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Exploring the Prevalence, Risk Factors, and Financial Consequences of Fraud: Evidence from the Health and Retirement Study

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Abstract

The consequences of poor financial capability at older ages are serious and include making mistakes with credit, drawing down retirement assets too quickly, and being defrauded by financial predators. Because older persons are close to or past the peak of their wealth accumulation, they are often the targets of fraud. Our project analyzes a module we developed and fielded in the 2016 Health and Retirement Study (HRS). Using this dataset, we evaluate the determinants of financial mismanagement and fraud, the incidence and risk factors for different types of financial fraud, and the consequences of financial mismanagement for older persons' financial security. We find that relatively few HRS respondents experienced any single form of investment fraud over the prior five years, but 8% did report at least one form of fraud. Moreover, one-third of respondents indicated that others had used or attempted to use one of the respondent's accounts without permission. Nevertheless, we found few readily identifiable factors associated with financial victimization in the older population.

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Causes and consequences of financial mismanagement at older ages

The greying of the U.S. population is ushering in a growing need for assistance with key financial decisions.[1] The consequences of poor financial capability at older ages are potentially serious, particularly when people make mistakes with credit, draw down retirement assets too quickly, and are defrauded by financial predators. Because older people are around the peak of their wealth accumulation patterns, they can be an attractive target for fraud and financial exploitation. In retirement, many people may be unable to recoup financial losses. Monetary and nonmonetary consequences for seniors can include financial insecurity, loss of financial autonomy, emotional pain and suffering, and feelings of shame and depression (Button et al., 2010; Deem, 2000; FINRA Foundation, 2015). Highlighting older persons' vulnerability, a FINRA Investor Education Foundation study (2013) found that more than 80% of adults of all ages had been solicited for potentially fraudulent offers, but older Americans were particularly likely to be the targets and were more likely to lose money when targeted.

The present report describes an evaluation of older Americans' exposure to fraud and financial exploitation, the risk factors associated with financial victimization, and the consequences of these vulnerabilities for financial security in old age. We have collaborated to design and field an experimental module in the 2016 Health and Retirement Study (HRS) to explore various types of financial victimization and the factors associated with them, including financial literacy, cognitive impairment, depression, and physical health.

In the next section, we briefly review the relevant literature. This is followed by an analysis of the various types of financial fraud to which HRS respondents report they were exposed. Next we report the results from multivariate analysis of the financial victimization reports. Results indicate that relatively few HRS respondents experienced any single form of investment fraud over the prior five years, but 8% did report at least one form of fraud. Moreover, one-third of the sample indicated that others had used or attempted to use one of the respondent's accounts without permission. Nevertheless, we found few easily-identifiable factors associated with financial victimization in the older population.

Prior literature

There has been little research identifying which older adults are at risk of financial victimization, despite increasing media attention to this societal problem. Our own prior research has established that many older persons are financially unsophisticated.[2] We have also explored some of the risk factors associated with being victims of fraud (see DeLiema et al., 2017), such as age, gender, education, and mental health status. Furthermore, while many older people maintain functioning across most cognitive domains well into late life (Hedden and Gabrieli, 2004), small neurological changes associated with aging may affect financial decision-making and increase fraud susceptibility, causing people to lose control of the money they had saved for retirement. In addition to cognitive susceptibility, other later life events—retirement, widowhood, onset of disability, death of a spouse or close friends—can bring about loneliness and social isolation (e.g., Gentry et al., 1995; Lichtenberg et al. 2013), perhaps leading to poorer decision-making and placing seniors at risk of engaging with scam artists to fulfill their social needs (Lee and Soberon-Ferrer, 1997).

Past studies have used retrospective or cross sectional data to explore risk factors associated with financial fraud (e.g., Pak and Shadel, 2011; Anderson, 2013). Nevertheless, fraud studies rarely use prospective data to examine the subsequent impact of fraud on older people's finances. The HRS does ask respondents about

[1] See Agarwal et al (2009) and Karp and Wilson (2011). Span (np: 2011) noted, "Impaired seniors are at risk not only because unscrupulous outsiders (or their own family members) can defraud them, but because they themselves make self-destructive decisions as shoppers or investors."

[2] For a recent literature review, see Lusardi and Mitchell (2014) and Lusardi, Mitchell, and Curto (2014).

whether they had been defrauded in the 2008, 2010, and 2012 "Leave Behind" questionnaires, but those surveys did not define fraud and only asked about fraud broadly, without specifying the type of scam.[3] Moreover, the prevalence of financial fraud as measured by that question, approximately 5% in each survey wave, was far lower than that reported by other surveys (e.g., FINRA, 2013; Anderson, 2013). For example, it is 9.1% for those between 55 and 64 and 7.3% for those 65 to 75. And for those 75 and older, the rate was 6.5%. These figures reflect the past year prevalence of a variety of types of fraud (not just investment and sweepstakes) (FINRA, 2013; Anderson, 2013). The module we have implemented in the 2016 HRS explores more specific definitions of financial victimization by asking incident-based questions about subtypes of scams and financial abuse that often target the elderly, such as investment fraud, account misuse, and advance fee scams.

Previous research has also suggested that there is no typical profile of older fraud victims, partly because scams can be tailored to specific types of people. For example, previous analyses noted that not only do victims of investment fraud and bogus lotteries differ demographically and socioeconomically from non-victims, they also differ from one another (FINRA, 2006). Pak and Shadel (2011) also reported that victims differ based on fraud type. Accordingly, in our HRS module,[4] we measured the incidence of several different types of scams that might be relevant for the older population. These include paying money to cold-callers or persons unknown to the respondent, investing after attending meetings offering free meals, and investing in a fraudulent scheme recommended by relatives. This approach allows us to identify unique victim profiles to learn more about what personal characteristics are associated with various fraud types. Potentially, this could lead to more targeted fraud prevention and intervention services and programs.

Methodology and data

To address the limitations of prior research, we have designed and examined an experimental module in the 2016 HRS to evaluate the determinants of financial exploitation and fraud, the incidence and risk factors for different subtypes of financial victimization, and the consequences of financial mismanagement for older persons' financial well-being. We are also interested in identifying which factors might be associated with being victimized, including financial literacy, cognitive impairment, depression, and other social and economic characteristics that may increase risk of fraud and exploitation.

The HRS module was administered to people over the age of 50. It contained two sets of outcome variables indicative of respondents' experience with financial scams. A first grouping we collect under the heading of *Fraud Victimization* asked respondents whether they had been exposed to several types of investment fraud situations, as follows:

- In the past 5 years, did you [or your husband/wife/partner] invest money after a meeting that offered a free meal and educational information for some sort of investment, including but not limited to, a vacation timeshare or an annuity product?
- In the past 5 years, have you [or your husband/wife/partner] invested money in an opportunity that was introduced to you by a phone call or by an email from someone you didn't know?
- In the past 5 years, have you [or your husband/wife/partner] invested money in penny stocks or in investments that guaranteed daily returns of more than 10%, or participated in an investment that involved oil and gas exploration?

[3] That is, the question asked in the survey was: "Have you been the victim of financial fraud in the past 5 years?" (Yes/No) Our analysis of the Leave Behind questionnaires is summarized in DeLiema et al. (2017).

[4] We designed the fraud questions after extensive consultation with fraud experts, including researchers from FINRA Investor Education Foundation.

- In the past 5 years, have you [or your husband/wife/partner] invested money in an opportunity recommended by a friend, a relative, or a financial advisor which turned out to be fraudulent?
- Investors gain and lose money all the time in financial markets for a variety of legitimate reasons. However, this question is about investment fraud, where someone knowingly misleads an investor using false information. Do you think you [or your husband/wife/partner] have ever put your money into a fraudulent investment in the past 5 years?
- Had the respondent [or husband/wife/partner] been victimized by any of the above in the past 5 years? *(A summary of responses to all the questions above).*

The second set of variables termed *Financial Scams* (non-investment fraud) evaluate responses to the following:

- In the past 5 years, have you [or your husband/wife/partner] paid money to someone who told you that you had won a prize or a lottery or had been selected to receive an award such as money, a free vacation, or other product or service?
- In the past 5 years, has someone without your permission used or attempted to use an existing account of yours, such as a credit or debit card, checking, savings, telephone, online, or insurance account?
- Had the respondent [or husband/wife/partner] experienced any of the above financial scams in the past 5 years? *(A summary of responses to the two questions above).*

In the next section, we summarize responses to these questions. Subsequently, we report a multivariate analysis of the responses using a vector of sociodemographic control factors. The multivariate analysis includes a Financial Literacy score (FinLit), as well as the respondent's self- rated overall financial knowledge (1-7, with 7 being the highest), as our prior research has suggested that both factors can play a role in seniors' financial security. Furthermore, we control on variables indicating each respondent's age, sex, race/ethnicity, education, marital status, number of children, cognition score, number of limitations of activities of daily living (ADL), an indicator of depression (CESD score), self-reported health status, and net housing as well as non- housing wealth (all dollar values in $2014).[5]

In a last step, we examine the relationship between respondents' (and spouse/partner, if any) change in net wealth between 2010 and 2014 in order to determine whether older persons reporting victimization experienced any significant decline in financial security and whether this was associated with having been the victim of investment fraud in the previous five years.[6] We only focused on fraud related to investment, as we are interested in the effects of fraud on wealth. All controls described above (with the exception of wealth) are included in the multivariate regressions so as to determine the independent impact of investment fraud on seniors' well-being.

Empirical results

Descriptive statistics

Some 1,260 respondents in the 2016 HRS completed the financial mismanagement and fraud module.[7] Panel A of Table 1 reports their responses to the first set of questions regarding levels of *fraud victimization* experienced in the past five years. Only 3% indicated that they had invested after being given a free meal; only 1% had invested in response to a contact from an unknown person or for a penny stock/oil-and-gas deal; and 1% indicated they had purchased a fraudulent investment recommended by a third party. None reported having

[5] See St. Clair et al. (2011). The cognitive functioning measure includes performance on immediate and delayed word recall, serial 7's test, counting backwards, naming tasks (e.g., date-naming), and vocabulary questions. The mental status index sums scores from counting, naming, and vocabulary tasks. The total cognition score sums the total recall and mental status indices. For further detail, see Fisher et al. (2017).

[6] The currently available version of the 2016 (early release) HRS does not yet include the 2016 imputed values for assets. Moreover, the current release does not include responses for the late baby boomer cohort; those responses are due to be added to the data files in 2018.

[7] All data are weighted using the 2014 weights, as the 2016 weights were not available as of this writing.

bought what turned out to be a fraudulent investment from a relative. Though the individual questions indicate that victimization of any particular form is quite rare, 8% of the respondents indicated that they had fallen prey to at least one of these fraudulent activities in the past year.[8] Accordingly, our overall incidence rate is about twice as high as what people indicated in the HRS Leave Behind questionnaires (DeLiema et al., 2017), though that other survey did not probe for specific types of fraud as we have here. Our survey finds lower incidence than those found by the FINRA and Anderson surveys, but the FINRA survey asked about lifetime prevalence and the survey by Anderson asked about more types of scams, which likely yielded higher prevalence figures when looking across all of the subtypes.

Table 1. Descriptive statistics

A. Outcomes

Variable	N	Mean	Sd. Dev.
Invested: free meal (0/1)	1,256	0.03	0.16
Invested: phone call/unknown person (0/1)	1,260	0.01	0.10
Invested: penny stocks/oil-gas exploration (0/1)	1,253	0.01	0.10
Put money in fraudulent investment (0/1)	1,254	0.01	0.10
Fraud investment reco. by relative (0/1)	1,256	0.00	0.06
Investment fraud: past 5 years (0/1)	1,245	0.08	0.27
Paid to win an award (0/1)	1,257	0.04	0.21
R account w/o permission (0/1)	1,256	0.30	0.46
Financial scam: past 5 years (0/1)	1,254	0.33	0.47
Change: Non-housing wealth (/100k, 2014$)	1,186	-0.10	4.31
Change: Housing wealth (/100k, 2014$)	1,186	-0.24	4.42

B. Controls

Variable	N	Mean	Sd. Dev.
Age	1,268	68.20	8.93
Male	1,268	0.44	0.50
White	1,268	0.82	0.38
Hispanic	1,268	0.09	0.28
Education (yrs)	1,268	13.31	2.96
Married	1,268	0.59	0.49
Nkids	1,268	2.82	1.93
Cognition score	1,268	23.65	4.24
CESD score (0-8)	1,268	1.22	1.85
Good health	1,268	0.73	0.44
Non-housing wealth (/100k, 2014$)	1,268	1.72	6.36
Housing wealth (/100k, 2014$)	1,268	1.54	2.27
FinLit score (0-4)	1,268	2.14	0.92
Self-rated fin. knowledge (1-7)	1,268	4.97	1.52

Source: Authors' calculations from the Health & Retirement Study (HRS).

[8] Panel A of Appendix Table 1 reports the covariance matrix for all outcome variables; interestingly, few of the individual fraud indicators are highly correlated.

Our second set of variables, termed *Financial Scams*, has higher positive response rates. For instance, 4% of respondents indicated that they had paid to receive an award, prize, or lottery in the past five years. Unfortunately, that question did not distinguish the purchase of lottery tickets, which is legal, even if not financially recommended,[9] versus some other sort of less legitimate award. Even more concerning is the fact that 30% said that others had used or attempted to use one of the respondent's accounts without permission. We acknowledge that this question did not differentiate respondents who were victims of account misuse from those who were targeted but who did not lose money. Nevertheless, it is striking that one-third (33%) of our sample reported having been subjected to either sort of financial scam over the past five years. Accordingly, we conclude that the extent of financial fraud experienced by the over-50 population is non-negligible. In the next section, we explore who is most likely to be subject to these challenges.

Before doing so, however, we also report key characteristics of the HRS respondents to our module, which appear in Panel B of Table 1.[10] The financial literacy quiz included the Big Three questions from Lusardi and Mitchell (2014) covering interest rates, inflation, and risk diversification; on average, the total number of correct answers was 2.1 (out of 3). Respondents were also asked to rate their level of financial knowledge on a scale of 0 to 7 (where 0 = very low to 7 = very high); the average response was 4.97, indicating a fair amount of self-confidence. The respondents' average age was 68.2; 42% were male, 59% were married or partnered, 82% indicated they were White and 9% Hispanic. Average educational attainment was 13.1 years and the average number of children was 2.8. Mean non-housing wealth (in 2014 dollars) was $172,000; this included the net value of stocks, mutual funds, investment trusts, checking, savings, money market accounts, CDs, government savings bonds, and T-bills, bonds, and bond funds, and all other savings minus the value of all debt. Total housing wealth (in 2014 dollars) was $154,000; this included the net value of the household's primary (and if relevant, secondary) residence. Seventy-three percent of respondents reported that their physical health was good to excellent; few reported symptoms of depression (average number of symptoms was 1.22 of 8), and the average cognition score was 23.65 (of a possible 27 points).

Factors associated with investment fraud victimization

Our multivariate analysis of the six outcomes measuring fraud victimization uses Probit estimation. Table 2 reports marginal effects, which may be interpreted as a percentage change in the outcome probability for a one-unit increase in the control variable.

[9] According to TheWeek.com (2016), half of Americans have played the lottery at least once, but more than half of ticket sales are to 5% of players, the majority of whom are uneducated and poor.

[10] Panel B of Appendix Table 1 reports the covariance matrix of all outcome and control variables.

Table 2. Factors associated with fraud victimization: Probit model, marginal effects reported

	Probit model with weights					
	Invested: free meal (0/1)	Invested: phone call/unknown person (0/1)	Invested: penny stocks/oil-gas exploration (0/1)	Put money into fraudulent investment (0/1)	Fraud investment reco. by relative (0/1)	Investment fraud past 5 years (0/1)
FinLit score	0.0042*	-0.0012**	0.0001	-0.0002	-0.0002	0.0002
	(0.0023)	(0.0006)	(0.0001)	(0.0002)	(0.0001)	(0.0104)
Self-rated fin. knowledge	-0.0011	-0.0002	0.0001*	-0.0001	0.0000	0.0007
	(0.0012)	(0.0003)	(0.0001)	(0.0001)	(0.0000)	(0.0055)
Age	0.0004**	0.0000	0.0000	0.0000	0.0000	0.0012
	(0.0002)	(0.0001)	(0.0000)	(0.0000)	(0.0000)	(0.0009)
Male	0.0014	0.0000	-0.0003	0.0000	0.0004	0.0413
	(0.0038)	(0.0012)	(0.0003)	(0.0002)	(0.0004)	(0.0201)
White	-0.0069	-0.0010	0.0000	0.0001	0.0001	-0.0411
	(0.0053)	(0.0015)	(0.0002)	(0.0002)	(0.0002)	(0.0224)
Hispanic	-0.0056**	-0.0054***	-0.0007	-0.0012	0.0000	-0.0476
	(0.0027)	(0.0021)	(0.0004)	(0.0007)	(0.0003)	(0.0166)
Education (yrs)	-0.0010	0.0002	0.0001*	0.0001**	0.0000	0.0053
	(0.0007)	(0.0002)	(0.0001)	(0.0001)	(0.0000)	(0.0037)
Married	0.0037	0.0019	-0.0002	0.0005	-0.0004	0.0013
	(0.0039)	(0.0014)	(0.0003)	(0.0004)	(0.0005)	(0.0194)
Nkids	0.0012**	0.0000	0.0001	0.0001	0.0001	0.0032
	(0.0006)	(0.0003)	(0.0001)	(0.0001)	(0.0001)	(0.0040)
Cognition score	0.0015***	-0.0001	0.0000	0.0000	0.0001	0.0041
	(0.0005)	(0.0001)	(0.0000)	(0.0000)	(0.0001)	(0.0024)
CESD score	0.0008	0.0001	0.0001	0.0001	0.0000	0.0050
	(0.0007)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0041)
Good health	0.0046	-0.0015	-0.0003	-0.0011	-0.0003	-0.0480
	(0.0035)	(0.0018)	(0.0005)	(0.0007)	(0.0002)	(0.0248)
Non-housing wealth (/100k, 2014$)	0.0002	-0.0001	0.0000	0.0000	0.0000	0.0023
	(0.0002)	(0.0001)	(0.0000)	(0.0000)	(0.0000)	(0.0014)
Non-housing wealth (/100k, 2014$)	0.0002	0.0002	0.0000	0.0000	-0.0001	0.0030
	(0.0009)	(0.0002)	(0.0000)	(0.0000)	(0.0000)	(0.0041)
N	1,256	1,260	1,253	1,254	1,256	1,245
R-square	0.106	0.146	0.294	0.191	0.205	0.066
Mean of dep var	0.027	0.010	0.010	0.010	0.003	0.081
St.dev of dep var	0.161	0.100	0.101	0.099	0.059	0.273

Note: * p<0.10, ** p<0.05, *** p<0.01. Dummies included for missing variables. Standard errors clustered at household level.

From this table, we conclude that relatively few of the control variables are consistently statistically significant across the set of outcomes provided. That is, the FinLit score is negative and significantly associated with the probability of investing with a cold caller, and self-rated financial knowledge is not linked to any of the key outcomes at the 5% level. Hispanics are less likely to have reported being scammed by the first two categories depicted. Somewhat surprisingly, there is no systematic association between being victimized and educational or wealth levels, health or depression, age, sex, marital status, or education. Indeed, this table confirms that there are few readily-identifiable factors associated with specific types of financial victimization.

Factors associated with financial scams

In Table 3, we provide Probit estimates (marginal effects are reported) associated with two financial scams, along with a summary variable covering both financial scams over the past five years. Interestingly, there is no significant link with higher scores on the FinLit questions, but those rating themselves very financially knowledgeable were significantly more likely to indicate that an account of theirs had been used or had attempted to have been used without permission in the past five years. This could imply that the more self-confident may simply be better at identifying when a financial scam occurs, though it might not indicate that they were, in fact, more likely to be scammed than their less-confident peers.

Table 3. Factors associated with financial scams: Probit model, marginal effects reported

	Probit models		
	Paid to win award (0/1)	R account w/o permission (0/1)	Financial scam: past 5 years (0/1)
FinLit score	-0.004	0.017	0.007
	(0.007)	(0.022)	(0.022)
Self-rated fin. knowledge	0.001	0.022**	0.025**
	(0.004)	(0.011)	(0.011)
Age	0.000	-0.005**	-0.006***
	(0.001)	(0.002)	(0.002)
Male	0.009	0.065*	0.072*
	(0.011)	(0.036)	(0.037)
White	-0.027	0.052	0.022
	(0.020)	(0.041)	(0.045)
Hispanic	-0.035***	-0.115**	-0.167***
	(0.007)	(0.048)	(0.046)
Education (yrs)	-0.001	0.025***	0.023***
	(0.002)	(0.007)	(0.007)
Married	0.021*	0.056	0.083**
	(0.011)	(0.036)	(0.037)
Nkids	0.003	0.015*	0.017*
	(0.003)	(0.009)	(0.009)
Cognition score	-0.001	0.000	0.000
	(0.002)	(0.005)	(0.005)
CESD score	0.008**	0.021**	0.032***
	(0.003)	(0.010)	(0.011)
Good health	0.016	-0.065	-0.040
	(0.014)	(0.046)	(0.048)
Non-housing wealth (/100k, 2014$)	0.000	-0.006*	-0.006*
	(0.001)	(0.003)	(0.003)
Non-housing wealth (/100k, 2014$)	-0.004	0.020**	0.018**
	(0.003)	(0.008)	(0.008)
N	1,257	1,256	1,254
R-square	0.071	0.074	0.073
Mean of dep var	0.044	0.297	0.332
St.dev of dep var	0.206	0.457	0.471

Note: * p<0.10, ** p<0.05, *** p<0.01. Dummies included for missing variables. Standard errors clustered at household level.

Financial victimization and changes in wealth

Finally, we briefly investigate whether changes in older peoples' wealth are associated with having been the subject of financial fraud in the last five years. Table 4 reports OLS results, associating the 2014-2010 change in (non-housing and housing) net wealth (in constant $2014) with an indicator of having been subjected to investment fraud over the past five years.

Table 4. Association between fraud victimization and wealth changes (2010-2014): OLS coefficients reported

	Change: Non-housing wealth (2014$)	Change: Housing wealth (2014$)
Investment fraud: past 5 years	-0.321	0.785*
	(1.125)	(0.434)
Low FinLit score (<=2)	0.040	0.100
	(0.306)	(0.193)
Age	0.003	-0.018**
	(0.010)	(0.008)
Male	0.074	-0.296
	(0.348)	(0.345)
White	-0.315	0.055
	(0.229)	(0.141)
Hispanic	-0.130	0.022
	(0.220)	(0.173)
Education (yrs)	-0.075	-0.030
	(0.051)	(0.023)
Married	0.017	-0.141
	(0.367)	(0.203)
Nkids	-0.045	0.004
	(0.058)	(0.038)
Cognition score	0.031	-0.044
	(0.031)	(0.041)
CESD score	0.021	0.015
	(0.052)	(0.033)
Good health	-0.066	0.112
	(0.254)	(0.148)
Intercept	0.348	2.344
	(0.993)	(1.427)
N	1,164	1,164
R-square	0.005	0.011
Mean of dep var	-0.092	-0.234
St.dev of dep var	4.329	4.451

Note: * p<0.10, ** p<0.05, *** p<0.01. Dummies included for missing variables. Standard errors clustered at household level.

Interestingly and somewhat surprisingly, having been defrauded is not significantly associated with non-housing wealth changes in our multivariate model. By contrast, it is linked to a reported *rise* in net housing wealth, an outcome that is difficult to explain, particularly as so many other factors are held constant. Additional research will be required to explore how well these fraud indicators predict *future* changes in wealth, when additional waves of the HRS become available. We also conclude that few other factors are statistically significant in this multivariate analysis, with the exception of age: older persons experienced net housing wealth *decreases* during this period, whereas their younger counterparts did not.

Robustness analysis

We also undertook several other analyses not reported here in detail for sensitivity analysis. First, we measured the mismatch between respondents' subjective and objective financial knowledge, as this has been proposed as a possible determinant of victimization (Gamble et al., 2013). To do so, we created a measure of financial overconfidence by subtracting each person's standardized FinLit score from his standardized self-rated financial knowledge score. Those with values above zero were coded as being overconfident. Nevertheless, holding constant our other controls, we found no significant impact of overconfidence on any victimization outcomes.

Also in results not detailed here, we separately analyzed whether people responding "don't know" to the FinLit questions were more likely to be victims of financial exploitation. We find that there was no significant impact of this attribute when other controls are included.

Finally, we re-estimated Table 2 using Firth Logit, a technique sometimes deployed when the observed event is relatively rare (Firth, 1993; Heinze, 1999 and 2006; Heinze and Schemper, 2002). Signs and significance levels were generally similar as those in Table 2. Yet this approach is not amenable to the use of sample weights, so our preferred results are those in Table 2 using Probit and weighted data.

Discussion

There has been much recent debate about whether older Americans make well-informed decisions regarding their financial affairs.[11] Our project has identified several ways in which seniors may be vulnerable to fraud and exploitation, and we also explore the causes and consequences of these factors.

Our results indicate that relatively few HRS respondents experienced any specific type of investment fraud over the prior five years, but 8% did report *at least one form* of fraud. By contrast, the older HRS Leave Behind questionnaires only included a single general question about fraud, without offering specific examples of fraudulent behavior; there, prevalence rates were lower, around 5-6%, despite that respondents could have reported on a broader range of fraud experiences that were not included in the present module. In other words, informing people what one means by fraud is important in obtaining a cleaner measure of victimization.

We also note that our HRS module specifically omitted using sensitive words such as "fraud," "scam," "victim," and "loss." We did so intentionally, as prior research indicated that framing a fraud survey in a criminal context significantly reduces disclosure among women and older people (Beals et al., 2015). Therefore, instead of asking respondents to identify themselves as fraud victims, we structured questions about specific types of investments known to be high- risk and often fraudulent. Prevalence rates are then derived from the percent of respondents who reported making such investments over the prior five years.

In addition to questions about investment fraud, the HRS module asked respondents to report whether they had ever paid money to receive a prize and whether anyone had ever used or attempted to use their financial accounts without permission. Prior to our module,

[11] Peoples' difficulties in understanding and acting optimally given Social Security rules have been documented by Greenwald et al. (2010) and Brown et al. (2016), among others.

there had been no way to assess the prevalence of fraud or financial exploitation. In our study, one-third of the respondents reported that someone had used or attempted to use their financial accounts in the past five years. This figure is much higher than the five-year prevalence of conventionally-measured fraud, indicating that actual and attempted financial exploitation by family and friends or identity theft by strangers is a significant concern for older Americans. More research is needed to determine how often attempts to misuse the funds are successful, and how much money is lost in these incidents. Preventing account misuse should be a shared responsibility between consumers and the banks, insurance, and credit card companies that hold and manage accounts. Given that older adults may require assistance from friends and relatives in managing their finances, financial institutions may need to enhance protections and offer monitoring tools that reduce opportunities for exploitation.

Prior research by Pak and Shadel (2011) argued that investment fraud victims were likely to be male, well-educated, and relatively well paid. It must be noted, however, that their respondents were recruited from a sample of known fraud victims whose victim status was confirmed by law enforcement. By contrast, our HRS module was administered to a randomly selected subset of older Americans over age 50, drawn from a nationally representative sample. Accordingly, our findings are more reflective of the population at large, rather than a subset of victims alone.

As a result, we can be relatively confident that our results are likely to be generalizable across the older population. In particular, neither financial literacy nor self-reported financial knowledge are consistently and statistically significantly associated with any of the key outcomes, nor are housing or non-housing net wealth, race/ethnicity, education, marital status, or age. Overall then, it appears difficult to find readily-identifiable factors that can predict financial victimization. This could suggest that situational factors play a larger role in victimization, such as whether the respondent was alone when solicited by a scam artist and whether s/he had ever heard about the particular scam before. If context is more predictive of victimization than personal factors, fraud prevention messages should educate consumers on signs that they are being influenced, how to resist persuasion attempts, and how to secure their financial accounts.

While we report that those self-reporting that they are more financially knowledgeable were also more likely to indicate that an account of theirs had been used or attempted to be used without permission in the past five years, we interpret this as indicating that these individuals can better identify when a financial scam occurred, not necessarily that they were more likely to be scammed.

Conclusions

By linking the new information from our experimental module to the core HRS variables, we have presented a more comprehensive profile of older adults who are vulnerable to fraud and financial exploitation. In particular, we find that relatively few HRS respondents reported having experienced any particular form of investment fraud, but 8% did report at least one form of fraud in the prior five years. Additionally, one-third of the sample stated that others had used or attempted to use one of the respondent's accounts without permission. This research helps illustrate that more financially literate and educated adults are not necessarily immune to financial fraud. In fact, we identified few readily-identifiable factors associated with financial victimization in the older population.

We anticipate that our research will be of interest to financial advisors, as well as insurers, employers, regulators, and policymakers focused on how to improve older persons' financial decision making.[12] Future studies should explore the effects of financial literacy and confidence on risk of other types of scams. Moreover, when additional waves of the HRS become available, it will be invaluable to link information about the impact of financial fraud on prospective changes in wealth and retirement well-being.

[12] For instance, see FINRA, SEC, and NASAA (2008, updated 2010).

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Appendix A

Table 1A. Correlations of dependent variables

	Invested: free meal (0/1)	Invested: phone call/ unknown person (0/1)	Invested: penny stocks/ oil-gas exploration (0/1)	Bought fraudulent investment (0/1)	Fraud investment reco. by relative (0/1)	Investment fraud: past 5 years (0/1)	Paid to win an award (0/1)	R account used w/o permission (0/1)	Financial scam: past 5 years (0/1)	Change: Non-housing wealth (/100k, 2014$)	Change: Housing wealth (/100k, 2014$)
Invested: free meal (0/1)	1										
Invested: phone call/unknown person (0/1)	0.14	1									
Invested: penny stocks/oil-gas exploration (0/1)	0.04	-0.01	1								
Bought fraudulent investment (0/1)	0.15	0.26	0.1	1							
Fraud investment reco. by relative (0/1)	0.16	-0.01	0.15	0.19	1						
Investment fraud: past 5 years (0/1)	0.56***	0.34**	0.35**	0.34**	0.2*	1					
Paid to win an award (0/1)	0.1*	0.02	-0.02	0.1	0.08	0.11*	1				
R account used w/o permission (0/1)	0.07	0.05	0.08	0.09	0.03	0.13**	-0.04	1			
Financial scams in past 5 years (0/1)	0.08*	0.06	0.07	0.12*	0.07*	0.16***	0.31***	0.92***	1		
Change: Non-housing wealth (/100k, 2014$)	0.05	0	-0.05	0.02	0.01	-0.02	0	-0.01	-0.01	1	
Change: Housing wealth (/100k, 2014$)	0	0.01	0.05	0.01	0	0.04	0.01	-0.04	-0.03	-0.07	1

Appendix A

Table 1B. Correlations of control and dependent variables

	Invested: free meal (0/1)	Invested: phone call/ unknown person (0/1)	Invested: penny stocks/ oil-gas exploration (0/1)	Bought fraudulent investment (0/1)	Fraud investment reco. by relative (0/1)	Investment fraud: past 5 years (0/1)	Paid to win an award (0/1)	R account used w/o permission (0/1)	Financial scam: past 5 years (0/1)	Change: Non-housing wealth (/100k, 2014$)	Change: Housing wealth (/100k, 2014$)
Age	0.02	0	-0.02	0.01	0.03	0.01	0	-0.11***	-0.11***	0	-0.02
Male (0/1)	0.03	0	-0.01	0	0.01	0.07	0.01	0.1**	0.1**	0	-0.03
White (0/1)	0.01	-0.01	0.02	0.02	0.01	0	-0.06	0.08**	0.06	-0.03	-0.02
Hispanic (0/1)	-0.03*	-0.03	-0.03	-0.03	0	-0.06**	-0.05***	-0.1***	-0.12***	0.01	0.01
Education year (0-17)	0.02	0	0.09*	0.04	0.02	0.08**	-0.02	0.17***	0.15***	-0.04	-0.03
Married (0/1)	0.05	0.01	0.02	0.04	-0.03	0.03	0.02	0.12**	0.13***	-0.01	-0.02
Nkids (0-18)	0.05	0.01	0	0.01	0.01	0.01	0.05	0.01	0.01	0	0.01
Cognition score (6-35)	0.09**	-0.04	0.06	-0.01	0.04	0.07*	-0.04	0.12***	0.1**	0	-0.04
CESD score (0-8)	-0.02	0.02	0.01	0.07	0.02	0.02	0.09	0.03	0.06	0.02	0.02
Good health (0/1)	0.06*	-0.06	-0.01	-0.08	-0.02	-0.04	-0.01	-0.01	-0.01	-0.02	-0.01
Non-housing wealth (/100k, 2014$)	0.05	-0.01	0.26	0	0.03	0.12	-0.02	0	0	0.18	-0.01
Housing wealth (/100k, 2014$)	0.03	0.01	0.16	-0.01	-0.01	0.09	-0.04*	0.11*	0.09	-0.29	0.04
FinLit score (0-3)	0.07*	-0.08	0.06	-0.03	-0.03	0.05	-0.03	0.12**	0.1**	-0.03	-0.02
Self-rated financial knowledge (1-7)	-0.02	-0.01	0.04	-0.03	-0.03	0.02	0.01	0.07*	0.08*	0	-0.02
Overconfident on finance (0/1)	-0.07*	0.03	-0.02	-0.02	-0.01	-0.06	0.04	-0.05	-0.03	0.03	0.03

Source: Authors' calculations from HRS. All data weighted.

Appendix B

Correlations of control variables

	Age	Male	White	Hispanic	Education year	Married	Nkids	Cognition score	CESD score	Good health	Non-housing wealth (/100k, 2014$)	Housing wealth (/100k, 2014$)	FinLit score (0-3)	Self-rated financial knowledge (1-7)	Over-confident on finance (0/1)
Age	1														
Male (0/1)	-0.07*	1													
White (0/1)	0.08**	0.02	1												
Hispanic (0/1)	-0.03	-0.01	-0.24***	1											
Education year (0-17)	-0.14***	0.04	0.17***	-0.36***	1										
Married (0/1)	-0.17***	0.19***	0.15***	0.01	0.07*	1									
Nkids (0-18)	0.17***	-0.02	-0.07*	0.14***	-0.23***	0.1**	1								
Cognition score (6-35)	-0.25***	0	0.25***	-0.19***	0.48***	0.18***	-0.13***	1							
CESD score (0-8)	-0.03	-0.11**	-0.1**	0.1**	-0.16***	-0.16***	0.03	-0.17***	1						
Good health (0/1)	0.03	0.04	0.07*	-0.17***	0.26***	0.06	-0.07*	0.21***	-0.39***	1					
Non-housing wealth (/100k, 2014$)	0.02	0	0.1***	-0.08***	0.19***	0.11**	-0.03	0.12**	-0.1***	0.11***	1				
Housing wealth (/100k, 2014$)	0.04	0.06	0.16***	-0.1***	0.24***	0.19***	-0.04	0.17***	-0.18***	0.16***	0.47***	1			
FinLit score (0-3)	-0.2***	0.25***	0.13***	-0.14***	0.31***	0.16***	-0.11***	0.32***	-0.13***	0.21***	0.12**	0.16***	1		
Self-rated financial knowledge (1-7)	0.05	0.09**	0.04	-0.11**	0.06	0.06	0.01	0.07	-0.15***	0.1**	0.04	0.08*	0.07	1	
Over-confident on finance (0/1)	0.18***	-0.1**	-0.1**	0.04	-0.18***	-0.06	0.12***	-0.18***	-0.03	-0.08*	-0.09*	-0.09*	-0.56***	0.53***	1

Source: Authors' calculations from HRS. All data weighted.