The impact of the commission ban on financial advice seeking.

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We investigate the effect of the recently introduced commission ban on professional financial advice seeking in the Netherlands using a randomized survey experiment. Our sample of 1,174 people makes a choice between professional financial advice and execution-only when faced with the need for a mortgage. Choices are randomly presented as available before or after the regime change. We find that: (1) the willingness to take financial advice is considerably lower under the new regime, (2) this drop in advice-seeking is greatest for financially literate participants, (3) price-sensitivity for advisor fees is greater under the new regime, and (4) refinancing decision are much more affected by the regime change then taking out a new mortgage. Our results have important implications for policy makers around the globe.

1. Introduction

Financial advisors are typically compensated through commissions paid by product providers. However, in response to various mis-selling scandals, regulators in several countries banned advisers and wealth managers from taking commissions from the products they recommend. Instead, they must now charge a fee direct to the customer for the advice provided (Inderst and Ottaviani 2012a). Such commission bans target the opaqueness of commissions to customers and concerns that commissions may lead to biased advise driven by a conflicts of interest. For example, from 2013, professional financial advisors in the Netherlands are prohibited from accepting commissions from product providers.[1] Legislation on the European level on banning commissions for financial advice is currently underway. (Moloney 2014 ch. 9; Ring 2016; McMeel 2013).

Alternative compensation structures have their own challenges (Inderst 2015). One concern is that a ban or cap of commissions may undermine incentives of financial advisors to learn about the most suitable products for their customers (Inderst and Ottaviani 2012). In effect, commission bans may lower the quality of financial advice (Gorter 2012). Others argue that an unintended consequence is the so called 'advice gap' caused by financial firms withdrawing services for less wealthy investors.

Regulators expect that fee-based remuneration will lead to better advice, as advisors are not induced to sell any particular high commission product. But the shift to a commission-based system makes the price of financial advice also much more salient to customers, while the benefits remain diffuse, especially so for not so financially literate households. Thus, in

[1] Australia has also adopted a commission ban, but mortgage products are outside of its scope (Australian Secrities & Investment Commission 2012). In the United Kingdom, a similar commission ban excludes mortgages as well (The Financial Services Authority 2011).

evaluating the commission ban, the impact on consumer demand for financial advice needs to be taken into account as well, while taking differences in the degree of financial literacy into consideration. Our paper is, to our knowledge, the first one to examine this demand impact in an experimental setting. Specifically, we study the difference in the propensity to ask for professional financial advice under the old and the new regime in mortgage decision making. We focus on mortgages because such decisions tend to be complex and mistakes can have serious consequences for the financial wellbeing of households lasting decades. Therefore, most retail consumers would potentially benefit from expert financial advisors assistance in selecting a new, or refinancing an existing mortgage.

We conduct a survey-based experiment testing whether participants prefer to select mortgages with the help of a financial advisor, or select their mortgage on their own ("execution only"). For the treatment group (that makes choices under the new regime), these two options differ in the size of the fixed fee customers have to pay. For the control group, (that makes choices under the old regime) the advice fee is embedded in the mortgage interest rates. We vary in fee heights to investigate the price sensitivity under the two regimes.

We find that the willingness to take advise decreases considerably for respondents in the treatment group. While the tendency to make mortgage choices without an advisor is associated with higher financial literacy, a considerable share of participants who chooses the execution-only option has low financial literacy. Participants are price-insensitive in the old regime, and price-sensitive in the new regime.

The article is structured as follows. In section 2, we introduce background on the change in advisor remuneration in the Netherlands. In section 3, we describe the experimental setup and show that the randomization worked. In section 4, we report the results of our empirical analysis. In section 5, we discuss the results and conclude.

2. Related Literature

Previous work on compensation structures for financial advice focusses on effects of commission bans on advisors. Contingent commissions paid by product providers may lead to biased advice (Bolton, Freixas, and Shapiro 2007). However, contingent commissions can also be effective in inducing advisors to learn which products suit the needs of customers best (Inderst and Ottaviani 2012b). Customers who naively believe they receive unbiased advice are at greatest risk to be exploited by financial advisors compensated by contingent commissions. Lab experiments suggest that varying the commission received by financial advisors strongly influences insurance purchase (Beyer, de Meza, and Reyniers 2013) by affecting the products advisors offer customers. Capping or banning commissions, by contrast, risks removing the incentive of financial advisors to acquire information.

Our contribution is to empirically investigate the effects of the commission ban for financial advice on demand for financial advice. From a theoretical perspective, the effect of the commission ban on the propensity of mortgage borrowers to take financial advice are ambiguous. The new compensation structure makes the cost of financial advice more apparent. If people with lower financial literacy benefit more from financial advice than people with low financial literacy, we would expect from a rationalist perspective the greater salience of the costs of advice to reduce demand for mortgage advice among participants with high financial literacy, and increase demand for advice among participants with low financial literacy. However, in forming this expectation we presuppose that people are good judges of their own financial literacy. But people with low financial literacy may be vulnerable to the "Dunning-Kruger effect," according to which people of low ability tend to overestimate their ability (Kruger and Dunning 1999). This effect can be explained by the inability of people

with low ability in some domain, such as mortgage literacy, to realize their lack of ability. The "Dunning-Kruger effect" suggests that people of lower ability may become less likely to take out advice. However, a previous study found no relationship between objective measures of financial literacy and advice seeking (Kramer 2016).

After the commission ban came into effect, the costs of mortgage advice decreased. While commissions were paid by product-providers, customers paid indirectly via a mark-up on the interest rate that product providers pass on to financial advisors. Whereas in the old regime, mark-ups on interest rates would typically cost households upwards of 3,000 EUR, depending on the size of the mortgage and the repayment schedule, mortgage advisors charge now a flat fee of approximately 2,200 EUR for their services.

From a rationalist perspective, we would expect the lowering of fees in the new regime as compared to the commission-based regime to result in an overall increase of demand for financial advice. However, the framing of the choice faced by participants in the old and new regime differs considerably. People react to a particular choice in different ways depending on which features of the choice are made salient and are readily available (Kahneman and Tversky 1979). For the control group, the advice fee is "hidden" in the difference in interest rates. For the treatment group, the advice fee is much more saliently presented in EUR terms. The difference in framing may lead to a decrease in demand for financial advice.

Other common behavioural patterns may also lead to a decrease in the propensity of mortgage borrowers to seek financial advice. First, people are loss-adverse, meaning that they tend to prefer avoiding losses to acquiring equivalent gains (Kahneman, Knetsch, and Thaler 1991). It is possible that people conceive of the fee in the new regime as a loss, whereas they do not conceive of the mark-up on the interest rate as a loss. Second, people tend to discount future costs hyperbolically, such that they are less averse to later costs than they rationally

should be (Laibson 1997). In the new regime, the fee is due immediately, whereas the cost of financial advice is stretched out over the whole term of the mortgage in the old regime. This difference in time horizon may lead people to steeply discount future costs of financial literacy in the old regime and therefore their willingness to pay to decrease in the new regime.

3. The Dutch housing and mortgage market

In 2015, 56% of Dutch households owned their home (The European Commission 2017, 24f). Middle income households often enter the owner-occupied housing markets at an early age, because the private rental market is small in many areas. This is partly due to a large subsidized social housing sector, which 30% of the Dutch relied on in 2015 (The European Commission 2017), and a generous interest deductibility for mortgages. In the Netherlands, interest payments on mortgages are fully tax deductible for up to 30 years. In effect, many areas in the Netherlands do not offer attractive rental options to middle income households that are ineligible for social housing.

The sharp fall in house prices in the Netherlands during the financial crisis of 2007/08 of 20% on average had a lasting impact on household finance (Statistics Netherlands (CBS) 2017). In effect of the price drop, in 2015 17.6% of homeowners in the Netherlands had higher mortgages than the current value of their house. Household debt-to-GDP stands at 118%, almost twice as much as the EU-28 average (The European Commission 2017, 25). As a result, the European Systemic Risk board issued a warning to the Netherlands in 2016.

Against this backdrop, it is all the more important that households take informed decisions on whether to take out a mortgage, and how to hedge risks associated with mortgages. The market for mortgage advice in the Netherlands is split between advisors employed at one specific bank and advisors working at an mortgage advice company. Advisors employed by

banks sell only mortgages of their bank's product portfolio, whereas independent advisors compare mortgages from a range of different providers.

Starting in 2013, the Dutch government has begun putting a number of policies in place to change the requirement in the owner-occupied mortgage market. Maximum loan-to-income and loan-to-value ratios have been tightened, requiring house buyers to put up more equity and limiting their mortgage payments to a smaller share of their disposable income (Dutch Authority for the Financial Markets 2017b). For instance as of 2016, banks are required to limit new mortgages to 102% of the value of the mortgaged property.

As an element of this broader legislative effort, the government mandated a change in the remuneration regime for mortgage advisors. The most important element of this change is the commission ban (Dutch Authority for the Financial Markets 2017c). Mortgage advisors may no longer accept commissions from mortgage providers or charge a mark-up on the interest rate of the mortgage. Instead, customers pay advisors an upfront fee for their service, regardless of whether customers take out a mortgage.

The greater salience of the advice fees has led to greater availability of options to buy a mortgage without the help of an advisor. When choosing so-called "execution-only mortgages", customers save the advice fee, paying instead a much lower execution fee (Dutch Authority for the Financial Markets 2017a). However, customers are required to select their mortgage terms and do the required paperwork by themselves, without the help of a financial advisor.

4. Experimental setup and data description

We have fielded the survey experiment in the CentERpanel over two weeks in June 2017. The CentERpanel is an internet-based panel of over 2,000 households administrated by

CentERdata at Tilburg University and sponsored by the Dutch Central Bank. The panel is representative of the Dutch population and considered of high quality. Questionnaires are administered online. Panel members without internet access receive equipment that enables them to participate through their television. Both the head of the household and any partner aged 20 or above are interviewed. 2,126 people completed the survey (1,746 households). 68% of respondents have a residential mortgage on their property (1,443 respondents). We combine our questionnaire with background information from the 2016 Dutch Household Survey (DHS) to obtain demographic information and information about the financial situation of participants as controls for the regression analysis. The DHS is an annual study of Dutch households which collects detailed information on wealth holdings, earnings, socio-demographic information and psychological traits. The DHS consists of six modules. The module on accommodation and mortgages is answered by the household member managing the household finances only. Our final sample consists of the heads of households that could be matched to the accommodation module of the DHS 2016 as well as modules on income and wealth to obtain controls (N=1,174)

Table 1: **Sample size**

Sample	Size
All individuals who answered our questionnaire	2,126
Individuals from different households who answered our questionnaire	1,746
Heads of households that matched data from the DHS 2016	1,174

Of our sample of 1,174 participants, 565 were randomly allocated to the 'treatment group', who were presented with the choice as customers face it in the new compensation regime for financial advisors. 609 participants were randomly allocated to the 'control group', who were given the same choice in the context of the old regime. Table 2 shows an example vignette for taking out a new mortgage contrasting presentation in new and old regime. Note that the old

regime group chooses on the basis of differences between interest rates which include a mark-up for advice In contrast to the new regime group, which chooses on the basis of a foxed up-front fee for financial advice, the old regime group needs to infer the implicit price of financial advice as the difference between the interest rate charged in the advised and the execution-only option. We designed the experiment in this way because in the old regime, the price of advice was not directly disclosed.

Table 2: Example vignette new mortgage

Suppose you want to take out a mortgage to buy a house or flat. To arrange for the mortgage you have two options, which of the following would you choose?

1) Advised Mortgage: A mortgage advisor guides you through the process of applying and helps you in selecting a mortgage. He/she answers your questions about mortgages, suggests a mortgage based on your preferences, provides you with an advisory report, and supports you in applying to the mortgage provider.

New regime: Cost: 2,150 EUR.

Old Regime: Interest rate: 2,60%

2) Execution-only: You do the research yourself, select your own mortgage, and handle all the communication with the bank yourself. An advisor checks your application for completeness and passes it on to the mortgage provider.

New regime: Cost: 600 EUR.

Old Regime: Interest rate: 2,51%

In order to study price sensitivity, we randomize within the new and old regime group into subgroups facing higher or lower prices for the advised mortgage option, respectively. Within each of these subgroups, we randomize into subgroups facing higher or lower prices for the execution-only option, respectively. Figure 1 shows the prices and interest rates associated with each of the groups. The prices and interest rates in the new and old regime, respectively, are set in such a way that they roughly match each other for a typical Dutch property.[2]

[2] Specifically, we equate the fixed upfront advisor fees with the interest rate mark-ups by assuming a mortgage size equal to the average mortgage size in the Netherlands (approximately €200,000), and the most chosen mortgage with a 10 year fixed interest rate (that was 2.48% on average during the time of this study).

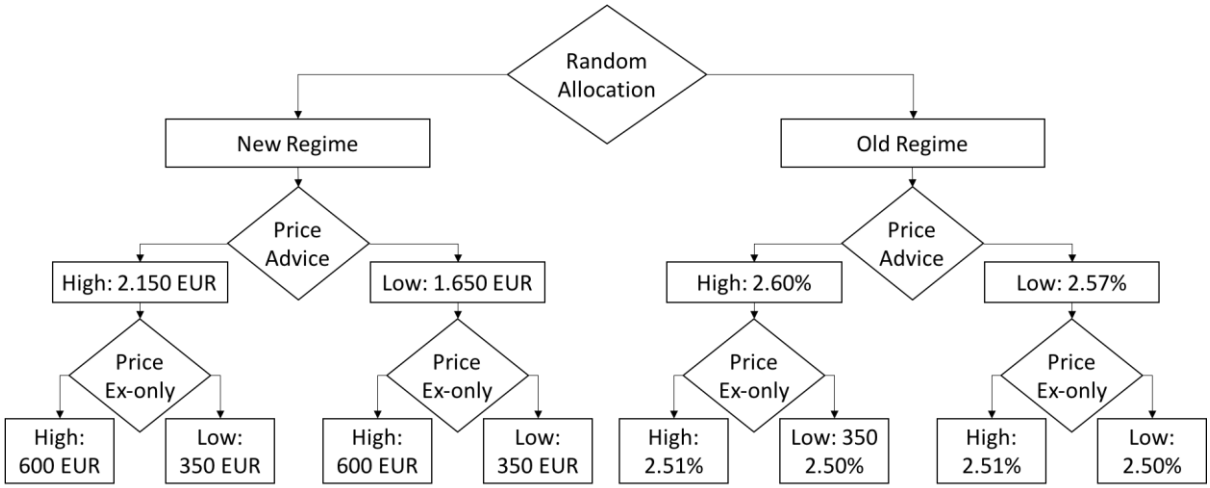

Figure 1: Chart of randomly assigned subgroups

Each participant was presented with two vignettes. The first vignette is related to taking out a new mortgage, as in the example above. The second vignette is related to refinancing an existing mortgage. The phrasing of this vignette is contained in Appendix 2.

Table 3 shows descriptive statistics for each of the two main subgroups, the participants assigned to the new regime and the participants assigned to the old regime group, as well as the p-value of the difference between these two groups. Further summary statistics for the whole sample are contained in Appendix 1. With the exception of the dummy for university degree and net household income, all p-values are above 10% and can thus be considered insignificant. Since we are capturing twenty variables, it is well within expectation that two means seem to be different at a 5% level.

Table 3: Descriptive statistics

	Mean New regime	Mean Old regime	p-value on difference
Male	0.67	0.65	0.42
Age	58.93	57.89	0.25
University Degree	0.14	0.18	0.05
Net Household Income	2717	2883	0.04
Net Household Wealth	48,043	55,896	0.42
Married	0.61	0.58	0.31
Divorced	0.06	0.08	0.17
Number of Children in Household	0.46	0.52	0.25
Self-Employed	0.05	0.06	0.46
Retired	0.36	0.36	0.98
Unemployed	0.08	0.07	0.30
Government worker	0.08	0.10	0.12
Risk propensity	-0.03	0.03	0.25
Basic Financial Literacy	4.15	4.23	0.12
Advanced Financial Literacy	6.50	6.64	0.44
Has a mortgage?	0.75	0.75	0.84
Worked with financial advisor?	0.83	0.84	0.59
Got mortgage after 1.1.2013?	0.31	0.33	0.54
Loan-to-Value Ratio	0.53	0.58	0.10
Payment-to-Income Ratio	0.19	0.19	0.57
Observations	565	609	

To more rigorously assess whether treatment and control group are balanced, we regress treatment status on all control variables (Imai 2005). While randomization does not ensure balance on covariates in any finite sample, we expect none of these variables to predict treatment. Appendix 3 shows the results of the regression. Overall, the regression analysis supports the assumption that participants have been randomly assigned to regime groups. We conclude that the randomization procedure was successful.

An important component of our analysis is to study advice seeking in different regimes depending on the level of financial literacy of participants. We elicit the financial literacy of participants with two questionnaires asking people a number of questions eliciting their basic numeracy skills as well as their knowledge about finance (Lusardi and Mitchell 2011). The basic financial literacy questions cover proficiency with respect to interest rates, compounded interest, and the time value of money (Van Rooij, Lusardi, and Alessie 2012). In addition, the

advanced financial literacy questions cover distinctions between bonds and stocks and the functioning of financial markets (Van Rooij, Lusardi, and Alessie 2012). Appendix 5 contains the questions used in both questionnaires and an overview of the results.

The basic finding is that most participants are unable to answer most of the advanced literacy questions correctly. Looking at questions individually, the share of correct answers ranges from three quarters to nine out of ten for the basic literacy questions, and just over a quarter to seven out of ten for advanced financial literacy. 40% of respondents answer all five basic literacy questions correctly. Just 9% of respondents got all advanced literacy questions right.

4. Results

Table 4 reports differences in advice seeking for subgroups in our sample differentiated by regime type. In the old regime, approximately two thirds of respondents choose to work with a financial advisor. The propensity to seek advice in the old regime does not seem to be influenced by whether participants take out a new mortgage or refinance an existing mortgage. Nor does advice-seeking in the old regime seem to depend on the difference between the price of the advised and the execution-only options. It appears that if the price of advice is presented as a mark-up on the interest rate, customers are price insensitive within the range of options we presented them with.

Results are markedly different for the new regime group. The disposition to take financial advice is lower across the board among participants in the new regime group. Gor taking out a new mortgage, the advice-seeking decreases by 12pp. to 55% compared to the old regime group. For refinancing an existing mortgage, advice-seeking decreases by 21pp. to 45%. Moreover, participants in the new regime group are strongly price-sensitive. The price difference between the advised and the execution-only option is 1,050 EUR in the low-

difference scenario, and 1,800 EUR in the high-difference scenario. Whereas the gap between advice-seeking in the old and new regime is just 3pp. in the low-difference scenario for taking out a new mortgage, the gap widens to 14pp. in the high-difference scenario.

Table 4: Differences in advice seeking propensity

	Old Regime	New Regime	Delta in pp	F-Value	Prob > F
New Mortgage	67%	55%	12	18.74	0.00
High Difference	66%	52%	14	5.01	0.03
Medium Difference	69%	52%	17	14.31	0.00
Low Difference	65%	62%	3	0.17	0.68
Refinancing	66%	45%	21	42.62	0.00
High Difference	66%	37%	29	20.91	0.00
Medium Difference	66%	44%	21	23.98	0.00
Low Difference	63%	52%	10	2.92	0.09

To investigate what drives differences in advice seeking, we regress a categorical variable capturing whether participants opt for the advised option or the execution-only option. Since every participant is presented with two vignettes, one for the financing of a new mortgage, and one for the refinancing of a mortgage, the outcome variable can take three values, depending on whether participants select the advised option both times, select the execution-only option both times, or select each option once. The key independent variables are dummies for the regime type and for whether the cost of the advised and execution-only options are high or low, respectively. We control for household income and wealth, relationship characteristics, employment characteristics, risk-proneness, financial literacy, and experience with mortgages and mortgage advice.

Columns 1 to 3 differ in the controls they include, but the impact of the regime and advice fees is robust across the three model specifications. Participants assigned to the new regime are significantly less likely to take financial advice, at a 1% level. Higher self-execution fees (in the new regime this is the difference between 350 EUR and 600 EUR for the execution-only

option) significantly increase advice-seeking, at the 1% level. The effect of an increase in the price of the advised option (the difference between 1,650 EUR and 2,150 EUR in the new regime) is only significant in column 3, at the 10% level. Interestingly, the sign of the coefficient is positive, indicating that an increase in the price of the advised option tends to increase, rather than decrease, advise-seeking propensity. This result suggests that an increase in the price of financial advice is associated with an increase in demand for advice. This would make financial advice into a "Veblen good", characterized by an upwards sloping demand curve as the price of advice increases (Veblen 2009).

To test this hypothesis further, we separate the sample into control and treatment group. We report the regression results in Appendix 4. In the old regime group, advice-seeking increases indeed with the higher advice fee, significant at the 5% level. Within the price range we investigated, demand for financial advice seems to increase as price increases. A possible explanation is that the value of financial advice is difficult to judge. If so, participants may take a higher difference in interest rates to be indicative of a higher value product. The higher perceived value of financial advice in turn explains the higher demand for financial advice.

Note however that the "Veblen-effect" for financial advice is absent in the new regime group. The coefficients for the price of financial advice are negative, as we would expect of a good obeying the law of demand. The fact that financial advice behaves according to the law of demand in the new regime group makes it even more puzzling that a higher mark-up on the interest rate is associated with higher demand for financial advice in the old regime. If people are more likely to opt for the advised option at a higher interest rate mark-up in the old regime because they take the higher mark-up to be indicative of the higher value of financial advice, this effect should be at least as pronounced in the new regime. The reason is that we otherwise find that presenting the costs in terms of differences in interest rates tends to obscure the price

of financial advice.

The columns in Table 5 show specifications of the model with different controls. The only control that is robustly associated with advice-seeking is sex: Men are less likely to take out financial advice than women, significant at the 1% level (column 1) and 5% level (column 2). In column 3, which includes controls on mortgage characteristics, the negative coefficient is not significant. This is likely due to the much-diminished sample size.

Focusing on the results for the new regime group reported in Appendix 4 only, it appears that being divorced might have a small positive effect on advice-seeking propensity. A possible explanation is that the divorced gather experience with working with professional consultants, in this case lawyers, during the divorce procedure. Perhaps people going through divorce proceedings make positive experiences with lawyers, and these experiences have an effect on their readiness to trust financial advisors.

Table 5: Regression results: advise-seeking propensity depending on regime type and fee-size

	(1)	(2)	(3)
Variables	Advise-seeking	Advise-seeking	Advise-seeking
New Regime	-0.3401***	-0.3641***	-0.3973***
	(0.0591)	(0.0720)	(0.1003)
High Advice Fee	0.0606	0.0708	0.1837*
	(0.0590)	(0.0720)	(0.0983)
High Self-Execution Fee	0.1698***	0.1335*	0.2548***
	(0.0589)	(0.0719)	(0.0973)
Male	-0.2251***	-0.2045**	-0.1389
	(0.0702)	(0.0875)	(0.1297)
Age (18-34 omitted)			
35-44 years	1.0588*	0.1183	0.1907
	(0.6333)	(0.1575)	(0.2609)
45-54 years	1.0731*	0.0944	0.3228
	(0.6329)	(0.1556)	(0.2617)
55-64 years	0.9919	0.1109	0.2732
	(0.6311)	(0.1600)	(0.2721)
65 and older	0.9039	0.0396	0.2894
	(0.6360)	(0.2084)	(0.3293)
Education (School Degree omitted)			
Vocational degree	-0.0511	-0.0252	0.0448
	(0.0696)	(0.0872)	(0.1246)
University degree	-0.0872	-0.0773	0.1162
	(0.0946)	(0.1162)	(0.1609)
Log Net Household Income	0.0482	0.2327**	0.2077
	(0.0740)	(0.1028)	(0.1712)
Log Net Household Wealth	0.0047	-0.0125	-0.0100
	(0.0122)	(0.0167)	(0.0284)
Married	0.0654	0.0072	0.0806
	(0.0758)	(0.0960)	(0.1373)
Divorced	0.1168	0.0957	0.4486**
	(0.1320)	(0.1615)	(0.2228)
Number of kids in Household	-0.0426	-0.0234	-0.0255
	(0.0405)	(0.0449)	(0.0594)
Self-Employed	-0.0897	-0.1207	-0.2653
	(0.1369)	(0.1652)	(0.2391)
Retired	-0.0915	-0.0735	-0.1351
	(0.1172)	(0.1615)	(0.2250)
Unemployed	-0.0065	-0.0721	-0.1829
	(0.1288)	(0.1822)	(0.2749)
Government worker	-0.1142	-0.1539	-0.0444
	(0.1050)	(0.1180)	(0.1547)
Risk Propensity	-0.0735*	-0.0256	-0.0372
	(0.0375)	(0.0484)	(0.0663)
Financial Literacy			
Basic Financial Literacy		-0.0664	-0.0698
		(0.0471)	(0.0677)
Advanced Financial Literacy		-0.0137	-0.0359
		(0.0162)	(0.0233)
Mortgage taken after regime change		0.0461	-0.0452
		(0.0806)	(0.1111)
Mortgage characteristics			
Payment-to-Income ratio			0.2097
			(0.1902)
Loan-to-Income ratio			0.2110
			(0.4181)
Constant	0.0264	0.0548	-0.2144
	(0.8140)	(0.8120)	(1.3601)
Observations	891	596	335
R-squared	0.0796	0.0864	0.1396

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

It is noteworthy that neither basic nor advanced financial advice are significantly associated with advice seeking in the regression, suggesting that there is not a strong linear relationship between literacy and the propensity to take financial advice. However, the regression in Appendix 4 differentiating for regime type shows that advanced financial literacy does have a significant negative effect on advice-seeking in the new regime, at the 5% or 10% level depending on model specifications. This result warrants investigating the relationship between financial literacy and advice seeking further.

Table 6 shows basic and advanced literacy scales normalized to a scale from 0 to 1, differentiating between participants who opted for the advised mortgage option and participants that opted for execution-only. The differences in mean scores are small, but significant at a 1% level for the new regime group. The difference between the advanced literacy scores of participants in the new regime group is 0.09. This difference is equivalent to about one additional correct answer on the eleven-item questionnaire for participants choosing the execution-only option. By contrast, the same difference for the old regime group is only 0.03, representing about a third of an additional correct answer for the execution-only group. This result suggests that the improvement in transparency of the cost of financial advice in the new regime leads to some people with high financial literacy to opt for the execution-only option who would in the old regime have opted or the advised option.

Table 6: Advanced Financial Literacy Scores of Advice Seekers

	Advised Mortgage (Normalized Score)	Execution-only Mortgage (Normalized Score)	p-value of difference
Basic Financial Literacy			
New Regime	0.83	0.88	0.01
Old Regime	0.85	0.88	0.03
Advanced Financial Literacy			
New Regime	0.61	0.70	0.00
Old Regime	0.66	0.69	0.15

Figure 2 shows the proportion of respondents opting for the advised option depending on advanced financial literacy scores. The figure shows that the difference in advice-seeking propensity between the two regimes is greatest for participants with high financial literacy. In the old regime, nearly seven out of ten participants with the highest financial literacy score took the advised option, whereas less than half of participants in this group did in the old regime. Similarly in the new regime, participants low in financial literacy are less likely to opt out of financial advice as well, but the drop is smaller. In the old regime, more than 8 out of ten participants with low financial literacy (less than 6 out of 11 advanced financial literacy questions answered correctly) took financial advice. By contrast, in the new regime, seven out of ten participants in the same group took financial advice.

Overall the regime change leads to a drop in advice-seeking across the who range of financial literacy. While the drop is largest for highly financially literate people, it is still larger than 10pp. for the least financially literate.

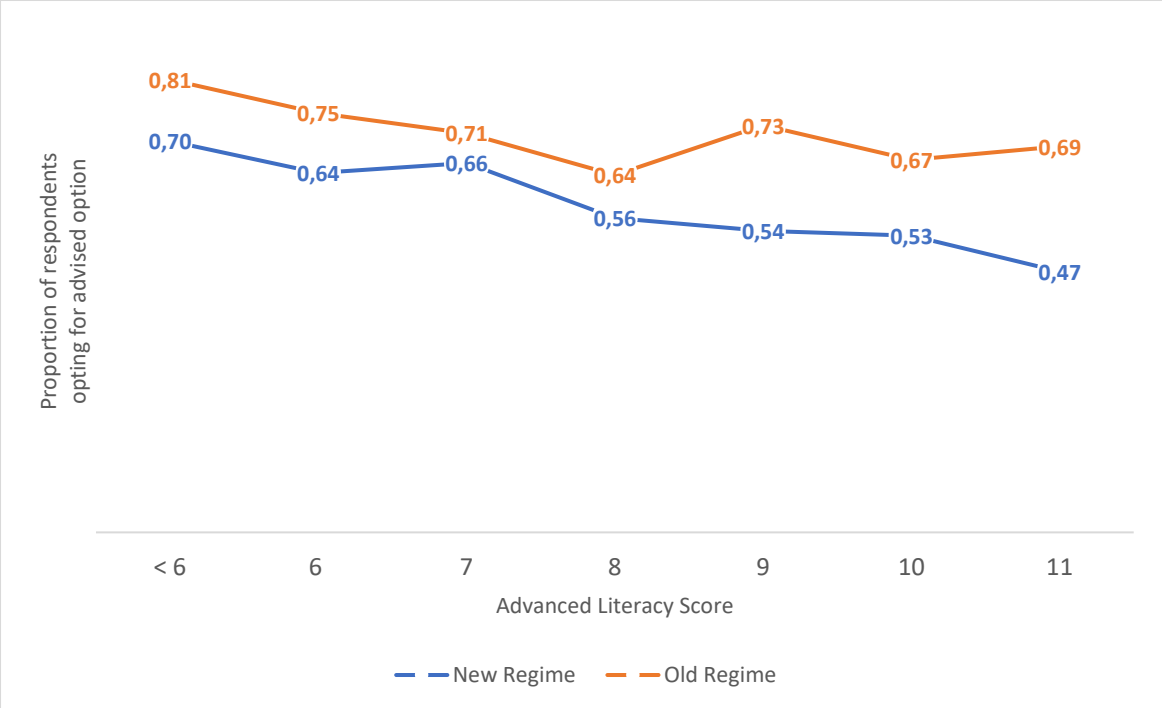

Figure 2: Proportion of respondents opting for advised option depending on advanced financial literacy scores

6. Discussion and Conclusion

In the European Union and across the world, governments are attempting to improve consumer protection in finance (Moloney 2010; MacNeil and O'Brien 2010). Mortgages receive particular attention due to the role of subprime mortgages in the recent financial crisis (Admati and Hellwig 2013). The commission ban in the compensation regime of financial advisors is one element in a larger effort of regulators in various countries to reform its financial system. The regime change is targeted at reducing conflicts of interest faced by financial advisors. If advisors are only remunerated by customers directly, no particular mortgage provider can skew the incentives of advisors towards some of their products, to the possible detriment of mortgage borrowers.

In the debate about incentives, the effect of the commission ban on the decisions of consumers are sometimes neglected. We studied the effects of switching from a commission-based to a fee-based remuneration model for financial advisors on the decision-making of households.

The most pronounced effect is a sharp drop in advice-seeking. Presenting the costs of financial advice as a fee to be paid upfront makes the price more salient. Greater transparency leads customers to think twice about whether they really want to pay for financial advice, resulting in a drop of advice-seeking of 3-30pp., depending on the price difference between the advised and the execution-only options, and whether customers take out a new mortgage or refinance an existing mortgage.

In the commission-based regime, customers were largely price-insensitive. In fact, we found that increasing the mark-up on the interest rate for the advised option tends to significantly increase rather than decrease the demand for financial advice, if by a small amount. By contrast, in the new fee-based regime, the willingness to pay for advice drops by 1-2pp. for an increase in the difference between the self-execution and the advised option of 100 EUR.

There is a notable difference between the willingness of customers to pay for advice for taking out a new mortgage compared with refinancing an existing mortgage in the new regime. Advice-seeking is 10pp. lower for refinancing an existing mortgage than for taking out a new mortgage. This difference in the willingness to pay does not appear in the old regime group. Does the decreased willingness to pay for advice in refinancing a mortgage correspond to a diminished need for advice? If households are happy with the terms of their old mortgage, refinancing a mortgage can be more straightforward than taking out a new mortgage. But many households in the Netherlands have several mortgages, or would benefit from switching the kind of mortgage product they buy, for instance from an interest-only to an annuity mortgage. Making these choices is often more rather than less difficult than taking out a new mortgage for a household that does not have any mortgages yet.

The most financially literate participants show the largest drop in advice-seeking, of more than 20pp., in the new regime as compared to the old. The drop for the least financially literate is at 10pp. however still considerable. A sizable group of financially illiterate customers would have taken out financial advice in the old regime opts against advice in the new regime. Further research is needed on whether this "advice gap" for people low in financial literacy leads them to make bad mortgage choices.

Our results show that we should expect an advice-gap to emerge in the new fee-based compensation regime among households low in financial literacy. If we assume that households low in financial literacy would benefit from financial advice, this is a worrying result from a policy perspective. However, further research is needed on the relationship between financial advice and mortgage outcomes. Research on the impact of investment advice on the composition of household portfolios suggests that financial advice may be necessary but not be sufficient for households low in financial literacy to achieve good financial outcomes

(Bhattacharya et al. 2012). Another study finds that investment portfolios of households with low financial literacy who rely on their own decision-making capabilities perform worse than the portfolios of low-literacy households who rely on professional or private advice (Gaudecker 2015). Further research should investigate the impact of financial advice on mortgage outcomes.

In the introduction, we considered the impact of various theoretical considerations on advice seeking after the regime change. Our experiment shows that both rationalist considerations and behavioural biases are needed to explain the changes in advice seeking after the regime change. Part of the drop in advice-seeking can be explained by the rational calculation of consumers, especially among the more financially literate group. Rationalist considerations may also explain the price-sensitivity of consumers in the new regime. The drop in advice-seeking among the least financially literate is more difficult to explain, especially given the drop in the price of financial advice in the new regime. Framing effects, loss-aversion, and hyperbolic discounting may account for these results.

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Appendix 1

Table 7: Summary statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
Male	1,174	0.66	0.47	0	1
Age	1,174	58.39	15.47	21	92
University Degree	1,174	0.16	0.37	0	1
Net Household Income	1,174	2803	1385	0	12617
Net Household Wealth	1,174	52116	164791	1	2874771
Married	1,174	0.60	0.49	0	1
Divorced	1,174	0.07	0.25	0	1
Number of Children in Household	1,174	0.49	0.92	0	5
Self-Employed	1,174	0.05	0.22	0	1
Retired	1,174	0.36	0.48	0	1
Unemployed	1,174	0.07	0.26	0	1
Government worker	1,174	0.09	0.29	0	1
Risk propensity	1,092	0.00	0.83	-1.22	2.24
Basic Financial Literacy	1,174	4.19	0.90	1	5
Advanced Financial Literacy	1,174	6.57	3.13	0	11
Has a mortgage?	1,164	0.75	0.43	0	1
Worked with financial advisor?	872	0.83	0.37	0	1
Got mortgage after 1.1.2013?	726	0.32	0.47	0	1
Loan-to-Value Ratio	478	0.55	0.35	-0.05	2.61
Payment-to-Income Ratio	498	0.19	0.15	0.00	1.84

Table 8: Correlation Table

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1 Regime	1.00																						
2 High Advice Fee	-0.04	1.00																					
3 High Execution-only Fee	0.01	0.00	1.00																				
4 Male	0.02	-0.02	0.03	1.00																			
5 Age	0.03	0.01	0.03	0.18	1.00																		
6 University Degree	-0.06	-0.01	0.00	-0.01	-0.14	1.00																	
7 Net Household Income	-0.06	-0.01	0.02	0.14	-0.16	0.25	1.00																
8 Wealth	-0.02	-0.01	-0.04	0.06	0.08	0.10	0.08	1.00															
9 Married	0.03	0.02	0.00	0.34	0.18	-0.06	0.27	0.04	1.00														
10 Divorced	-0.04	0.04	-0.01	-0.18	0.05	-0.01	-0.17	-0.03	-0.33	1.00													
11 Number of Children in Household	-0.03	-0.01	-0.01	0.01	-0.42	0.02	0.25	-0.07	0.21	-0.02	1.00												
12 Self-Employed	-0.02	0.01	0.00	-0.04	-0.09	0.04	0.11	-0.03	-0.03	0.00	0.02	1.00											
13 Retired	0.00	0.01	0.03	0.19	0.70	-0.09	-0.08	0.09	0.14	0.01	-0.36	-0.18	1.00										
14 Unemployed	0.03	-0.01	-0.02	-0.08	-0.07	-0.02	-0.22	-0.04	-0.13	0.08	-0.05	-0.07	-0.21	1.00									
15 Government Worker	-0.05	0.04	-0.01	-0.04	-0.20	0.12	0.14	0.00	0.00	-0.01	0.11	-0.07	-0.19	-0.04	1.00								
16 Risk Propensity	-0.04	0.04	-0.03	0.19	-0.13	0.19	0.15	0.12	-0.04	-0.04	0.07	0.02	-0.09	-0.03	0.04	1.00							
17 Basic Financial Literacy Score	-0.05	0.00	0.00	0.16	-0.02	0.17	0.14	0.10	0.07	-0.03	0.05	-0.02	0.01	-0.05	0.09	0.19	1.00						
18 Advanced Financial Literacy Score	-0.02	0.02	0.03	0.30	0.03	0.22	0.28	0.17	0.12	-0.05	0.00	0.03	0.06	-0.10	0.07	0.33	0.36	1.00					
19 Has Mortgage	0.01	-0.02	0.04	0.15	0.02	0.08	0.32	0.04	0.24	-0.03	0.15	0.00	0.04	-0.21	0.05	0.12	0.15	0.26	1.00				
20 Worked with Advisor	-0.02	0.00	0.05	-0.07	-0.28	0.02	0.08	-0.08	0.02	0.07	0.16	0.02	-0.21	-0.02	0.06	-0.07	-0.05	-0.08	.	1.00			
21 Mortgage after regime change	-0.02	-0.01	0.03	-0.07	-0.30	0.04	0.09	-0.09	-0.07	-0.04	0.09	-0.05	-0.20	-0.02	0.10	-0.01	0.07	0.01	.	.	1.00		
22 Loan to Value Ratio	-0.08	-0.04	0.01	-0.11	-0.58	0.22	0.32	-0.10	-0.03	-0.07	0.30	0.01	-0.38	-0.01	0.16	0.09	0.05	0.07	-0.07	0.21	0.26	1.00	
23 Payment to Income Ratio	0.03	0.04	0.05	-0.03	-0.41	0.07	-0.07	-0.12	-0.08	0.05	0.21	0.15	-0.31	0.06	0.11	-0.04	-0.04	-0.03	-0.01	0.15	0.16	0.48	1

Appendix 2

Table 9: Example vignette mortgage refinancing

Suppose that you currently pay 7% interest on your mortgage. Given the low current low interest rates, you want to refinance your mortgage. Which of the following two options would you choose?

1) Advised Mortgage: A mortgage advisor guides you through the process of applying and helps you in selecting a mortgage. He/she answers your questions about mortgages, suggests a mortgage based on your preferences, provides you with an advisory report, and supports you in applying to the mortgage provider.

New regime: Cost: 2,150 EUR.

Old Regime: Interest rate: 2,60%

2) Execution only: You do the research yourself, select your own mortgage, and handle all the communication with the bank yourself. An advisor checks your application for completeness and passes it on to the mortgage provider.

New regime: Cost: 600 EUR.

Old Regime: Interest rate: 2,51%

Appendix 3

This appendix contains the regression of the regime on the control variables, demonstrating that the randomization worked. In the first column, which takes all controls into account for which data from the whole sample is available, none of the control variables is significant even at the 10% level. In column 2, we additionally control for risk propensity and whether the mortgage was taken after the regime change diminishes the sample size to about half. Again, none of the controls are significantly correlated with the regime. Column 3 includes two measures of mortgage characteristics, the payment-to-income ratio of the mortgage and the loan-to-value mortgage ratio, the calculation of which requires data only available for about a third of our sample. In this last sample, being a government worker becomes significant at a

1% level. Overall, the regression analysis supports the assumption that participants have been randomly assigned to regime groups.

Table 10: Regression of treatment status on all control variables

Variables	(1) regime	(2) regime	(3) regime
Male	0.0101	0.0233	0.0273
	(0.0356)	(0.0466)	(0.0691)
Age (18-34 omitted)			
35-44 years	-0.2379	-0.0575	-0.0149
	(0.2119)	(0.0857)	(0.1451)
45-54 years	-0.1753	0.0015	0.0411
	(0.2109)	(0.0850)	(0.1454)
55-64 years	-0.1212	0.0096	0.1476
	(0.2097)	(0.0874)	(0.1502)
65 and older	-0.1653	-0.0396	0.0621
	(0.2132)	(0.1119)	(0.1827)
Education (School Degree omitted)			
Vocational degree	0.0268	-0.0400	-0.0335
	(0.0346)	(0.0467)	(0.0672)
University degree	-0.0331	-0.0883	-0.1603*
	(0.0488)	(0.0635)	(0.0862)
Log Net Household Income	-0.0401	-0.0538	-0.0239
	(0.0322)	(0.0557)	(0.0920)
Log Net Household Wealth	-0.0054	0.0017	-0.0035
	(0.0057)	(0.0086)	(0.0137)
Married	0.0338	0.0372	-0.0026
	(0.0375)	(0.0510)	(0.0735)
Divorced	-0.0816	0.0240	0.1343
	(0.0638)	(0.0869)	(0.1192)
Number of kids in Household	-0.0092	-0.0056	0.0133
	(0.0204)	(0.0242)	(0.0319)
Self-Employed	-0.0535	-0.0700	-0.1212
	(0.0686)	(0.0885)	(0.1332)
Retired	-0.0138	0.0060	-0.0461
	(0.0578)	(0.0846)	(0.1202)
Unemployed	0.0028	0.0344	0.1422
	(0.0614)	(0.1028)	(0.1482)
Government worker	-0.0387	-0.0612	-0.2434***
	(0.0547)	(0.0654)	(0.0848)
Financial Literacy			
Basic Financial Literacy	-0.0226	-0.0154	0.0396
	(0.0179)	(0.0248)	(0.0365)
Advanced Financial Literacy	0.0020	-0.0014	-0.0085
	(0.0057)	(0.0080)	(0.0124)
Mortgage taken after regime change		0.0049	-0.0473
		(0.0439)	(0.0602)
Risk Propensity		-0.0390	-0.0530
		(0.0262)	(0.0358)
Mortgage characteristics			
Payment-to-Income ratio			0.2723
			(0.2288)
Loan-to-Income ratio			0.0456
			(0.1046)
Constant	1.0819***	0.9983**	0.5377
	(0.3028)	(0.4376)	(0.7288)
Observations	1,146	679	360
R-squared	0.0181	0.0247	0.0889

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Appendix 4

Table 11: Regression results: advise-seeking propensity depending on regime type and fee-size

	(1)	(2)	(3)	(4)	(5)	(6)
		Old Regime			New Regime	
Variables	Advise-seeking	Advise-seeking	Advise-seeking	Advise-seeking	Advise-seeking	Advise-seeking
High Advice Fee	0.1619**	0.2270**	0.3332**	-0.0683	-0.1421	-0.0504
	(0.0808)	(0.0982)	(0.1390)	(0.0870)	(0.1090)	(0.1520)
High Self-Execution Fee	0.1513*	0.1122	0.2431*	0.1637*	0.1134	0.2363
	(0.0811)	(0.0963)	(0.1332)	(0.0872)	(0.1101)	(0.1530)
Male	-0.2574***	-0.3151***	-0.1928	-0.2380**	-0.1828	-0.2551
	(0.0960)	(0.1190)	(0.1877)	(0.1041)	(0.1325)	(0.2012)
Age (18-34 omitted)						
35-44 years	0.1485	0.2022	0.3011	1.1623*	0.0217	0.0977
	(0.1806)	(0.2067)	(0.3344)	(0.6550)	(0.2441)	(0.4369)
45-54 years	0.3256*	0.3617*	0.4555	0.9801	-0.1958	0.0654
	(0.1741)	(0.2090)	(0.3419)	(0.6529)	(0.2380)	(0.4342)
55-64 years	0.2853	0.3286	0.5640	0.8508	-0.2121	-0.0945
	(0.1751)	(0.2171)	(0.3688)	(0.6486)	(0.2398)	(0.4359)
65 and older	0.1683	0.3735	0.8124*	0.8058	-0.3577	-0.3255
	(0.2117)	(0.2742)	(0.4362)	(0.6583)	(0.3212)	(0.5345)
Education (School Degree omitted)						
Vocational degree	-0.0012	0.0221	0.1168	-0.1034	-0.0856	-0.1040
	(0.0980)	(0.1226)	(0.1863)	(0.1011)	(0.1278)	(0.1879)
University degree	-0.0480	-0.0269	0.1855	-0.1168	-0.1193	0.1129
	(0.1274)	(0.1569)	(0.2195)	(0.1439)	(0.1789)	(0.2750)
Log Net Household Income	0.1124	0.1813	0.1312	-0.0294	0.2383	0.1478
	(0.1137)	(0.1460)	(0.2452)	(0.0996)	(0.1556)	(0.2774)
Log Net Household Wealth	0.0013	-0.0143	-0.0392	0.0110	-0.0044	0.0201
	(0.0164)	(0.0215)	(0.0378)	(0.0184)	(0.0268)	(0.0467)
Married	0.0569	0.0657	0.1420	0.0680	0.0059	0.1473
	(0.1056)	(0.1303)	(0.1827)	(0.1103)	(0.1474)	(0.2257)
Divorced	0.3204*	0.3877*	0.7807**	-0.2126	-0.1713	0.3806
	(0.1803)	(0.2232)	(0.3512)	(0.1983)	(0.2484)	(0.3259)
Number of kids in Household	-0.0604	-0.0292	-0.0108	-0.0034	-0.0190	-0.0992
	(0.0542)	(0.0583)	(0.0763)	(0.0616)	(0.0721)	(0.0983)
Self-Employed	-0.1371	-0.1179	-0.2098	-0.0544	-0.0237	-0.2362
	(0.1776)	(0.2160)	(0.3295)	(0.2233)	(0.2763)	(0.4194)
Retired	-0.1354	-0.1905	-0.5342	-0.0130	0.0924	0.2123
	(0.1667)	(0.2205)	(0.3326)	(0.1670)	(0.2429)	(0.3285)
Unemployed	0.1265	0.0381	-0.7246	-0.1247	-0.1281	-0.0783
	(0.1904)	(0.2764)	(0.5597)	(0.1769)	(0.2484)	(0.3388)
Government worker	-0.1013	-0.1811	0.0324	-0.1714	-0.1472	-0.3879
	(0.1372)	(0.1510)	(0.1858)	(0.1671)	(0.1931)	(0.3031)
Risk Propensity	-0.0555	-0.0662	-0.0964	-0.0986*	0.0167	0.0327
	(0.0520)	(0.0638)	(0.0882)	(0.0552)	(0.0766)	(0.1071)
Financial Literacy						
Basic Financial Literacy		-0.0321	-0.0691		-0.0989	-0.0713
		(0.0606)	(0.0862)		(0.0760)	(0.1203)
Advanced Financial Literacy		0.0211	0.0001		-0.0482*	-0.0758**
		(0.0219)	(0.0339)		(0.0247)	(0.0358)
Mortgage taken after regime change		-0.0107	-0.0784		0.1201	-0.0662
		(0.1082)	(0.1490)		(0.1252)	(0.1847)
Mortgage characteristics						
Payment-to-Income ratio			0.0061			0.6292*
			(0.2384)			(0.3446)
Loan-to-Income ratio			-0.0374			0.3155
			(0.7319)			(0.5620)
Constant	0.2845	-0.1755	0.2714	0.3863	0.3289	0.2200
	(0.8611)	(1.1264)	(1.8926)	(0.9544)	(1.2558)	(2.2932)
Observations	472	320	180	419	276	155
R-squared	0.0769	0.0954	0.1758	0.0721	0.0952	0.1546

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Appendix 5

Table 12: Basic Financial Literacy Questions

#	Question	Answer
B1	Numeracy: 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?	*(i) More than €102;* (ii) Exactly €102; (iii) Less than €102; (iv) Do not know.
B2	Interest compounding: Suppose you had €100 in a savings account and the interest rate is 20% per year and you never withdraw money or interest payments. After 5 years, how much would you have on this account in total?	*(i) More than €200;* (ii) Exactly €200; (iii) Less than €200; (iv) Do not know.
B3	Inflation: Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account?	(i) More than today; (ii) Exactly the same; *(iii) Less than today;* (iv) Do not know.
B4	Time value of money: Assume a friend inherits €10,000 today and his sibling inherits €10,000 3 years from now. Who is richer because of the inheritance?	*(i) My friend;* (ii) His sibling; (iii) They are equally rich; (iv) Do not know.
B5	Money illusion: Suppose that in the year 2010, your income has doubled and prices of all goods have doubled too. In 2010, how much will you be able to buy with your income?	(i) More than today; *(ii) The same;* (iii) Less than today; (iv) Do not know.

Table 13: Advanced Financial Literacy Questions

#	Question	Answer
A1	Which of the following statements describes the main function of the stock market?	(i) The stock market helps to predict stock earnings; (ii) The stock market results in an increase in the price of stocks; *(iii) The stock market brings people who want to buy stocks together with those who want to sell stocks;* (iv) None of the above; (v) Do not know.
A2	Which of the following statements is correct? If somebody buys the stock of firm B in the stock market:	*(i) He owns a part of firm B;* (ii) He has lent money to firm B; (iii) He is liable for firm B's debts; (iv) None of the above; (v) Do not know.
A3	Which of the following statements is correct?	(i) Once one invests in a mutual fund, one cannot withdraw the money in the first year; *(ii) Mutual funds can invest in several assets, for example invest in both stocks and bonds;* (iii) Mutual funds pay a guaranteed rate of return which depends on their past performance; (iv) None of the above; (v) Do not know.
A4	Which of the following statements is correct? If somebody buys a bond of	(i) He owns a part of firm B; *(ii) He has lent money to firm B;* (iii) He is liable for firm B's debts; (iv) None of the above; (v) Do not know.

	firm B…	
A5	Considering a long time period (for example 10 or 20 years), which asset normally gives the highest return?	(i) Savings accounts; (ii) Bonds; *(iii) Stocks;* (iv) Do not know.
A6	Normally, which asset displays the highest fluctuations over time?	(i) Savings accounts; (ii) Bonds; *(iii) Stocks;* (iv) Do not know.
A7	When an investor spreads his money among different assets, does the risk of losing money	(i) Increase; *(ii) Decrease;* (iii) Stay the same; (iv) Do not know.
A8	If you buy a 10-year bond, it means you cannot sell it after 5 years without incurring a major penalty. True or false?	(i) True; *(ii) False;* (iii) Do not know.
A9	Stocks are normally riskier than bonds. True or false?	*(i) True;* (ii) False; (iii) Do not know.
A10	Buying a company stock usually provides a safer return than a stock mutual fund. True or false?	(i) True; *(ii) False;* (iii) Do not know.
A11	If the interest rate falls, what should happen to bond prices?	**(i)** *Rise*; (ii) Fall; (iii) Stay the same; (iv) None of the above; (v) Do not know; (vi) Refusal.

Table 14: Summary Statistics Basic Financial Literacy

Panel A: Percentage of respondents who answered individual questions correctly / incorrectly / do not know

	Question				
	1	2	3	4	5
Correct	90%	81%	88%	63%	73%
Incorrect	6%	16%	6%	29%	22%
Don't know	4%	3%	6%	8%	5%

Panel B: Percentage of respondents with respective number of correct / do not know answers

	Number of questions					
	None	1	2	3	4	5
Correct	2%	2%	6%	15%	33%	40%
Do not know	85%	9%	1%	0%	0%	1%

Table 15: Summary Statistics Advanced Financial Literacy

Panel A: Percentage of respondents who answered individual questions correctly / incorrectly / do not know

	Question										
	1	2	3	4	5	6	7	8	9	10	11
Correct	69%	69%	64%	63%	50%	79%	77%	30%	69%	54%	27%
Incorrect	10%	19%	13%	14%	29%	9%	13%	28%	9%	12%	38%

Panel B: Percentage of respondents with respective number of correct / do not know answers

	Number of questions											
	—	1	2	3	4	5	6	7	8	9	10	11
Correct	7%	3%	3%	6%	6%	9%	10%	13%	13%	12%	9%	9%
Do not know	11%	9%	6%	5%	4%	3%	2%	2%	1%	0%	0%	0%