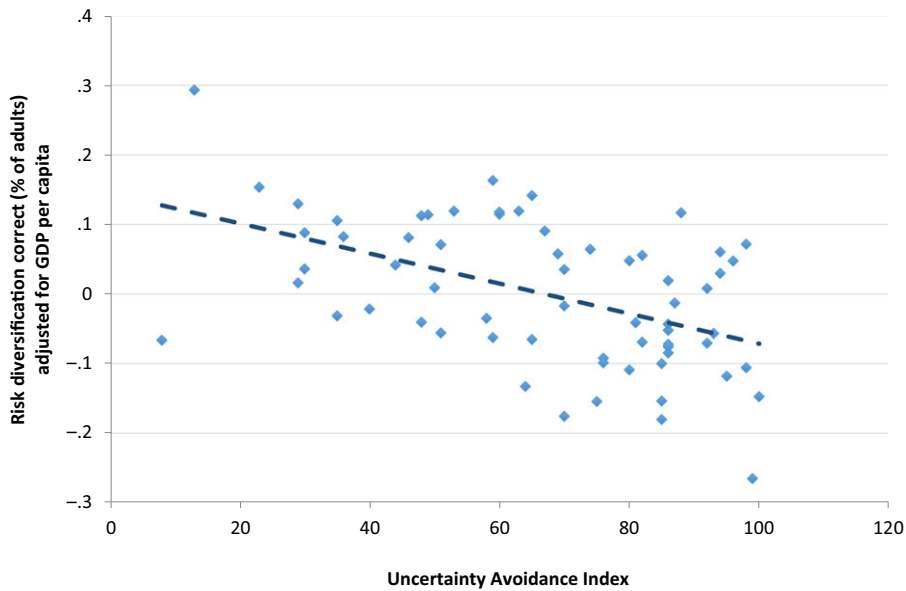


FIGURE 9 UAI and risk diversification [Color figure can be viewed at wileyonlinelibrary.com]

Source: S&P Global FinLit Survey and Hofstede (2001).

One might expect that societies that are more likely to avoid uncertainty know more about risk diversification, or that countries that are more long-term oriented know more about interest rates. To analyze how culture is related to financial literacy, we make use of indicators developed by Hofstede (2001) on cultural dimensions. These dimensions established a major research tradition in cross-cultural psychology and have also been drawn upon by researchers and consultants in many other fields. Our focus is on the Uncertainty Avoidance Index (UAI), and the Long Term versus Short Term index (LTO). We chose to focus on these two indicators because they are the most relevant when considering the risk diversification question and the numeracy question.

The UAI is defined as a society's tolerance for ambiguity, in which people embrace or avoid an unexpected or unknown event. According to Hofstede (2001, p. 60), "countries exhibiting strong UAI maintain rigid codes of belief and behavior and are intolerant of unorthodox behavior and ideas. Weak UAI societies maintain a more relaxed attitude in which practice counts more than principles." Consistent with the investor-learning literature, we hypothesize that people who live in countries with high UAI have a lower knowledge of risk diversification because they have probably had more limited exposure to risk and risk concepts than people who live in countries with low UAI.⁵

Figure 9 presents the relation between knowledge of risk diversification (adjusted for GDP per capita) and the UAI and report the negative relation that we expected. As shown in Table 3, the UAI also shows a significantly negative relation with the financial literacy index, and the risk diversification metric (not shown), after controlling for GDP per capita.

The other relevant cultural dimension is the LTO index. According to Hofstede (2001, p. 178), countries "with a culture that scores high take a more pragmatic approach: They encourage thrift and efforts in modern education as a way to prepare for the future." In this case, the propensity to look to the future would suggest that the concept of interest rates is a familiar one and, hence, that countries with a higher LTO should also in general have a better knowledge of interest rates (measured by numeracy). Figure 10 presents the relation between knowledge of interest rates/numeracy and the LTO index. Notice that the relation between long-term orientation and knowledge of interest rates/numeracy

⁵ For instance, a study of New Zealand students who participated in a national retirement scheme found that greater financial experience has a positive causal effect on financial literacy (Frijns, Gilbert, & Tourani-Rad, 2014).

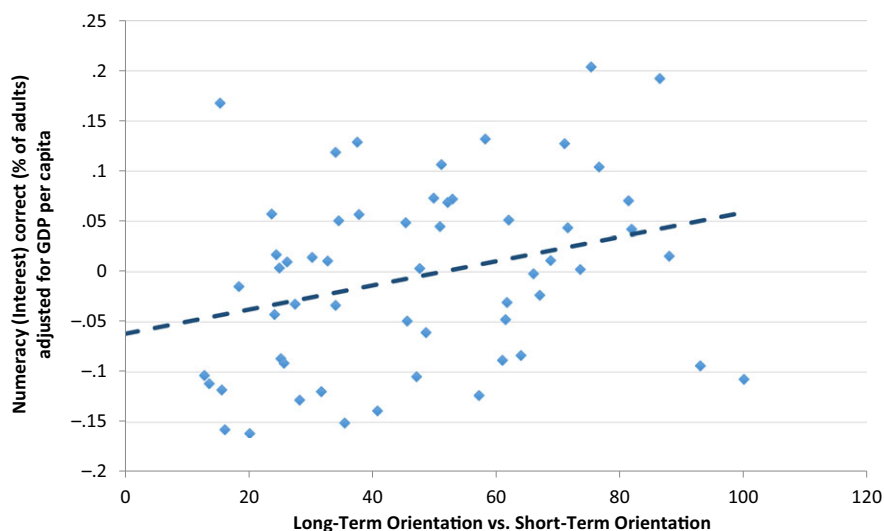


FIGURE 10 LTO and numeracy [Color figure can be viewed at wileyonlinelibrary.com]

Source: S&P Global FinLit Survey and Hofstede (2001).

is positive, as expected. The more people think about how their money will evolve in the future—that is, the more long-term oriented they are—the more people display numeracy in the context of interest rates. However, after controlling for GDP per capita, LTO is positively related to the financial literacy index and risk diversification metric but not at statistically significant levels.

4.6 | Financial stability

Since the onset of the financial crisis, financial literacy has come to the forefront of policy agendas aimed at enhancing financial sector stability. Heavy losses by retail investors during the crisis have led to renewed policies to protect investors from making ill-informed financial decisions. Limited financial literacy is further viewed as one driver of delinquencies in the U.S. (subprime) mortgage market (Gerardi et al., 2013). Individual responsibility for retirement planning and soaring levels of consumer debt have raised the question of whether households have sufficient financial knowledge to make adequate intertemporal consumption decisions and to manage their investments. It is vital to recognize that financial literacy cannot be taken for granted, both in high-income countries with well-developed financial markets and in low-income countries where financial markets may not be so well developed. As discussed earlier, knowledge of risk diversification as one of the components of financial literacy is the lowest and it also displays some of the largest disparities among countries.

Here, we attempt to explore the relation between risk diversification and stability of financial markets, which are key to rational investment choices by individuals and by countries. We use two measures to proxy stability of financial systems: (a) bank Z-scores, which capture the probability of default of a country's commercial banking system—in a nutshell, Z-score compares the buffer of a country's commercial banking system (capitalization and returns) with the volatility of those returns; and (b) bank nonperforming loans to gross loans (%), which is computed as the ratio of defaulting loans (payments of interest and principal past due by 90 days or more) to total gross loans (total value of loan portfolio).

Although we observe no significant relation between bank Z-score and risk diversification for the complete sample of countries, the relation is negative and statistically significant when the sample is restricted to countries in the EU only, implying that within the EU, countries with lower risk diversification knowledge levels also have a greater probability of having experienced a financial markets crash. This is not surprising, because in developed countries, financial



inclusion is greater and there exists a greater risk of financial volatility due to incomplete financial knowledge. This significant negative relation holds for our other two financial literacy variables—that is, knowledge of interest compounding and financial literacy score (three out of four correct answers) as well, implying that higher financial literacy levels are associated with a lower probability of a country's commercial banking system defaulting in the EU.

We see similar results when stability is proxied by nonperforming loans. Specifically, a negative and significant relation is observed between risk diversification and the ratio of nonperforming loans to total loans for countries in the EU. This relation seems to be robust to other measures of financial literacy, such as knowledge of interest compounding.

4.7 | Robustness checks

Overall, our results are robust to several robustness checks conducted to test the sensitivity of the results presented above. First, we define financial literacy score by computing two additional variables: (a) the percentage of adults who know two out of four concepts and (b) the percent of adults who know four out of four concepts. Results on consumer protection and educational ability remain fairly consistent when using different definitions of financial literacy. Second, we run a specification including all national and non-national factors discussed above on financial literacy score; individual scores of risk diversification; and interest compounding for all, poorest half, richest half, and only EU countries (available upon request). Excluding low-income countries, we find a consistently significant relation between the indicators capturing cultural factors (specifically UAI) and various definitions of financial literacy. Educational ability as proxied by the PISA math score continues to be positively correlated with financial literacy; however, it is not statistically significant across any specification.

5 | LINKAGES BETWEEN FINANCIAL LITERACY AND FINANCIAL SERVICES AND SYSTEM

We next explore ways in which financial literacy might be associated with financial development. We consider only high-income OECD countries, which have more developed financial systems and, particularly, well-established financial markets. We also focus on the two questions most related to personal finance—interest compounding—and the question most related to the stability of financial markets—risk diversification.

Financial literacy skills are important for people who use payment, savings, credit, and risk management products. For many, having an account at a bank or other financial institution—or with a mobile money service provider—is an important first step to participation in the financial system (Demirguc-Kunt, Klapper, Singer, & Van Oudheusden, 2015). When people have financial accounts and use digital payments, they are more able to provide for their families, save money for the future, and survive economic shocks (see Klapper, El-Zoghbi, & Hess, 2016 for a review of related literature). Digital payments can also reduce corruption by increasing transparency. And they help empower women by giving them greater control over their finances (Klapper & Singer, 2014). However people who lack the knowledge to effectively use such services can face financial disaster, such as high debt or bankruptcy. It is, therefore, worth exploring the link between financial services and financial literacy. This analysis uses data from the World Bank Global Findex database (<http://www.worldbank.org/globalfindex>), which uses survey data on how individuals in more than 150 countries use financial services.

5.1 | Account owners often lack financial skills

Account owners tend to be more financially savvy, but plenty of them still lack financial skills. Globally, 38% of account-owning adults are financially literate, as are 57% of account owners in major advanced countries and 30% in major emerging countries (Figure 11).

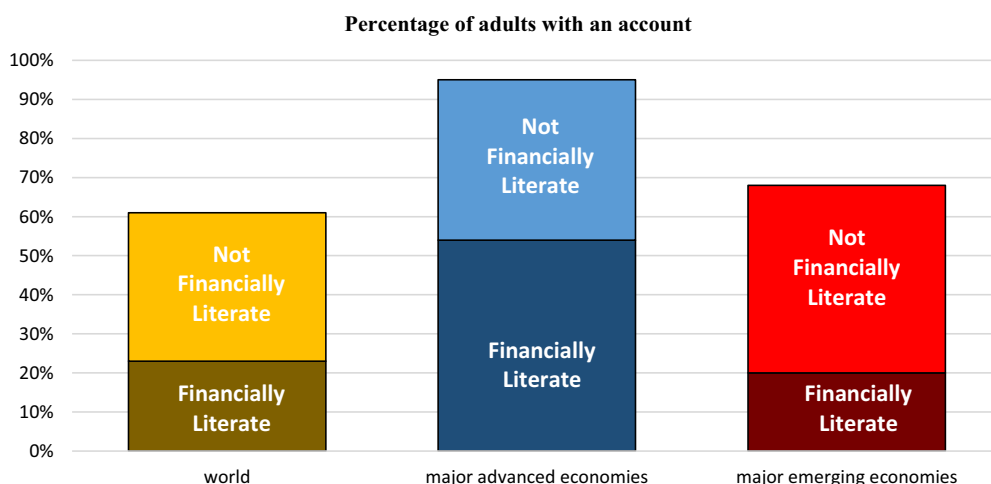


FIGURE 11 Financial literacy among adults with an account: Percentage of adults with an account [Color figure can be viewed at wileyonlinelibrary.com]

Source: S&P Global FinLit Survey.

Note. The height of the bar is the percentage of adults with an account. Major advanced and emerging countries are listed in Figure 1.

Financial literacy gaps exist among account holders even though they generally have stronger financial skills than the population as a whole. For example, in major advanced countries, a man with an account is 8 percentage points more likely to be financially literate than a woman with an account. A similar gap is found between account owners in the richest 60% and poorest 40% of households. Account holders with a primary education are half as likely to be financially literate as their counterparts with a secondary education.

Account owners who lack financial knowledge may not be fully benefiting from what their accounts have to offer. One example is savings. Globally, 57% of adults save money, but just 27% use a bank or other formal financial institution to do so. Others use less safe and less lucrative methods, such as informal savings groups or stuffing cash under a mattress. Only 42% of account owners worldwide use their account to save, and 45% of these adult savers are financially literate. For example, about half of account owners in China use their account to save money, but just 52% of them correctly responded to the question about interest. In the United States, the interest topic is correctly answered by 58% of adults who use formal savings.

Financial skills are even weaker among adults who do not have an account (Figure 12). Globally, 25% of these adults are financially literate, as are 22% in major emerging countries.

Gender, income, and education inequalities also prevail among the unbanked. Worldwide, 27% of unbanked men are financially literate, compared with 22% of unbanked women. In major emerging countries, unbanked adults in the richest 60% of households are 5 percentage points more likely to be financially literate than those in the poorest 40% of households. No matter how the data are sliced, women, the poor, and the lower educated lag behind the rest of the population.

5.2 | Low understanding of interest puts credit users at risk

Credit is more common in rich countries than poor countries. Many borrowers in the emerging world are dependent on family and friends or on loans through informal lenders such as pawnshops and store credit. Access to formal credit is often confined to the rich and well educated, who tend to be more financially savvy. Access and use of credit cards is also limited in countries with weaker credit information environments and less developed financial sectors. In the

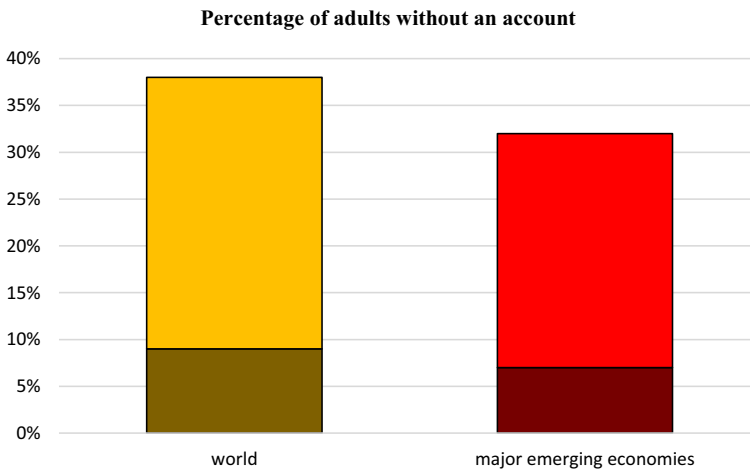


FIGURE 12 Financial literacy among adults who lack an account: Percentage of adults without an account [Color figure can be viewed at wileyonlinelibrary.com]

Source: S&P Global FinLit Survey.

Note. The height of the bar is the percentage of adults without an account. Emerging countries are listed in Figure 1.

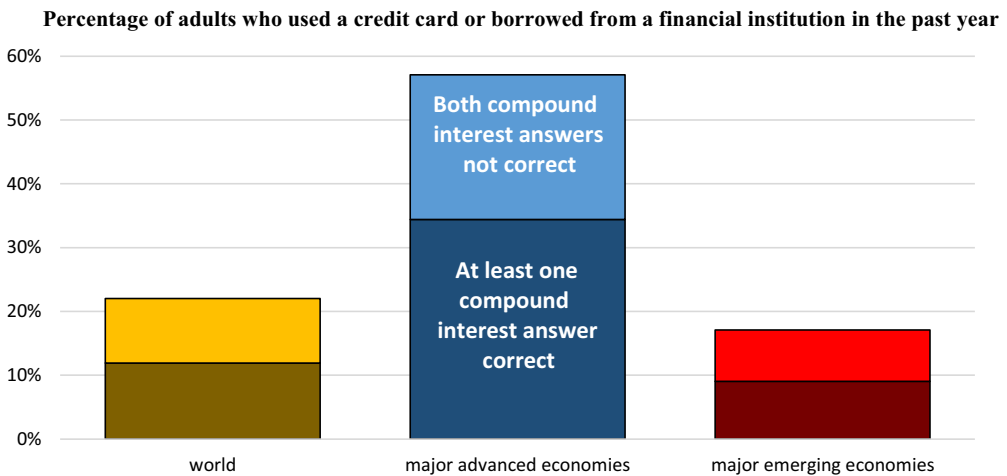


FIGURE 13 Financial literacy among adults who use credit: Percentage of adults who used a credit card or borrowed from a financial institution in the past year [Color figure can be viewed at wileyonlinelibrary.com]

Source: S&P Global FinLit Survey.

Note. The height of the bar is the percentage of adults who used a credit card or borrowed from a financial institution in the past year. The bottom (darker) bar identifies adults who answered correctly at least one of the two questions on interest compounding correctly. Major advanced and emerging countries are listed in Figure 1.

major advanced countries, 51% of adults use a credit card, compared with only 11% of adults in the major emerging countries. A smaller share of adults borrow from a formal financial institution. Fifty-three percent of adults in major emerging countries who use a credit card or borrow from a financial institution are financially literate, much higher than the average financial literacy rate in these countries.

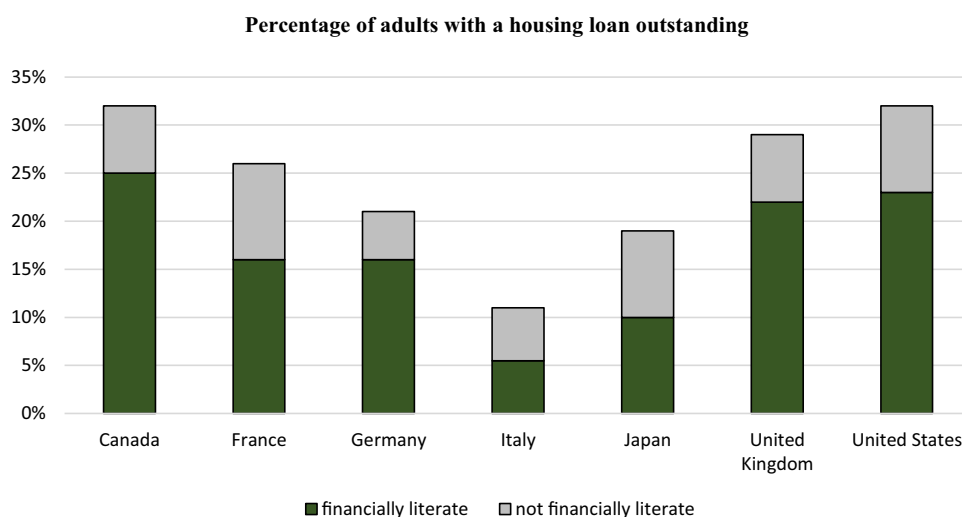


FIGURE 14 Financial literacy among adults with a housing loan: Percentage of adults with a housing loan outstanding [Color figure can be viewed at wileyonlinelibrary.com]

Source: S&P Global FinLit Survey.

Note. The height of the bar is the percentage of adults who have a housing loan outstanding.

Credit cards are gaining popularity in many emerging countries, but knowledge of related financial concepts is not keeping up. Many short-term credit users do not fully understand the speed at which interest compounding can increase total amounts owed (Figure 13). For instance, 32% of adults in Brazil have a credit card, yet 40% of them are financially literate and only half correctly answer the compound interest question. In Turkey, 33% of adults have a credit card, yet just 29% of these users are financially literate and only half understand compound interest.

An interesting exception is the relatively high financial literacy rate among adults with a housing loan. In the major advanced countries, 26% of adults have an outstanding loan at a financial institution in order to purchase a home or an apartment. Because paying for a home requires complex calculations, one would expect homeowners to have stronger financial skills than the average person (Figure 14). Nevertheless, some homeowners still suffer from gaps in financial knowledge and may not understand how quickly their debt can accumulate. In the United States, almost one-third of adults have an outstanding housing loan, and 70% of them correctly answer the compound interest topic. Put differently, three in 10 adults with a housing loan are unable to perform basic interest calculations on their loan payments. This is not a problem for just the United States. In Japan, nearly 20% of adults have an outstanding housing loan, but only half of them are financially literate and just 37% of them correctly answer the compound interest question.

Finally, we examine the relation of individual-level measures of account ownership, formal savings, formal borrowing, and housing finance and different measures of financial literacy, controlling for country-level fixed effects (Table 4). There exists a positive and significant relation between the use of financial services and financial literacy, suggesting that adults who use financial products are more familiar with financial concepts.

Being that households are important consumers of products, depositors of funds, and investors in financial markets, changes in household behavior caused by a high debt burden can have a significant impact on financial markets and the economy. As with the nonfinancial corporate sector, high levels of borrowing increases the vulnerability of households to economic and financial market shocks and may impair their repayment capacity. Although participation in the financial markets as users of credit might increase the financial capability of individuals, insufficient knowledge about risk and interest compounding can lead to market instability.

TABLE 4 Financial access and financial literacy, individual-level regressions

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	3 out of 4 correct				Risk Diversification correct				Compound Interest (at least one correct)
Account at FI	0.0430 ^{***} (0.0089)				0.0230 [*] (0.0125)				
Formal savings		0.0819 ^{***} (0.0146)				0.0528 ^{***} (0.0139)			
Formal borrowing			0.0475 ^{***} (0.0157)				0.0528 ^{***} (0.0126)		
Housing finance				0.0617 ^{***} (0.0140)				0.0510 ^{***} (0.0134)	0.0507 ^{***} (0.0114)
Observations	140,264	140,264	140,264	26,341	140,264	140,264	140,264	26,341	26,341
R ²	0.102	0.106	0.102	0.151	0.153	0.154	0.155	0.174	0.128
Country FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Demographic/income characteristics	YES	YES	YES	YES	YES	YES	YES	YES	YES
European Union countries only	NO	NO	NO	YES	NO	NO	NO	YES	YES
Country no	138	138	138	27	138	138	138	27	27

Note. There are three dependent variables capturing financial literacy—(1) three out of four concepts correct: dummy takes value 1 if individual knows any three out of four concepts on financial literacy and zero otherwise; and (2) risk diversification: dummy takes value 1 if individual answers question on risk diversification correctly, and zero otherwise; (3) compound interest: dummy takes value 1 if either question on interest compounding is answered correctly. All regressions include demographic characteristics: age, age squared, marital status, employment status, rural dummy, income group dummy, gender, and education. Account at financial institution is defined as a dummy taking value 1 if an individual holds an account, and zero otherwise. Formal savings is defined as a dummy which takes value 1 if individual has saved in a financial institution and 0 if not. Formal borrowing is defined as a dummy which takes value 1 if individual has taken a loan from a financial institution, and zero otherwise. Housing finance is a dummy that takes value 1 if individual has outstanding mortgage, and zero otherwise. The regressions are estimated using ordinary least squares with robust standard errors. Standard errors in parentheses. *, **, and *** indicate significance at 10%, 5%, and 1% level, respectively. Data on demographics and financial access variables is from Global Findex data 2014. Source of data on financial literacy is S&P FinLit survey.

6 | CONCLUSION

Worldwide, just one in three adults shows an understanding of basic financial concepts. Financial literacy is higher among the wealthy, well-educated, and those who use financial services. Relatively low financial literacy levels exacerbate consumer risks as increasingly complex financial tools enter the market. Credit products, many of which carry high interest rates and complex terms, are becoming more readily available. Governments are pushing to increase financial inclusion by boosting access to bank accounts and other financial services. Research suggests that financial inclusion can help drive positive development outcomes. But if people lack the knowledge to effectively use financial skills, these opportunities can instead lead to negative outcomes, such as high indebtedness. This is especially true for women, the poor, and the less educated—all of whom suffer from low financial literacy and are frequently the target of government programs to expand financial inclusion.

Given these risks, policymakers should address gaps in financial knowledge and consumer protections. One important step could be designing national strategies for financial literacy. Promoting financial education in school seems also important, in particular to promote financial literacy among the young. Workplace financial education could be a way to promote financial literacy among the adult population. Governments and businesses should take note of the emerging literature on these topics, as financial inclusion becomes a bigger part of the development policy agenda and as digital financial products proliferate.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of the article.

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APPENDIX A: SURVEY METHODOLOGY

Surveys are conducted face-to-face in countries where telephone coverage represents less than 80% of the population or is the customary methodology. In most countries, the fieldwork is completed in 2–4 weeks. In countries where face-to-face surveys are conducted, the first stage of sampling is the identification of primary sampling units. These



units are stratified by population size, geography, or both, and clustering is achieved through one or more stages of sampling. Where population information is available, sample selection is based on probabilities proportional to population size. Otherwise, simple random sampling is used. Random route procedures are used to select sampled households. Unless an outright refusal occurs, interviewers make up to three attempts to survey the sampled household. To increase the probability of contact and completion, attempts are made at different times of the day and, where possible, on different days. If an interview cannot be obtained at the initial sampled household, a simple substitution method is used. Respondents are randomly selected within the selected households by means of the Kish grid. In countries where cultural restrictions dictate gender matching, respondents are randomly selected through the Kish grid from among all eligible adults of the interviewer's gender.

In countries where telephone interviewing is employed, random-digit dialing or a nationally representative list of phone numbers is used. In most countries where mobile phone penetration is high, a dual sampling frame is used. Random selection of respondents is achieved by using either the latest birthday or Kish grid method. At least three attempts are made to reach a person in each household, spread over different days and times of day.

Data weighting is used to ensure a nationally representative sample for each economy. Final weights consist of the base sampling weight, which corrects for unequal probability of selection based on household size, and the poststratification weight, which corrects for sampling and nonresponse error. Poststratification weights use economy-level population statistics on gender and age and, where reliable data are available, education or socioeconomic status. More information on the data collection period, number of interviews, approximate design effect, and margin of error, as well as sampling details for each economy can be found in Demircuc-Kunt et al. (2015).

APPENDIX B: FINANCIAL LITERACY, BY COUNTRY

The percentage of adults who answer at least three out of five questions correctly.

	Financially literate		Financially literate		Financially literate
Afghanistan	14%	Germany	66%	Nigeria	26%
Albania	14%	Ghana	32%	Norway	71%
Algeria	33%	Greece	45%	Pakistan	26%
Angola	15%	Guatemala	26%	Panama	27%
Argentina	28%	Guinea	30%	Peru	28%
Armenia	18%	Haiti	18%	Philippines	25%
Australia	64%	Honduras	23%	Poland	42%
Austria	53%	Hong Kong SAR, China	43%	Portugal	26%
Azerbaijan	36%	Hungary	54%	Puerto Rico	32%
Bahrain	40%	India	24%	Romania	22%
Bangladesh	19%	Indonesia	32%	Russian Federation	38%
Belarus	38%	Iran, Islamic Rep.	20%	Rwanda	26%
Belgium	55%	Iraq	27%	Saudi Arabia	31%
Belize	33%	Ireland	55%	Senegal	40%
Benin	37%	Israel	68%	Serbia	38%
Bhutan	54%	Italy	37%	Sierra Leone	21%
Bolivia	24%	Jamaica	33%	Singapore	59%
Bosnia and Herzegovina	27%	Japan	43%	Slovak Republic	48%
Botswana	52%	Jordan	24%	Slovenia	44%
Brazil	35%	Kazakhstan	40%	Somalia	15%
Bulgaria	35%	Kenya	38%	South Africa	42%
Burkina Faso	33%	Korea, Rep.	33%	Spain	49%
Burundi	24%	Kosovo	20%	Sri Lanka	35%
Cambodia	18%	Kuwait	44%	Sudan	21%
Cameroon	38%	Kyrgyz Republic	19%	Sweden	71%
Canada	68%	Latvia	48%	Switzerland	57%
Chad	26%	Lebanon	44%	Taiwan, China	37%
Chile	41%	Lithuania	39%	Tajikistan	17%
China	28%	Luxembourg	53%	Tanzania	40%
Colombia	32%	Macedonia, FYR	21%	Thailand	27%
Congo, Dem. Rep.	32%	Madagascar	38%	Togo	38%
Congo, Rep.	31%	Malawi	35%	Tunisia	45%
Costa Rica	35%	Malaysia	36%	Turkey	24%
Côte d'Ivoire	35%	Mali	33%	Turkmenistan	41%

(Continues)

(Continued)

	Financially literate		Financially literate		Financially literate
Croatia	44%	Malta	44%	Uganda	34%
Cyprus	35%	Mauritania	33%	Ukraine	40%
Czech Republic	58%	Mauritius	39%	United Arab Emirates	38%
Denmark	71%	Mexico	32%	United Kingdom	67%
Dominican Republic	35%	Moldova	27%	United States	57%
Ecuador	30%	Mongolia	41%	Uruguay	45%
Egypt, Arab Rep.	27%	Montenegro	48%	Uzbekistan	21%
El Salvador	21%	Myanmar	52%	Venezuela, RB	25%
Estonia	54%	Namibia	27%	Vietnam	24%
Ethiopia	32%	Nepal	18%	West Bank and Gaza	25%
Finland	63%	Netherlands	66%	Yemen, Rep.	13%
France	52%	New Zealand	61%	Zambia	40%
Gabon	35%	Nicaragua	20%	Zimbabwe	41%
Georgia	30%	Niger	31%		