

Online Appendix to

Financial literacy, stock market participation, and financial well-being in Germany

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Table A1: Linear regression of Big Three on socio-demographic variables

This table depicts regressions of various financial literacy indicators on the treatment dummy and sociodemographic characteristics. The dependent variables are a dummy on whether the risk question was answered correctly regardless of whether the respondent received the traditional or the modified version (column 1), on whether the respondent replied “don’t know” or “refuse to answer” to the risk question (column 2), on the number of Big Three question answered correctly (column 3), on whether the respondent answered all of the Big Three question correctly (column 4), and on whether the respondent answered the compound interest question (column 5), the inflation question (column 6) or the second compound interest question (column 7) correctly. The regressions are weighted. Replicate weights and Rubin’s rule were used to adjust standard errors for the weighting procedure and imputations, respectively. Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1.

Variables	(1) All Big Three correct	(2) Number Big Three correct	(3) One DK in Big Three	(4) FL interest	(5) FL inflation	(6) FL risk	(7) FL interest DK	(8) FL inflation DK	(9) FL risk DK
<i>Reference category: Age = 36-50 years</i>									
18-35 years	-0.062 (0.065)	0.003 (0.098)	-0.025 (0.037)	0.052 (0.032)	0.029 (0.031)	-0.002 (0.058)	-0.011 (0.011)	0.007 (0.015)	-0.016 (0.036)
51-65 years	-0.005 (0.050)	0.044 (0.085)	-0.011 (0.033)	-0.007 (0.028)	0.063** (0.025)	0.008 (0.046)	-0.013 (0.009)	-0.013 (0.010)	-0.010 (0.030)
>65 years	0.069 (0.088)	0.082 (0.119)	-0.070 (0.065)	0.049 (0.056)	0.090** (0.036)	-0.040 (0.079)	-0.028 (0.017)	-0.019 (0.015)	-0.019 (0.057)
Female	-0.109*** (0.037)	-0.180*** (0.057)	0.058*** (0.021)	-0.068*** (0.020)	-0.029* (0.016)	-0.051 (0.032)	0.006 (0.007)	0.007 (0.009)	0.039** (0.020)
<i>Reference category: Employment status = Employed and earning wage or salary</i>									
Self-employed	-0.046 (0.072)	-0.009 (0.094)	0.015 (0.052)	0.039 (0.035)	-0.031 (0.040)	-0.091 (0.074)	-0.009* (0.005)	0.015*** (0.005)	0.018 (0.053)
Not employed	-0.037 (0.060)	-0.099 (0.123)	0.145*** (0.051)	0.011 (0.039)	-0.066* (0.040)	-0.075 (0.058)	-0.011 (0.012)	0.018 (0.027)	0.104** (0.046)
Retired	-0.230*** (0.079)	-0.248** (0.101)	0.127** (0.056)	-0.145*** (0.049)	-0.056* (0.030)	-0.038 (0.067)	0.028* (0.017)	0.013 (0.013)	0.079 (0.049)
<i>Reference category: Education (ISCED 1997 classification) = Post-secondary non-tertiary education</i>									
Lower secondary education or less	-0.173**	-0.313**	0.074	-0.107**	-0.195***	-0.130*	0.053*	0.058*	0.058

Upper-level secondary school	(0.085) 0.119	(0.147) 0.222*	(0.054) -0.099**	(0.047) 0.119***	(0.046) 0.014	(0.072) 0.064	(0.028) 0.003	(0.031) 0.002	(0.051) -0.073*
Tertiary education	(0.101) 0.162***	(0.129) 0.229***	(0.042) -0.052**	(0.031) 0.093***	(0.051) 0.017	(0.084) 0.100***	(0.011) -0.002	(0.028) -0.002	(0.039) -0.044**
<i>Reference category: East vs. West Germany = West (Current residency)</i>									
East	(0.034) -0.061	(0.054) -0.101	(0.021) 0.058*	(0.020) -0.008	(0.016) -0.027	(0.032) -0.077*	(0.005) 0.013	(0.007) 0.018	(0.021) 0.045
Constant	(0.044) 0.718***	(0.070) 2.588***	(0.030) 0.043	(0.028) 0.845***	(0.022) 0.903***	(0.040) 0.824***	(0.011) 0.011	(0.013) 0.012	(0.029) 0.040
	(0.051)	(0.092)	(0.029)	(0.031)	(0.026)	(0.040)	(0.007)	(0.009)	(0.027)
Observations	2,034	2,034	2,034	4,112	4,112	2,034	4,112	4,112	2,034

Table A2: First stage regression result

This table depicts the first-stage regressions of whether the respondent answered all of the Big Three question correctly (column 1) and the number of Big Three questions answered correctly (column 2) on the same respective variables from the previous wave in 2017, as well as various sociodemographic characteristics. Standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Variables	(1) Big Three correct	(2) Number of Big Three correct
All Big Three correct (2017)	0.214*** (0.035)	
Number of correct answers (among Big Three) (2017)		0.247*** (0.042)
<i>Reference category: Number of children = no children</i>		
1 child	0.000 (0.059)	0.031 (0.082)
2 children	0.035 (0.064)	0.060 (0.106)
3 or more children	-0.076 (0.086)	-0.157 (0.178)
<i>Reference category: Age = 36-50 years</i>		
18-35 years	0.004 (0.055)	0.097 (0.090)
51-65 years	0.045 (0.044)	0.091 (0.073)
>65 years	0.057 (0.068)	0.029 (0.097)
Female	-0.045 (0.031)	-0.071 (0.049)
<i>Reference category: Employment status = Employed and earning wage or salary</i>		
Self-employed	-0.047 (0.059)	-0.017 (0.083)
Not employed	-0.076 (0.060)	-0.153 (0.127)
Retired	-0.084 (0.060)	-0.054 (0.088)
<i>Reference category: Education (ISCED 1997 classification) = Post-secondary non-tertiary education</i>		
Lower secondary education or less	-0.107** (0.051)	-0.226** (0.104)
Upper-level secondary school	0.121 (0.115)	0.192 (0.162)
Tertiary education	0.126*** (0.031)	0.158*** (0.051)
<i>Reference category: Marital status = Single</i>		

Married	-0.044 (0.045)	-0.014 (0.076)
Divorced	-0.003 (0.047)	-0.022 (0.086)
Widowed	-0.078 (0.062)	-0.092 (0.096)
Separated	0.087 (0.104)	0.075 (0.153)
With partner	0.108 (0.080)	0.029 (0.177)
East dummy (Current residency)	-0.003 (0.036)	-0.000 (0.063)
<i>Reference category: Household's willingness to take on financial risks = Below average risk affinity</i>		
Above-average risk affinity	-0.012 (0.063)	0.019 (0.089)
Not willing to take on any risk	-0.101*** (0.034)	-0.149** (0.060)
<i>Reference category: Net income quintile = 3rd quintile</i>		
1st quintile	-0.020 (0.049)	-0.154* (0.092)
2nd quintile	0.041 (0.046)	-0.016 (0.075)
4th quintile	0.081* (0.042)	0.043 (0.068)
5th quintile	0.079* (0.043)	0.011 (0.071)
Treatment: new risk question	-0.197*** (0.030)	-0.305*** (0.050)
Constant	0.532*** (0.063)	1.992*** (0.153)
Observations	3,037	3,037

Table A3: Stock market participation (unweighted sample)

The dependent variable for all regressions is a dummy variable indicating if a household participates in the stock market. This table contains OLS and 2SLS regressions (in columns 4 and 5) in which financial literacy is instrumented for. Columns 1-3 depict results for the full sample size of N=4,112. Columns 4-8 show a reduced sample size (N=3,037) due to 2SLS approach applied. The sample size is smaller because individuals have to be observed in both survey waves. These regressions are not weighted. Rubin's rule was used to adjust standard errors for imputations. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Variables	(1) OLS	(2) OLS	(3) OLS	(4) 2SLS	(5) 2SLS	(6) OLS	(7) OLS	(8) OLS
Financial literacy: Compound Interest	0.035* (0.018)					0.040* (0.022)		
Financial literacy: Inflation	0.066*** (0.024)					0.065** (0.029)		
Financial Literacy: Risk	0.030** (0.015)					0.024 (0.017)		
Big Three correct		0.054*** (0.014)		0.272*** (0.094)			0.046*** (0.016)	
Number of Big Three correct			0.040*** (0.009)		0.133*** (0.044)			0.038*** (0.010)
<i>Reference category: Number of children = no children</i>								
1 child	-0.043* (0.025)	-0.045* (0.025)	-0.044* (0.025)	-0.025 (0.032)	-0.021 (0.031)	-0.018 (0.031)	-0.019 (0.031)	-0.019 (0.031)
2 children	0.017 (0.028)	0.015 (0.028)	0.017 (0.028)	0.024 (0.035)	0.023 (0.034)	0.030 (0.034)	0.030 (0.034)	0.029 (0.034)
3 or more children	-0.054 (0.042)	-0.056 (0.042)	-0.054 (0.042)	-0.036 (0.050)	-0.032 (0.050)	-0.045 (0.049)	-0.048 (0.049)	-0.045 (0.049)
<i>Reference category: Age = 36-50 years</i>								
18-35 years	-0.029 (0.026)	-0.027 (0.026)	-0.030 (0.026)	-0.032 (0.037)	-0.044 (0.036)	-0.046 (0.036)	-0.045 (0.036)	-0.047 (0.036)
51-65 years	0.048**	0.049**	0.048**	0.065**	0.061**	0.061**	0.062**	0.061**

	(0.021)	(0.021)	(0.021)	(0.026)	(0.026)	(0.025)	(0.025)	(0.025)
>65 years	0.091***	0.093***	0.093***	0.125***	0.122***	0.118***	0.120***	0.120***
	(0.032)	(0.032)	(0.031)	(0.038)	(0.037)	(0.037)	(0.037)	(0.037)
Female	-0.027**	-0.028**	-0.027**	-0.029	-0.031*	-0.042***	-0.044***	0.043***
	(0.013)	(0.013)	(0.013)	(0.018)	(0.017)	(0.016)	(0.016)	(0.016)
<i>Reference category: Employment status = Employed and earning wage or salary</i>								
Self-employed	-0.037	-0.037	-0.038	-0.043	-0.046	-0.039	-0.038	-0.040
	(0.027)	(0.027)	(0.027)	(0.032)	(0.032)	(0.031)	(0.031)	(0.031)
Not employed	-0.028	-0.027	-0.028	-0.035	-0.035	-0.035	-0.035	-0.035
	(0.027)	(0.027)	(0.027)	(0.035)	(0.035)	(0.034)	(0.035)	(0.034)
Retired	-0.005	-0.006	-0.006	-0.003	-0.009	-0.016	-0.017	-0.016
	(0.026)	(0.026)	(0.026)	(0.031)	(0.030)	(0.030)	(0.030)	(0.030)
<i>Reference category: Education (ISCED 1997 classification) = Post-secondary non-tertiary education</i>								
Lower secondary education or less	-0.031	-0.037	-0.033	-0.021	-0.021	-0.041	-0.044	-0.041
	(0.032)	(0.032)	(0.032)	(0.041)	(0.040)	(0.039)	(0.039)	(0.039)
Upper-level secondary school	-0.028	-0.029	-0.029	-0.053	-0.033	-0.013	-0.015	-0.015
	(0.042)	(0.042)	(0.042)	(0.061)	(0.058)	(0.057)	(0.057)	(0.057)
Tertiary education	0.050***	0.050***	0.049***	0.015	0.027	0.045***	0.045***	0.044***
	(0.014)	(0.014)	(0.014)	(0.021)	(0.018)	(0.017)	(0.017)	(0.017)
<i>Reference category: Marital status = Single</i>								
Married	-0.014	-0.014	-0.014	0.001	-0.001	-0.006	-0.007	-0.006
	(0.023)	(0.023)	(0.023)	(0.029)	(0.028)	(0.028)	(0.028)	(0.028)
Divorced	-0.048*	-0.049*	-0.048*	-0.029	-0.030	-0.027	-0.026	-0.027
	(0.027)	(0.027)	(0.027)	(0.035)	(0.034)	(0.034)	(0.034)	(0.034)
Widowed	-0.021	-0.022	-0.021	-0.001	-0.007	-0.016	-0.017	-0.016
	(0.030)	(0.030)	(0.030)	(0.037)	(0.036)	(0.035)	(0.036)	(0.035)
Separated	-0.020	-0.022	-0.020	-0.050	-0.034	-0.036	-0.040	-0.037
	(0.045)	(0.045)	(0.045)	(0.060)	(0.059)	(0.059)	(0.059)	(0.059)

With partner	0.026 (0.034)	0.022 (0.034)	0.025 (0.034)	0.023 (0.047)	0.040 (0.046)	0.036 (0.046)	0.030 (0.046)	0.034 (0.046)
East dummy (Current residency)	-0.046*** (0.016)	-0.047*** (0.016)	-0.047*** (0.016)	-0.032 (0.020)	-0.037* (0.019)	-0.037* (0.019)	-0.036* (0.019)	-0.037* (0.019)
<i>Reference category: Household's willingness to take on financial risks = Below average risk affinity</i>								
Above-average risk affinity	0.201*** (0.027)	0.199*** (0.027)	0.200*** (0.027)	0.192*** (0.033)	0.198*** (0.032)	0.203*** (0.032)	0.202*** (0.032)	0.202*** (0.032)
Not willing to take on any risk	-0.392*** (0.014)	-0.392*** (0.014)	-0.391*** (0.014)	-0.377*** (0.020)	-0.385*** (0.018)	-0.403*** (0.016)	-0.404*** (0.016)	0.402*** (0.016)
<i>Reference category: Net income quintile = 3rd quintile</i>								
1st quintile	-0.057** (0.026)	-0.061** (0.025)	-0.057** (0.026)	-0.030 (0.033)	-0.017 (0.033)	-0.036 (0.032)	-0.042 (0.032)	-0.037 (0.032)
2nd quintile	-0.035 (0.024)	-0.035 (0.024)	-0.034 (0.024)	-0.035 (0.029)	-0.032 (0.029)	-0.039 (0.028)	-0.041 (0.028)	-0.039 (0.028)
4th quintile	0.056*** (0.020)	0.057*** (0.020)	0.057*** (0.020)	0.042* (0.025)	0.044* (0.024)	0.048** (0.024)	0.049** (0.024)	0.048** (0.024)
5th quintile	0.164*** (0.021)	0.165*** (0.021)	0.164*** (0.021)	0.129*** (0.026)	0.135*** (0.025)	0.144*** (0.024)	0.145*** (0.024)	0.144*** (0.024)
Treatment: new risk question	0.014 (0.013)	0.016 (0.013)	0.017 (0.012)	0.066*** (0.023)	0.048*** (0.018)	0.022 (0.015)	0.024 (0.015)	0.025* (0.015)
Constant	0.342*** (0.039)	0.420*** (0.031)	0.354*** (0.037)	0.248*** (0.082)	0.096 (0.126)	0.340*** (0.047)	0.424*** (0.038)	0.355*** (0.046)
Observations	4,112	4,112	4,112	3,037	3,037	3,037	3,037	3,037

Table A4: Financial fragility (Make ends meet), unweighted sample

The dependent variable for all regressions is a dummy variable indicating if a household can make ends meet "with great difficulty" or "with some difficulty" and zero of if they can make ends meet "fairly easily" or "easily". This table contains OLS and 2SLS regressions (in columns 4 and 5) in which financial literacy is instrumented for. Columns 1-3 depict results for the full sample size of N=4,112. Columns 4-8 show a reduced sample size (N=3,037) due to 2SLS approach applied. The sample size is smaller because individuals need to have been observed in both survey waves. These regressions are not weighted. Rubin's rule was used to adjust standard errors for imputations. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Variables	(1) OLS	(2) OLS	(3) OLS	(4) 2SLS	(5) 2SLS	(6) OLS	(7) OLS	(8) OLS
Financial literacy: Compound Interest	-0.041*** (0.014)					-0.040** (0.016)		
Financial literacy: Inflation	0.021 (0.018)					0.006 (0.021)		
Financial Literacy: Risk	-0.039*** (0.011)					-0.039*** (0.012)		
Big Three correct		-0.033*** (0.010)		-0.144** (0.061)			-0.034*** (0.011)	
Number of Big Three correct			-0.026*** (0.006)		-0.094*** (0.030)			-0.029*** (0.007)
<i>Reference category: Number of children = no children</i>								
1 child	0.036* (0.019)	0.035* (0.019)	0.035* (0.019)	0.049** (0.022)	0.048** (0.022)	0.047** (0.022)	0.046** (0.022)	0.046** (0.022)
2 children	0.040* (0.021)	0.040* (0.021)	0.039* (0.021)	0.031 (0.024)	0.032 (0.024)	0.030 (0.024)	0.028 (0.024)	0.029 (0.024)
3 or more children	0.098*** (0.032)	0.099*** (0.032)	0.097*** (0.032)	0.099*** (0.035)	0.094*** (0.035)	0.103*** (0.035)	0.105*** (0.035)	0.103*** (0.035)
<i>Reference category: Age = 36-50 years</i>								
18-35 years	-0.030 (0.020)	-0.033* (0.020)	-0.031 (0.020)	0.022 (0.026)	0.028 (0.026)	0.029 (0.025)	0.027 (0.025)	0.028 (0.025)

51-65 years	-0.014 (0.016)	-0.013 (0.016)	-0.013 (0.016)	-0.005 (0.018)	-0.003 (0.018)	-0.004 (0.018)	-0.003 (0.018)	-0.003 (0.018)
>65 years	-0.157*** (0.024)	-0.153*** (0.024)	-0.153*** (0.024)	-0.144*** (0.026)	-0.143*** (0.026)	-0.143*** (0.026)	-0.140*** (0.026)	-0.140*** (0.026)
Female	0.004 (0.010)	0.005 (0.010)	0.004 (0.010)	-0.011 (0.012)	-0.012 (0.012)	-0.003 (0.011)	-0.002 (0.011)	-0.003 (0.011)
<i>Reference category: Employment status = Employed and earning wage or salary (HH head)</i>								
Self-employed	0.092*** (0.020)	0.089*** (0.020)	0.090*** (0.020)	0.067*** (0.022)	0.070*** (0.022)	0.067*** (0.022)	0.064*** (0.022)	0.065*** (0.022)
Not employed	0.097*** (0.021)	0.096*** (0.021)	0.097*** (0.021)	0.101*** (0.025)	0.101*** (0.025)	0.100*** (0.024)	0.100*** (0.024)	0.100*** (0.024)
Retired	0.072*** (0.020)	0.072*** (0.020)	0.072*** (0.020)	0.060*** (0.022)	0.061*** (0.022)	0.068*** (0.021)	0.068*** (0.021)	0.067*** (0.021)
<i>Reference category: Education (ISCED 1997 classification) = Post-secondary non-tertiary education</i>								
Lower secondary education or less	0.139*** (0.025)	0.139*** (0.025)	0.136*** (0.025)	0.125*** (0.029)	0.121*** (0.029)	0.135*** (0.028)	0.138*** (0.028)	0.135*** (0.028)
Upper-level secondary school	-0.044 (0.032)	-0.047 (0.032)	-0.046 (0.032)	0.084** (0.042)	0.078* (0.041)	0.067* (0.041)	0.065 (0.041)	0.065 (0.041)
Tertiary education	-0.031*** (0.011)	-0.034*** (0.011)	-0.034*** (0.011)	-0.006 (0.015)	-0.008 (0.013)	-0.020* (0.012)	-0.023* (0.012)	-0.022* (0.012)
<i>Reference category: Marital status = Single</i>								
Married	0.052*** (0.017)	0.052*** (0.017)	0.051*** (0.017)	0.058*** (0.020)	0.057*** (0.020)	0.063*** (0.020)	0.063*** (0.020)	0.063*** (0.020)
Divorced	0.082*** (0.021)	0.082*** (0.021)	0.082*** (0.021)	0.086*** (0.024)	0.086*** (0.024)	0.085*** (0.024)	0.085*** (0.024)	0.086*** (0.024)
Widowed	-0.048** (0.023)	-0.047** (0.023)	-0.048** (0.023)	-0.041 (0.026)	-0.040 (0.026)	-0.033 (0.025)	-0.033 (0.025)	-0.033 (0.025)
Separated	0.086** (0.034)	0.087** (0.034)	0.086** (0.034)	0.088** (0.042)	0.079* (0.042)	0.083** (0.042)	0.084** (0.042)	0.082** (0.042)

With partner	0.067** (0.026)	0.068*** (0.026)	0.066** (0.026)	0.057* (0.033)	0.046 (0.033)	0.052 (0.032)	0.055* (0.032)	0.052 (0.032)
<i>Reference category: East vs. West Germany = 0, West (Current residency)</i>								
East vs. West Germany = East	0.024** (0.012)	0.023* (0.012)	0.023* (0.012)	0.017 (0.014)	0.019 (0.014)	0.021 (0.013)	0.020 (0.014)	0.020 (0.013)
<i>Reference category: Net income quintile = 3rd quintile</i>								
1st quintile	0.268*** (0.019)	0.271*** (0.019)	0.268*** (0.019)	0.240*** (0.023)	0.228*** (0.024)	0.244*** (0.022)	0.248*** (0.022)	0.244*** (0.022)
2nd quintile	0.061*** (0.018)	0.062*** (0.018)	0.062*** (0.018)	0.073*** (0.020)	0.069*** (0.020)	0.074*** (0.020)	0.077*** (0.020)	0.075*** (0.020)
4th quintile	-0.075*** (0.015)	-0.074*** (0.015)	-0.074*** (0.015)	-0.062*** (0.017)	-0.062*** (0.017)	-0.066*** (0.017)	-0.066*** (0.017)	-0.066*** (0.017)
5th quintile	-0.146*** (0.016)	-0.146*** (0.016)	-0.145*** (0.016)	-0.125*** (0.018)	-0.126*** (0.018)	-0.135*** (0.017)	-0.135*** (0.017)	-0.135*** (0.017)
Treatment: new risk question	-0.001 (0.010)	0.002 (0.010)	0.002 (0.009)	-0.022 (0.015)	-0.018 (0.013)	-0.004 (0.011)	-0.001 (0.011)	-0.002 (0.010)
Constant	0.187*** (0.029)	0.163*** (0.023)	0.207*** (0.028)	0.211*** (0.051)	0.355*** (0.083)	0.168*** (0.033)	0.130*** (0.026)	0.183*** (0.032)
Observations	4,112	4,112	4,112	3,037	3,037	3,037	3,037	3,037