The Unsophisticated "Sophisticated": Old Age and the Accredited Investors Definition

Michael Finke, Ph.D., CFP®
Professor, Frank M. Engel Chair of Economic Security
The American College of Financial Services
270 Bryn Mawr Ave, Bryn Mawr, PA, 19010
[redacted]

Tao Guo, Ph.D., CFP®, CFA
Assistant Professor
William Paterson University of New Jersey
1600 Valley Road, Wayne, NJ, 07470
[redacted]

Abstract:

Accredited investors are able to participate in unregistered securities offerings such as private equity, venture capital and hedge funds if they meet income and wealth thresholds. This definition provides a simple screening mechanism intended to restrict the purchase of complex securities to investors who are sophisticated enough to "fend for themselves." We investigate whether older households, who are vulnerable to age-related cognitive decline and are more likely to meet the accredited investor threshold, possess greater financial sophistication than younger nonaccredited investors. We find strong evidence that older households are at risk of meeting the accredited investor definition without having the sophistication needed to avoid high agency costs in a largely unregulated securities market. Accredited households age 80 and older are more than 80% less likely than unaccredited investors age 60-64 to have high financial literacy scores. This reduced financial capability in later life appears to mirror the rate of decline in measures of cognition.

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Old Age and the Accredited Investors Definition

Accredited investors are able to participate in unregistered securities offerings such as private equity, venture capital and hedge funds. These so-called Regulation D offerings[1] raised over $3 trillion of new capital in 2017, which exceeds the amount raised through registered securities (Bauguess, Gullapalli, and Ivanov, 2018). Unregistered securities offer fewer regulatory frictions to sophisticated investors in order to preserve a balance between investor protection and capital formation.

Limiting Regulation D offerings to accredited investors is intended to restrict the purchase of complex securities to investors who are sophisticated enough to "fend for themselves" and who can withstand significant losses (Sargent, 1990; GAO, 2013). An individual investor is qualified as an accredited investor if she has an annual income over $200,000 ($300,000 for a married couple) or a net worth over $1 million excluding primary residence.[2]

Identifying accredited investors through income and net worth thresholds is intended to ensure that participants in opaque and complex financial markets have sufficient financial experience, sophistication and adequate bargaining power (GAO, 2013). Wealthy investors presumably possess a greater ability to effectively evaluate securities and monitor issuers, or to hire experts that can help them select unregistered investments. A positive correlation between wealth and financial sophistication is consistent with a human capital model in which the expected benefit from an investment in acquiring financial sophistication is motivated by greater financial resources

[1] Regulated under the U.S. Securities and Exchange Commission (SEC)'s Regulation D of 1982.
[2] Although the criteria initially used only individual income and net worth to determine eligibility, in 1988 the SEC added criteria of joint annual income of a married couple. The 2010 Dodd-Frank Act requires the exclusion of the primary residence value in the calculation of net worth.

(Jappelli and Paduala, 2013), and there is evidence that economic decision-making quality increases with household wealth (Van Rooij, Lusardi and Alessie, 2012, Choi, Kariv, Muller and Silverman, 2014).

The elderly represent a growing population of accredited investors who may not possess the ability to effectively evaluate complex securities. Scores on a range of decision-making quality tests decline in later life as a result of age-related cognitive decline (Salthouse, 2010). Risk-adjusted investment performance of individuals over age 70 is about 3% lower than younger investors, and this underperformance widens to 5% among older investors with greater wealth (Korniotis and Kumar, 2011). Older borrowers are more susceptible to financial mistakes when making mortgage and credit card decisions than middle age borrowers (Agarwal, Driscoll, Gabaix, and Laibson, 2009). Financial knowledge scores fall at a rate that is consistent with measures of decline in general cognitive ability in old age, yet the elderly do not appear to recognize that their financial skills have deteriorated (Finke, Howe and Huston, 2017).

The ability to access high quality financial advisors has also been cited as a rationale for the use of wealth and income thresholds to identify accredited investors, although unregistered security brokers have operated in a "gray market" with little regulatory oversight (Sjoquist, 2005). Egan, Matvos, and Seru (2019) find that brokerage firms employing a higher percentage of advisers with records of prior misconduct cluster in regions with a high percentage of residents over age 65. In 2019, the SEC charged a broker of unregistered securities with operating a $1.2 billion Ponzi scheme fraud that targeted seniors (SEC, 2019).

Older investors whose financial sophistication may be declining, but who hold significant financial assets, may be particularly attractive targets for brokers of complex financial securities. These investors may have been even more knowledgeable than the average investor early in retirement,

but experience a decline in decision-making ability later in life that renders them less able to adequately evaluate complex securities offerings and the advisors who sell them.

Since there are lower information disclosure requirements on the issuers, unsophisticated accredited investors can be particularly vulnerable to sales of unsuitable products. Regulation D also prohibits general solicitation or general advertising of Regulation D offerings. With the limitation of solicitation, an individual who has developed a long-term relationship with a brokerage firm may receive frequent offers to participate in exempt transactions. Unsophisticated wealthy individuals are more likely to invest in financial products that may lead to an overly risky and undiversified portfolio (Friedman, 1994). Even financially sophisticated accredited investors may not have the specific knowledge needed to avoid attractively-presented investment opportunities that are suboptimal, but are aggressively sold because they generate high broker commissions.

The assumption that wealth is associated with greater financial sophistication is particularly problematic when defined contribution savings are used to assess financial wealth thresholds among retirees who in previous generations may have instead held claims to pension assets. Higher-income households with little knowledge of finance may be particularly vulnerable to abusive unregistered securities sales as they accumulate retirement savings over the life cycle.

This paper contributes to the literature by investigating whether the Regulation D income and wealth thresholds are an accurate measure of financial sophistication among older investors. Using two nationally representative data sets that contain detailed financial sophistication measures, we test whether older respondents who meet accredited investor thresholds possess greater financial sophistication than other investors. We find that older accredited investors have significantly lower financial sophistication than younger accredited investors, and after age 80 have lower financial

sophistication scores than younger unaccredited investors. Reduced financial capability among older investors suggests that the SEC should consider exempting investors over age 80 from accredited investor eligibility unless working with a financial advisor subject to a fiduciary standard of care.

Background

The U.S. equity market can be split into public and private segments based on the different disclosure requirements of the SEC. Securities issuers may participate in either or both of the market segments. The private equity market is more opaque, and information asymmetry may present opportunities for lower quality firms to obtain capital at a lower cost. This leads to the possibility that some lower quality firms will choose to acquire capital in the private equity market where disclosure is not required, while the more financially sound firms will choose to participate in the public equity market to reveal their high quality (Akerlof, 1970, Wu, 2004). These firms will target less sophisticated investors who are least capable of evaluating the quality of complex securities.

One way to ensure that higher quality firms can obtain capital in private equity markets with high information asymmetry is to restrict buyers to those able to accurately evaluate the security. The SEC's decision to limit the sale of private security offerings to only sophisticated investors is justified by this rationale. Reduced compliance requirements significantly benefit private equity issuers, while the rent extraction costs on individual investors is limited through restricted market participation. Exempting the private equity insurers from disclosure and anti-fraud provisions reduces the compliance cost of small businesses, for example, by enabling them to maintain time-sensitive information. Disclosure and anti-fraud provisions on these small businesses also produce less marginal benefit to the sophisticated investors who are better able to evaluate the quality of

the security. Limiting market participation therefore can be considered an acceptable policy alternative to costly disclosure on the condition that an effective screening mechanism is available to accurately identify investors best able to evaluate the quality of opaque securities (Leuz and Wysocki, 2016).

Adopted before Regulation D, the SEC Rules 146 and 242 were the first to identify eligible investors in private unregistered offerings. Under Rule 146, the issuers of private offerings should have reasonable grounds to believe the investor or his representative has the knowledge needed to be able to bear the economic risk of investment. But it is still up to the issuers to evaluate the sophistication and risk capacity of the investor (Temple, 1974; GAO, 2013). Rule 242 aimed to provide objective standards of eligible investors. It is the first legal document that defines an accredited investor as any individual investor who purchases at least $100,000 of the issuer's securities or is employed as the issuer's director and executive officer. Block purchasers are deemed to be eligible investors because they should possess the economic bargaining power to demand any information they need to make an informed investment decision. This rule enables wealth to be used as a criterion for identifying qualified investors, regardless of their financial sophistication. This notion that wealth can replace sophistication was later carried over to Regulation D (Friedman, 1994). Issuers' directors and executive officers are deemed to be eligible because they should understand the issuer's business and financial structure and have access to necessary investment information (Satkowski, 1981; GAO, 2013).

Regulation D, developed to replace the SEC Rules 146 and 242, defines accredited investors through the income and net worth criterion. Scholars have suggested that many other rationales drove the SEC's decision rather than using the criterion as the proxy of investor experience and sophistication. Sufficient income and wealth ensures that investors can withstand financial losses

or be able to hold the investment for a substantial period of time to avoid significant liquidation lost (Friedman, 1994; GAO, 2013). In response to criticism that Rule 242 excluded sophisticated investors who invest less than $100,000 in an issuer's securities, the SEC added investors who had substantial income and net worth in their definition of an accredited investor, which essentially prioritized wealth over other possible measures of sophistication (Fletcher, 1988; Friedman, 1994; GAO, 2013). Sufficient income and wealth also gives investors the ability to purchase advice from knowledgeable and sophisticated advisors (Sargent, 1990; Karmel, 2007) and to diversify their portfolios in order to hedge the risk of private offering securities with other types of investments (Sargent, 1990).

The use of wealth thresholds as a screening mechanism to identify investors with the sophistication needed to effectively invest in unregistered securities without additional regulatory barriers is appealing for a number of reasons. Wealth is a much more objective and easily verified measure than a more direct financial sophistication test. A sophistication exam would be far more difficult to create and administer, and would likely create a barrier to investment in an economically important securities market. If wealth is a relatively weak predictor of financial sophistication, and if there is a group of wealthy investors who are consistently less sophisticated than other investors, then this will reduce the efficiency of wealth as an appropriate screening criterion to avoid more significant regulatory oversight. The existence of a group of investors who meet the wealth thresholds but do not possess the sophistication needed to effectively evaluate unregistered securities creates a market for opportunistic securities brokers to sell lower-quality securities that provide higher compensation (Del Guercio and Reuter, 2014). Allowing the sale of unregistered securities to less sophisticated investors both reduces the efficiency of capital formation and could result in a significant welfare loss for households who purchase suboptimal investments.

Methods

In order to estimate the distribution of investors who meet the income and wealth thresholds needed to purchase unregistered securities, we use data from the Survey of Consumer Finances (SCF). The SCF is a triennial cross-sectional survey of U.S. families conducted by the Federal Reserve Board. The SCF contains the most detailed information on financial assets among households of all age groups among available surveys. We identify accredited investors in the SCF using the SEC's current definition. The survey wave of 2016 is used in this study and replicate weights are used so that descriptive statistics are representative of the entire U.S. population.

The Consumer Finance Monthly (CFM) and the Health and Retirement Study (HRS) each contain comprehensive instruments that measure financial sophistication, and the HRS contains a widely-used measure of cognitive ability. The CFM is a cross-sectional survey of U.S. households conducted by the Consumer Finance Research Group within The Ohio State University. The CFM collects households' financial information and includes a financial literacy assessment instrument that contains questions measuring the respondents' confidence, knowledge and ability in financial domains such as basics, borrowing, investing and insurance (Huston, 2010). The financial literacy instrument was collected from a large sample of respondents in our analysis (7,179 respondents), which allows us to identify a significant number of accredited investors from all age groups. Financial sophistication is measured as the percentage of correct responses to 16 financial literacy questions. A measure of financial sophistication in the investment domain alone is calculated as the percentage of correct responses to 4 financial literacy questions that directly related to investment decisions. The list of financial sophistication questions is provided in Appendix A. The 4 investment-related questions are noted with an asterisk.

The HRS is a longitudinal household survey administered by the Institute for Social Research at the University of Michigan. The survey provides detailed information on household demographics, health, finances, a measure of general cognitive ability, and in the 2010 survey year includes a series of financial sophistication questions in an experimental module conducted on a subsample of respondents. The sample size of respondents 60 or older who participated in this financial sophistication experimental module is 1,108. Financial sophistication is measured as the percentage correct of 7 finance-related questions available in the HRS that contained an unambiguously correct answer. These financial sophistication questions are provided in Appendix B. A 27-point cognition score is calculated based on cognitive tests conducted on all HRS respondents, including immediate and delayed word recall, a serial sevens subtraction, and backward number counting. This score has been widely used as a proxy of cognitive function (Crimmins, Kim, Langa and Weir, 2011, Langa, Larson, Crimmins, Levin, Kabeto and Weir 2017). To maintain simplicity, this cognition measure is converted to percentage for easy comparison with the financial sophistication measure.

We conduct a serious of regression analyses to explore the hypothesis that older accredited investors are financially sophisticated. In the first set of models, we test whether older investors are more likely to become accredited investors due to the net worth criteria. If investors follow a life cycle savings model (Modigliani, 1966), financial wealth will peak in early retirement and gradually decline to fund later-life spending. We therefore investigate likelihood of being qualified as an accredited investor by estimating a logistic regression model as shown below:

$$Logit\left(Pr\ (AIQ_i)\right) = \beta_0 + \sum_1^k \beta_{1,k}\ DAge_{i,k} + \beta_2 FSQ_i + \sum_1^k \beta_{3,k} DAge_{i,k} * FSQ_i + \beta_4\ IncR_i + \sum_1^j \beta_{5,j}\ CTL_{i,j} + \varepsilon_i$$

(1)

Where AIQ_i is the dummy variable of being qualified as accredited investor for respondent (i), $DAge_{i,k}$ is three dummy variables for age below 40, age between 60 to 79 and age above 80, FLQ_i is the financial sophistication quintile of respondent (i), $IncR_i$ is annual income quintile of respondent (i), and $CTL_{i,j}$ is a vector of 10 individual characteristics as control variables.

The purpose of the accredited investor criterion is to serve as a proxy for the sophistication needed to trade complex unregistered securities. In the second set of tests, we regress accredited investor dummies and other demographic variables on the financial sophistication measures among respondents age 60 and above. To illustrate differences among age groups, we create dummy variables for each accredited investor category in each age group. The following Ordinary Least Square (OLS) specification is estimated to explore whether accredited investors from various age groups possess higher financial sophistication than non-accredited investors.

$$FS_i = \beta_0 + \sum_1^k \beta_{1,k}\, DAIAge_{i,k} + \sum_1^j \beta_{2,j} DNAIAge_{i,j} + \sum_1^h \beta_{3,h}\, CTL_{i,h} + \varepsilon_i \qquad (2)$$

Where FS_i is the financial sophistication measure of respondent (i), $DAIAge_{i,k}$ is five dummy variables for accredited investor from different age group, $DNAIAge_{i,k}$ is four dummy variables for non-accredited investor from different age group, and $CTL_{i,j}$ is a vector of ten individual characteristics as control variables. It is reasonable to argue that our financial sophistication measure is a broad proxy while investing in unregistered securities only requires sophistication in investment domain. We then follow the same model specification and investigate whether accredited investors from various age groups possess higher sophistication in investment domain only. To better understand whether lower investing ability scores are related to age-related cognitive decline, we also model cognitive ability scores as a function of control variables including age.

Our third set of regressions investigate whether the investor's financial sophistication is within the top third of the entire population. Presuming the top third of financially sophisticated investors could be able to navigate in the private equity market, we are interested in knowing whether the current definition can accurately identify these investors. To test this hypothesis, the following logistic regression model is estimated:

$$\text{Logit}\left(\Pr\left(HFS_i\right)\right) = \beta_0 + \sum_1^k \beta_{1,k}\, DAIAge_{i,k} + \sum_1^j \beta_{2,j} DNAIAge_{i,j} + \sum_1^h \beta_{3,h}\, CTL_{i,h} + \varepsilon_i \quad (3)$$

Where HFS_i is a dummy variable identifying whether respondent (i) possesses the top one third of financial sophistication, age dummy and control variables are included in the model as in Eq 2. Similarly, we also test the hypothesis that accredited investor's investment specific sophistication and overall cognitive ability is within the top third of the entire population.

Lastly, we investigate the decision-making quality of accredited investors, especially those at old ages. In the CFM survey, interviewers were asked after the interview to evaluate how much the respondent understood these survey questions. Similarly in an investment transaction, if an investor is unable to understand a question and follow the conversation, his/her decision could be partial and even manipulated by the investment professional. We therefore use whether respondents had a good understanding of the survey as a proxy of the decision-making quality. To test this hypothesis, the following logistic regression model is estimated:

$$\text{Logit}\left(\Pr\left(GUD_i\right)\right) = \beta_0 + \sum_1^k \beta_{1,k}\, DAIAge_{i,k} + \sum_1^j \beta_{2,j} DNAIAge_{i,j} + \varepsilon_i \quad (4)$$

$$\text{Logit}\left(\Pr\left(GUD_i\right)\right) = \beta_0 + \sum_1^k \beta_{1,k}\, DAIAge_{i,k} + \sum_1^j \beta_{2,j} DNAIAge_{i,j} + \sum_1^h \beta_{3,h}\, CTL_{i,h} + \varepsilon_i \quad (5)$$

Where GUD_i is the dummy variable of whether the respondent had a good understanding of the survey questions, $DAIAge_{i,k}$ is three dummy variables for accredited investor from different age group, $DNAIAge_{i,k}$ is two dummy variables for non-accredited investor from different age group.

A vector of control variables is not included in Eq 4 (reduced model) and is included in Eq 5 (full model).

Results

Figure 1 shows average financial literacy scores from the Consumer Finance Monthly by age in order to evaluate the hypothesis that accredited investors have greater financial sophistication. Respondents whose wealth or income qualifies them as accredited investors have higher financial literacy scores than non-accredited investors in every age category. Consistent with human capital investment models, financial literacy scores tend to rise during adulthood for accredited investors and then begin falling after age 60. Among non-accredited investors, financial literacy scores remain constant from young adulthood through middle age and also exhibit a decline after age 60.

[Figure I is inserted here]

Table I presents the summary statistics comparing accredited investors and non-accredited investors in different age groups from the 2016 Survey of Consumer Finances. The average wealth of accredited investor households is about $5.5 million. Accredited investors are less than 10% of the U.S. population yet they hold 76% of the total U.S. household wealth. 3.7% of the U.S. population are accredited investors over 65, and these older accredited investors hold 30% of U.S. household wealth. Nearly one in five accredited investors is age 75 or older, and these older accredited investors control about 13% of total household wealth. In contrast, only 9.5% of non-accredited investors are age 75 or older, and these older household own 4.1% of total wealth.

[Table I is inserted here]

Table II presents the summary statistics of financial sophistication among investors over 60 by age group. Both accredited and non-accredited investors experience declines in financial sophistication in old age. The percentage of financial literacy questions correctly answered among accredited investors age 80 and over was about half (45.7%) the score at age 60-64 (78.4%). Accredited investors above age 80 had lower financial literacy scores than every group of non-accredited investors younger than age 75. We see the same patterns in the HRS. For both accredited and non-accredited investors, financial literacy declines with age. The literacy score for accredited respondents age 80 and older is lower than any group of non-accredited investors in their 60s or 70s. Accredited investors over 80 have lower financial sophistication scores than non-accredited investors in their 60s in both surveys.

[Table II is inserted here]

Results from Table III show the likelihood that a household will qualify as an accredited investor, estimated through logistic regression. Odds ratios are provided in the table. Households age 80 and older are 213% more likely to be classified as accredited investors. The likelihood of being an accredited investor rises by 13% for each increase in financial literacy quartile. Within age categories, however, the likelihood of being an accredited investor only rises with financial literacy among respondents between the age of 60 and 79. More financially literate respondents age 80 and older are not more likely to be an accredited investor, and respondents younger than age 40 are less likely to be accredited if they are more financially literate. Among control variables,

investment in tax sheltered accounts, income, and stock ownership are stronger predictors of being an accredited investor than financial sophistication.

[Table III is inserted here]

Table IV shows the predictors of financial literacy scores using both the CFM and HRS data sets, as well as predictors of cognition in the HRS. After controlling for demographic variables that may be associated with financial sophistication, we find that accredited investors above 75 have significantly lower financial literacy scores than the reference group of non-accredited investors age 60-64 in both data sets. In the CFM, which has a larger sample size and a more comprehensive measure of financial literacy, the relation between age and financial literacy is monotonic and negative as age increases. Predicted scores among accredited respondents age 75-59 are 12% lower than non-accredited respondents age 60-64, and predicted scores among accredited respondents age 80 and older are 19.4% lower. In the HRS, financial literacy scores among accredited respondents age 80 and above are 18.4% lower than among unaccredited respondents age 60-64. In the CFM, unaccredited investors have consistently lower financial literacy scores within each age group, but older accredited investors have lower financial literacy scores than younger unaccredited investors. Predictors of cognition show a nearly identical age-related decline in performance among accredited investors after age 80. Accredited investors age 80 and older have cognitive ability scores that are 16% lower than non-accredited investors age 60-64, while non-accredited investors age 80 and older have 14% lower cognition scores.

Consistent with the literature, higher education, being male, married, and white are positively associated with financial sophistication. Financial experience variables such as homeownership,

ownership of stocks/mutual funds, and investing in tax advantaged accounts are positively associated with financial sophistication. The results from HRS are similar.

[Table IV is inserted here]

Table V provides the results estimated through a logistic regression model and investigate whether accredited investors' financial sophistication is within the top third of the entire population within each of our financial sophistication domains. The results are similar to those in our OLS analyses. Among respondents age 60-64, accredited investors are 121% more likely to have high financial literacy than unaccredited respondents of the same age. Accredited respondents age 75-79, however, are 55% less likely to have high financial literacy than unaccredited respondents age 60-64. Accredited respondents age 80 and above are 87% less likely to have high financial literacy scores than younger unaccredited investors. In the Health and Retirement Study, accredited investors over age 80 are similarly 83% less likely to have a high financial literacy score. The predicted likelihood of being highly financially literate among accredited respondents age 80 and older is lower than the predicted likelihood of having less than a high school degree in the CFM (-72%) and in the HRS (-74%).

[Table V is inserted here]

Table VI shows the likelihood of having a "good" understanding of survey questions, evaluated subjectively by the interviewer, among accredited investors from various age groups. Similar to prior analyses, younger (age 60-69) accredited investors are significantly more likely to

demonstrate a good understanding of survey questions than younger non-accredited investors. Interviewers are 77% less likely to evaluate accredited investors age 80 and older as having a good understanding of survey questions than non-accredited respondents in their 60s. Similar to the results from analyses of financial competency, there appears to be little difference in performance between non-accredited and accredited respondents age 80 and older. In a full model that controls for demographic characteristics, the oldest accredited investors are 82% less likely than younger non-accredited investors to show a good understanding of basic survey questions.

[Table VI is inserted here]

Conclusion

The wealth and income-based definition of accredited investors assumes that households with greater financial resources are sophisticated enough to invest in highly complex unregistered financial securities. We investigate whether respondents who meet the accredited investor definition are more financially sophisticated, and focus on the possibility that older households, who are more likely to experience age-related cognitive decline, are less likely to be financially sophisticated. We find strong evidence that older households are at greatest risk of meeting the accredited investor definition without having the sophistication needed to avoid high agency costs in a largely unregulated securities market. Advanced age is also a strong predictor of meeting the accredited investor threshold.

In two data sets containing a financial literacy measure and financial information needed to determine accredited status, we find that accredited households age 80 and older are more than 80% less likely than unaccredited investors age 60-64 to have high financial literacy scores. Respondents with less than a high school degree were more likely to have a high financial literacy

score than older accredited respondents in a multivariate analysis. While accredited investors are more financially literate than unaccredited investors within each age group, older accredited investors had significantly and sharply lower financial literacy scores than younger unaccredited investors.

Other measures of decision-making ability available in the HRS including measures of cognition and a subjective evaluation of a participant's ability to understand survey questions show an identical pattern of age-related decline in capability. While accredited investors exhibit significantly higher cognitive ability scores than non-accredited investors in their 60s, accredited investors age 80 and older have far lower objective and subjective cognition scores than non-accredited investors in their 60s. Much of the decline in financial capability in old age appears to be related to age-related cognitive decline.

The Dodd-Frank Act required the SEC to review the definition of accredited investors in its entirety every 4 years starting in 2014. Our results provide evidence that the SEC may need to reevaluate the current definition among older investors who are more likely to meet the wealth threshold but do not possess the sophistication to effectively trade in complex securities.

Since the establishment of Regulation D, the SEC has rarely adjusted the income and net worth threshold. The only significant adjustment was the exclusion of primary residence from the calculation of net worth. Researchers suggest that the erosion of the threshold has allowed more investors to be qualified as accredited investors than the SEC initially intended. The GAO (2013) shows that the percentage of accredited investors increased from 1.87% in 1982 to 7.2% of total households even after the exclusion of primary residence from the net worth calculation. This could expose more unsophisticated investors to investments with potentially high agency costs in an important securities market that currently has little oversight (Edwards, 2006).

The Jumpstart Our Business Startups (JOBS) act of 2012 adds another level of complexity. To further facilitate capital acquisition by small businesses, the act directs SEC to implement a rule that would permit Regulation D issuers to use general solicitation and advertising when all the purchasers are accredited investors. Even though the SEC imposes additional disclosure requirements, removing the limitation of general solicitation will potentially expose more unsophisticated wealthy individuals to the risky unregistered private offerings (GAO, 2013).

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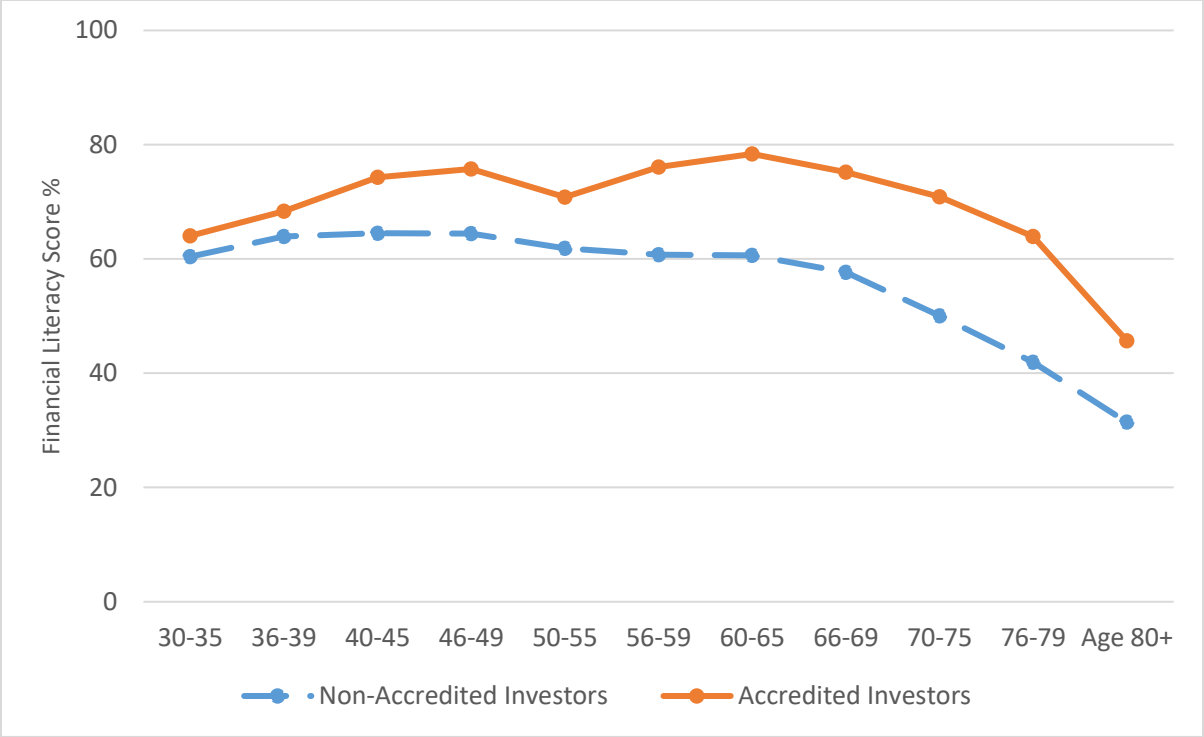

Figure I: Financial Sophistication of Accredited and Non-Accredited Investors by Age

*Source: Consumer Finance Monthly, 2013

Table I: Population and Wealth of Accredited and Non-Accredited Investors

Age Group	Non-accredited Investors			Accredited Investors			
	% of Population	% of Total Wealth	Average Wealth ($)	% of Population	% of Accredited Investors	% of Total Wealth	Average Wealth ($)
<64	68.74%	15.23%	152,766	5.93%	61.51%	45.77%	5,321,589
65-69	7.04%	2.78%	272,139	1.20%	12.45%	9.86%	5,642,167
70-74	5.07%	2.20%	298,954	0.82%	8.51%	6.87%	5,807,568
75-79	4.20%	1.85%	303,237	0.64%	6.64%	5.86%	6,328,039
80+	5.30%	2.29%	298,181	1.05%	10.89%	7.29%	4,777,315
75+	9.50%	4.14%	300,417	1.69%	17.53%	13.15%	5,363,020

*Source: Survey of Consumer Finances, 2016

Table II: Financial Literacy by Accredited Investors and Age

Age	Consumer Finance Monthly					Health and Retirement Study				
	Financial Literacy		Sample Size			Financial Literacy		Sample Size		
	Non-accredited Investors	Accredited Investors	Non-accredited Investors	Accredited Investors	Total	Non-accredited Investors	Accredited Investors	Non-accredited Investors	Accredited Investors	Total
60-64	60.37	78.44	26.05%	2.83%	1,199	63.81	76.69	21.82%	1.72%	261
65-69	58.69	75.91	19.41%	2.82%	923	62.63	74.73	16.68%	1.18%	198
70-74	50.39	70.59	16.01%	1.64%	733	59.58	80.36	21.10%	2.16%	258
75-79	43.25	64.96	12.54%	0.80%	554	59.43	63.16	15.78%	1.71%	194
80+	31.43	45.70	17.13%	0.77%	743	55.58	57.14	16.50%	1.36%	198

*Source: Consumer Finance Monthly, 2013; Health and Retirement Study, 2014

Table III: Likelihood of Accredited Investor Qualification, Estimated Through Logistic Regression

DV: Accredited Investors	*Odds Ratio*
Age <40	0.77
Age 60-79	1.49*
Age 80+	3.13**
Financial Literacy Quartile	1.13*
Age <40 * FLQ	0.72*
Age 60-79 * FLQ	1.24**
Age 80+ * FLQ	0.79
Income Rank	1.87***
<High School	1.17
Some College	1.05
College	1.37*
Graduate	1.38*
White	1.29
Male	1.69***
Homeowner	1.53*
Married	0.73***
Tax Sheltered	2.78***
Stock/MF	1.74***
Sample Size	7179

***,**,* indicate significance at the 0.01, 0.05 and 0.10 levels, respectively.

*Source: Consumer Finance Monthly, 2013

Table IV: Financial Literacy by Accredited Investors from Various Age Groups, Estimated Through Ordinary Least Squares Regression

	Consumer Financial Monthly		Health and Retirement Study	
	Overall FL	*Investment FL*	*Overall FL*	*Cognition*
Age 60-64 Accredited	8.49***	12.63***	2.4	3.07
	(2.20)	(2.91)	(4.69)	(3.59)
Age 65-69 Accredited	6.24***	9.38***	3.95	4.01
	(2.27)	(3.00)	(5.54)	(3.77)
Age 65-69 Non-accred.	-1.38	-0.82	-0.13	-1.36
	(1.08)	(1.42)	(1.91)	(1.39)
Age 70-74 Accredited	-1.33	1.50	5.71	-5.89*
	(2.88)	(3.81)	(4.25)	(3.02)
Age 70-74 Non-accred.	-5.82***	-4.11***	-2.78	-2.52*
	(1.17)	(1.55)	(1.80)	(1.31)
Age 75-79 Accredited	-7*	-6.50	-7.9*	-4.37
	(4.12)	(5.44)	(4.70)	(3.27)
Age 75-79 Non-accred.	-11.85***	-13.30***	-2.9	-5.62***
	(1.27)	(1.68)	(1.97)	(1.43)
Age 80+ Accredited	-19.37***	-17.61***	-18.42***	-15.86***
	(4.10)	(5.42)	(5.25)	(3.81)
Age 80+ Non-accred.	-22.33***	-22.48***	-6.94***	-14.09***
	(1.17)	(1.54)	(1.94)	(1.41)
<High School	-10.12***	-9.67***	-8.46***	-8.34***
	(1.81)	(2.38)	(1.71)	(1.25)
Some College	8.43***	8.82***	3.15**	3.4***
	(1.04)	(1.38)	(1.57)	(1.14)
College	14.67***	16.84***	11.13***	6.93***
	(1.09)	(1.44)	(1.67)	(1.22)
Graduate	17.5***	20.12***	N/A	N/A
	(1.14)	(1.5)		
White	8.63***	9.98***	3.39**	4.99***
	(1.16)	(1.53)	(1.58)	(1.12)
Male	4.2***	6.19***	5.85***	-3.98***
	(0.76)	(1.00)	(1.22)	(0.89)
Homeowner	4.58***	5.25***	3.78**	1.6
	(1.27)	(1.68)	(1.59)	(1.15)
Married	4.66***	4.49***	0.13	0.9
	(0.79)	(1.04)	(1.37)	(1)
Tax Sheltered	5.68***	7.96***	6.48***	2.99***
	(0.86)	(1.14)	(1.35)	(0.99)
Stock/MF	6.21***	8.91***	3.48**	1.04
	(0.82)	(1.08)	(1.51)	(1.09)
Sample Size	3848	3848	1108	1108
Adjusted R^2	0.37	0.32	0.23	0.28

***,**,* indicate significance at the 0.01, 0.05 and 0.10 levels, respectively. Standard Errors are reported in brackets

Table V: Likelihood of High Financial Literacy by Accredited Investors from Various Age Groups, Estimated through Logistic Regression

	Consumer Financial Monthly		**Health and Retirement Study**	
DV: Top 33% FL Individuals	*Overall FL*	*Investment FL*	*Overall FL*	*Cognition*
Age 60-64 Accredited	2.21***	2.46***	0.94	7.43*
Age 65-69 Accredited	2.07***	1.7**	1.54	2.19
Age 65-69 Non-accred.	1.16	1.00	1.00	1.00
Age 70-74 Accredited	1.09	0.80	1.60	0.72
Age 70-74 Non-accred.	0.80*	0.77**	0.93	0.75
Age 75-79 Accredited	0.45**	0.96	0.76	0.80
Age 75-79 Non-accred.	0.46***	0.46***	0.75	0.54***
Age 80+ Accredited	0.13***	0.32***	0.15**	0.08***
Age 80+ Non-accred.	0.13***	0.22***	0.56**	0.16***
<High School	0.28***	0.2***	0.27***	0.46***
Some College	2.31***	1.71***	1.46*	1.44**
College	4.57***	2.84***	3.11***	2.89***
Graduate	5.25***	3.77***	N/A	N/A
White	2.24***	2.08***	3.11***	1.50**
Male	1.70***	1.57***	1.45**	0.48***
Homeowner	1.28	1.32*	1.35	1.35
Married	1.58***	1.36***	1.14	1.05
Tax Sheltered	1.60***	1.72***	1.78***	1.34*
Stock/MF	1.51***	1.58***	1.18	1.17
Sample Size	3848	3848	1108	1108

Odds ratios are reported for each variable. ***,**,* indicate significance at the 0.01, 0.05 and 0.10 levels, respectively.

Table VI: Likelihood of Good Understanding of Survey Questions by Accredited Investors from Various Age Groups, Estimated Through Logistic Regression.

	Reduced Model (Odds Ratio)	**Full Model (Odds Ratio)**
Age 60-69 Accredited	3.24**	1.84
Age 70-79 Accredited	1.6	0.71
Age 70-79 NA	0.54***	0.63***
Age 80+ Accredited	0.23***	0.18***
Age 80+ NA	0.25***	0.29***
<High School		0.74
Some College		1.5**
College		1.87***
Graduate		2.33***
White		2.02***
Male		1.21
Homeowner		1.26
Married		1.02
Tax Sheltered		2.12***
Stock/MF		1.31*
Sample Size	3847	3847

Odds ratios are reported for each variable. ***,**,* indicate significance at the 0.01, 0.05 and 0.10 levels, respectively.
*Source: Consumer Finance Monthly, 2013

Appendix A

Financial Literacy Assessment Instrument Questions (CFM)

1. Net worth is equal to…
    1 Total assets
    2 Total assets plus liabilities
    3 Total assets minus liabilities (Correct Answer)

2. If your assets increase by $5,000 and your liabilities decrease by $3,000, your net worth would...
    1 Increase by $2,000
    2 Increase by $8,000 (Correct Answer)
    3 Increase by $3,000

3. Which bank account is likely to pay the highest interest rate on money saved...
    1 Savings account
    2 Six month CD or certificate of deposit
    3 Three year CD (Correct Answer)

4. Savings accounts and money market accounts are most appropriate for...
    1 Long-term investments like retirement
    2 Emergency funds and short-term goals (Correct Answer)
    3 Earning a high rate of return

5. To reduce the total finance costs paid over the life of an auto loan, you should choose a loan with the...
    1 Lowest monthly payment
    2 Longest repayment term
    3 Shortest repayment (Correct Answer)

6. If you always pay the full balance on your credit card, which of the following is least important?
    1 Annual interest rate (Correct Answer)
    2 Annual fees
    3 Line of credit

7. On which type of loan is interest never tax deductible?
    1 A home equity loan
    2 An adjustable rate mortgage
    3 A personal vehicle loan (Correct Answer)

8. Which type of mortgage would allow a first-time home buyer to qualify for the highest loan amount?
    1 Fixed-rate mortgage
    2 Adjustable-rate mortgage (Correct Answer)
    3 Reverse mortgage

9. *The benefit of owning investments that are diversified is that it …
    1 Reduces risk (Correct Answer)
    2 Increases return

3 Reduces tax liability

10. *A young investor willing to take moderate risk for above-average growth would be most interested in…

1 Treasury bills
2 Money market mutual funds
3 Balanced stock funds (Correct Answer)

11. *The main advantage of a 401(k) plan is that it ...

1 Provides a high rate of return with little risk
2 Allows you to shelter retirement savings from taxation (Correct Answer)
3 Provides a well-diversified mix of investment assets

12. *To ensure that some of your retirement savings will not be subject to income tax upon withdrawal, you would contribute to …

1 A Traditional IRA or Individual Retirement Account
2 A Roth IRA (Correct Answer)
3 A 401(k) plan

13. If you have an insurance policy with a higher deductible, the premiums will be ...

1 Higher
2 Lower (Correct Answer)
3 The same

14. Which of the following types of insurance is most important for single workers without children?

1 Life insurance
2 Disability Interest insurance(Correct Answer)
3 Dental insurance

15. Which policy provides the most coverage at the lowest cost for a young family?

1 Renewable term life (Correct Answer)
2 Whole life
3 Universal life

16. Which household would typically have the greatest life insurance needs?

1 A middle-class retired couple
2 A middle-aged working couple with children in college
3 A single-earner family with two young children in pre-school(Correct Answer)

Appendix B

Financial Literacy Experimental Module (HRS)

1. First, 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, or less than $102?
   More than $102 (Correct Answer)
   Exactly $102
   Less than $102

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 today, exactly the same as today, or less than today with the money in this account?
   More than today
   Exactly the same as today
   Less than today (Correct Answer)

3. (T/F) Buying a single company stock usually provides a safer return than a stock mutual fund. (False)

4. Which asset do you think historically has paid the highest returns over a long time period, say 20 years or more -- savings accounts, bonds, or stocks?
   Savings accounts
   Bonds
   Stocks (Correct Answer)

5. (T/F) An employee of a company with publicly traded stock should have a lot of his or her retirement savings in the company's stock. (False)

6. (T/F) If the interest rate falls, bond prices will rise. (True)

7. (T/F) If one is smart, it is easy to pick individual company stocks that will have better than average returns. (False)