

Does a financial crisis make consumers increasingly prudent?

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Abstract

Given the enormous impact of the 2007-2010 worldwide financial crisis on societies, one may wonder what the impact was on individual consumer behavior concerning financial products and services. A natural expectation would be that the crisis made people aware of the risks and consequently that they should become increasingly prudent when their own finances are at stake. Prudence can appear in gathering more information, more frequently asking for advice and higher reluctance to buy higher risk and unknown products. In this paper we hold statements of recent buyers of financial products and services against those of a representative group of already long term owners of financial decision makers.

Interestingly, based upon detailed data covering the period 2007-2013 we find only small differences between recent closers and the representative group. In fact, in most cases these differences point towards less prudent behavior. Moreover, we find that these differences cannot be explained by GDP growth. We also find that higher educated consumers show more prudence. In sum, we document that consumer behavior is relatively indifferent to changes at a macroeconomic level.

JEL Classification: D1; D8; D14; G02

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1. Introduction

The 2007 to 2010 financial crisis left its mark. It was covered by much media attention, and professionals working in the financial sector received much criticism. Policy measures were taken to prevent a next crisis, and the crisis generated much unbeneficial spin off at a societal as well as at personal levels. Examples of this impact are the European sovereign debt crises, slowly recovering economies, rising unemployment rates, pension funds getting in danger zones, and severe losses on the housing market. In this paper we examine the potential consequences of the financial crisis at a more individual level and we examine whether the crisis left its mark upon the attitudes of consumers of financial products and services. More specifically, is there a difference between what consumers say they will do and how they actually act. Within public debates it has been repeatedly stated that confidence in the financial sector shrank (Roth, 2009). Hence we may expect that consumers are aware of the risks related to the financial sector, and consequently, we would expect that the attitude of consumers has become increasingly prudent.

Rephrasing Kerja & Slovic (2012), we thus wonder how consumers of financial products and services ‘behave in this new, uncertain, and more dangerous environment?’ Have they become more prudent – as could be expected – or not? This question addresses the larger issue of the interaction between macro and micro effects (Fizel & Johnson, 1986; Beugelsdijk, 2006; Uslaner, 2008), and we address whether macroeconomic fluctuations have an impact on micro-level individual consumer behavior (Johnson & Tversky, 1983) would assume an indirect relationship, where they show that events at a societal level can have an impact upon personal attitude and behavior, with awareness being sufficient for adjusting attitudes. However, the direction of the effect is not the same in all circumstances. Depending on intensity and framing of information, there will be either amplification or attenuation of risk.

This line of thought is contested by Malmendier & Nagel (2011) and Tyler & Cook (1984), where these authors stress the importance of firsthand experience as a mediator between macro changes and micro effects. As long as societal phenomena are aligned with personal experiences, attitude change is expected to happen, and otherwise no significant effect will appear (Malmendier & Nagel, 2011). This latter result is associated with the impersonal impact hypothesis (Tyler & Cook, 1984). According to this hypothesis phenomena

at a macro societal level do not have a significant impact upon personal attitudes, that is, they affect at most the attitude towards societal issues.

Summarizing, within academic research there is debate on whether or not direct experiences are needed for a change in attitude. The recent financial crisis created a general awareness of risk related to the financial domain, and hence we expect that attitudes towards financial products and services should change. In our study we compare the statements and behavior of recent buyers of financial products and services with a representative group of financial decision makers. As such, we focus on the potential differences between firsthand decision makers – the recent buyers – and a group who made their decisions at an earlier moment. We also consider the potential mediating role of education levels, where we expect that for higher educated individuals the difference between earlier and recent financial decision makers is smaller.

Our study examines the attitude and behavior of consumers of financial products and services concerning the financial market in the Netherlands, where we analyze data on consumer attitudes in the period 2007 -2013. This period can be characterized by a number of changes and developments at the macroeconomic as well as the microeconomic level. In 2007 the crisis was hardly visible within the Netherlands. Macroeconomic forecasts published by the Dutch Central Planning Bureau (CPB) were optimistic in those days. In 2007, the overall perspective was positive as a substantial economic growth combined with a decrease in unemployment was foreseen (CPB, 2007). At a macroeconomic level pessimism enters in the beginning of 2009, a couple of months after the collapse of Lehman Brothers in September 2008 (CPB, 2009; CPB, 2008). The macroeconomic prospects published in the Spring of 2009 indicated that growth is expected to be negative, that unemployment will increase towards 8.75% in 2010 (CPB, 2010). Macroeconomic prospects, published in September 2009, were not much better. In addition to macroeconomic developments there is the bankruptcy of the Belgian-Dutch Fortis Bank. The Dutch government intervenes with a bailout to prevent a system breakdown. The Fortis bank is the first one but not the last one to get itself and the financial markets into trouble as it was to be followed by ING, DSB and SNS. Next to pessimistic prospects at a macro level, and problems within the financial sector, the housing market got stuck. Housing prices tumble down and consequently house owners have to deal with underwater mortgages and take losses when they want to sell their houses. During this period discussions on a European Sovereign debt crisis started to appear on front pages of national newspapers. All in all it then becomes clear that the financial sector generates substantial risk at a macro level as well as at a micro level. After a dip in 2009, the

outlook became positive again, although the forecasted growth remains small. In 2012 the actual growth is negative, but future prospects remain positive.

To gain insight in the consumer attitudes on the Dutch financial market, we use data from the *Netherlands Authority for the Financial Markets* (AFM). Since 2006 an independent market research firm commissioned by the AFM has conducted online surveys on individual consumers. The questionnaires cover topics related to loans, mortgages, and investments. Between 2007 and 2013 the same questions have been included with respect to consumer attitudes and levels of education and this makes a comparison across the years possible. The questions cover information gathering, decision making, product choice, sharing responsibility and judgment on the organization of the market. Bi-annually between 1000 and 1600 respondents participated in this consumer panel. The data will allow us to examine whether or not attitudes have changed within this time span. The data also allow for making a distinction between those who are closely involved – recent consumers of financial products and services – and those who acquired the products at an earlier stage before the crisis.

The *Netherlands Authority for the Financial Markets* (AFM) is one of two supervisors within the Dutch Twin Peak model. Together with the Dutch *Central Bank* (“De Nederlandsche Bank”, DNB) it takes care of supervision in the Dutch financial sector. The Central Bank focuses on financial institutions, and takes care of prudential supervision. It functions as a safeguard to financial stability and monetary policy, and it provides the government with economic advice. The AFM focuses on the relationship between financial consumers and financial institutions. Hence, this supervisor is responsible for regulating behavior within the financial sector. The AFM was founded in 2002 as a successor to the Dutch Securities Board.

Our study complements other research focusing on changes in attitude within the financial sector. Barberis (2013) relates the financial crisis to behavioral finance by studying over-extrapolation and belief manipulation. Hoffmann et al. (2013) examine the change in individual investor perceptions and behavior during the crisis. They find significant fluctuations of investor perceptions during the crisis and a recovery of perceptions towards the end of the crisis. Glaser & Weber (2005) examine the influence of the 9/11 tragedy. They conclude that individual investors’ expectations recover fast. Investors expect mean reversion after the crisis. Their volatility estimates are higher, and hence there is less overconfidence, and differences of opinions with regard to return forecasts are lower, whereas differences of opinions concerning volatility forecasts are unaffected. Our study focuses on consumers of financial products and not on investors and allows for differences across owners of financial

products and services and consumers of financial products and services. In contrast to earlier research, we do not focus on professionals but on individual consumers.

Our paper can be positioned as a contribution to behavioral finance (Thaler & Sunstein, 2008). The goal of this domain of research is to design innovations that can improve the financial outcomes of individuals. Although it is not clear whether or not an increasingly prudent attitude will pay off financially, a claim can be made that an increasingly prudent attitude is wanted both at a micro and a macro level. At an individual level a prudent attitude can lead to better, more beneficial, decision making. It can therefore contribute to an improved awareness of uncertainties related to financial products and services, and a possible safety net to deal with these uncertainties. At a macro level a prudent attitude can become a countervailing power, it can put the sector under ongoing pressure to perform in a prudent and professional way. Our research elaborates on the question whether a more prudent attitude is self evident or needs a design. If consumers develop a prudent attitude themselves no additional measures are needed per se. However, if they do not develop that attitude, then other actors like government institutions, financial institutions, educational institutions or legal institutions are required to come up with a prudency stimulating design.

Our paper is structured as follows. In the next section we present our theoretical framework. Mediators like indirect or firsthand experiences are discussed and transformed into indirect and firsthand decision making. Furthermore, we take education levels into account as higher educated people may not need a firsthand experience to draw proper conclusions. Subsequently, we will translate the difference between indirect and first hand experiences towards indirect and firsthand application. The latter represents a group that has to apply newly gathered knowledge immediately and this group is of our focal interest. The section ends with an overview of hypotheses to be tested below. The third section contains a specification of data and methodology and the fourth section summarizes the results. In the last section we address the main question of our study, which is “Did consumer attitudes on personal finance products and services become increasingly prudent in the period 2007 to 2013?” , and its two related questions which are: “Is there a difference between consumers who have to act and those who only have to consider the possibility of acting?” and “Is there a difference in attitude between higher and lower educated people?” Finally, the consequences of our findings for theory, research and policy are discussed.

2. Theoretical framework and hypotheses

The general discussion concerns the interaction between events at a macro level and attitudes at a micro level. The more focused discussion concerns the interaction between the financial crisis (macro) and the personal attitudes towards financial products and services (micro). This section contains an outline of the theoretical discussions in related research. It is our intention to examine the difference between consumers who actually have to decide and between those who hypothetically decide, so between actual and virtual attitudes. The first group has a firsthand experience as the decision actually has to be made, whereas the representative benchmark group has an indirect “as if experience”. Based upon the literature of indirect and direct experiences we will formulate hypotheses. Following that, precise indicators to grasp changes at a macro and a micro level are presented. The section ends with an overview of the hypotheses to be tested next.

2.1 Firsthand or indirect experiences and decisions

In their article “Depression Babies: Do Macroeconomic Experiences affect Risk Taking” Malmendier & Nagel (2011) conclude that individuals who have experienced low market returns lower their willingness to take risks. Additionally, they are less likely to participate in the stock market, invest a lower fraction of their liquid assets in stocks and are more pessimistic about future stock returns. Their research, covering a period from 1960 to 2007, shows a relationship between macroeconomic events and personal attitudes, that is, if individuals experience losses, they will become increasingly prudent with respect to loss. The relationship between personal experience of loss and attitude change is also studied by Loewenstein et al. (2001) as well as by Thaler & Johnson (1990). The latter authors confirm that sunk costs – losses made – lower willingness to take risks. Related to the financial crisis as well as the Dutch market the influence of change in attitudes through firsthand experiences has been confirmed in (Van der Crujsen, De Haan, & Jansen, 2013).

The impersonal impact hypothesis approaches the relationship between macro events and micro attitude change from a different angle (Tyler & Cook, 1984). According to this hypothesis, events affect the level where they are situated. Personal and societal level judgments are distinct and separate, that is, people will not draw personal implications from their general views about the world (Tyler & Cook, 1984, p. 705). As these authors write: “Societal level judgments refer to beliefs about the larger community and the condition of the

community residents in relation to some social phenomenon [...], personal level judgments refer to beliefs about the respondents own estimated risk of being victimized [...]" (Tyler & Cook, 1984, p. 693). When applied to the financial crisis this would mean that possible losses during a financial crisis, without experiencing actual losses, will not alter the risk perception at a personal level and hence prudence is not expected to increase.

In earlier research Tyler (1980) counters the assumption that firsthand experiences have greater influence compared to indirect experiences. Indirect experiences can include both informal social communication as well as mass media experiences (Tyler, 1980). A positive relationship between (over)exposure and the perception of risk is examined by Lichtenstein et al. (1978). Their research shows how people have a biased judgment on the frequency of death from several causes. The biases are related to a couple of sources, and these are disproportionate exposure, memorability, or imaginability of various events. While firsthand experiences may be involved – through memory – this is not necessarily the case. Kasper et al. (1988) nuance and elaborate upon the way the affect shows itself. Both the amplification and attenuation of risk are possible.

Although both perspectives are presented as opposites, this is not necessarily the case. Weinstein's position combines both views (Weinstein, 1989). On the one hand prudence and prevention after a disaster can be viewed as evidence of firsthand experiences. And on the other hand the failure of people to take precautions can also be attributed to firsthand experience or non experience, "because the lesson we learn about most hazards is that they do not happen to us" (Weinstein, 1989, p. 31). Or, by paraphrasing Weinstein, people will be reluctant to evacuate if the previous storm was not severe (Weinstein, 1989, p. 32). When relating these findings to our study we can conclude that opinions differ on whether or not there will be differences between those consumers with indirect and with direct experiences. So, according to some research there will be no difference between the group of recent buyers and the representative group, while according to other research there will be difference. The aim of our research therefore is to find out of "if", and "what kind of" differences occur.

Another overarching perspective that offers the opportunity to combine both perspectives is through Slovic's concreteness principle, that is "a judge or decision maker tends to use only the information that is explicitly displayed in the stimulus object, and will use it only in the form in which it is displayed" (Thaler & Johnson, Gambling with the house of money and trying to break even: The effects of prior outcomes on risky choice, 1990, p. 646; Slovic, 1972). So, in contrast to what is standard rational or bounded rational reasoning, individuals do not use all available historical data, but they use a selection of it (Malmendier

& Nagel, 2011). The form in which this selection of data is displayed further determines possible reactions to them, as has also been shown by Kahneman & Tversky (1984; 1979), Kahneman (1992) and by Janis & Feshbach (1953). Using the perspective of framing leaves room for firsthand experiences and for indirect experiences.

A final factor to address is the inverse relationship to be found between risk perception and the probabilities of winning, see Slovic et al. (2002, p. 335). People base their judgments not only on what they think, but also on what they feel “if they like an activity, they are moved to judge the risks as low and the benefits as high” (Slovic et al, 2007). In that case a change in attitude is dependent upon whether or not there is a change in the perception of the benefits. The expectation is that based on the financial crisis a change in the benefits affiliated with the activities on financial markets is to be expected.

2.2 Indicators for macro-economic events and changes in attitude on a micro level

The next step in our research is to define indicators for changes at a macro as well as at a micro level. At a macro level we look for indicators that express a change in macroeconomic perspectives. It should be indicators that are actively communicated to the public as only in that case it can be expected to influence the awareness. The Dutch Central Planning Bureau (CPB) offers biannual prospects that present macroeconomic expectations and realizations. Their forecasts are presented two times a year and always receive a considerable amount of media attention. Furthermore, they are used as input for government policy. The indicator to be used here is expected GDP growth. In the media this indicator is prominent as it seems to offer an overall perspective upon the state of affairs and future perspectives. We collect the GDP forecasts from various CPB reports (CPB: 2007; 2008; 2009; 2010; 2011; 2012; 2013).

Next to that, important events, landmarks, within the time span of research can be used. These are the fall of Lehman Brothers (September 2008), the government bail outs of Fortis (September-October 2008), ING (October 2008) and SNS real (November 2008), as well as the bankruptcy of DSB (October 2009). These events justify our specific focus on 2008, 2009 and 2010. Considering the impact of these events, which required the Dutch government to invest considerable amounts of money in the financial sector and they generated a substantial amount of media attention, it can be assumed that they contributed to the awareness of risk in the financial world.

At a micro level we look for indicators that express a change in attitude. In order to find out whether or not there is a difference between recent closers and the representative group of earlier financial decision makers, attitudes of both groups will be compared. A first

straightforward observation of whether or not consumer attitude changed towards more prudence can be found in the preferences for products. Do they prefer products with a different risk profile or not?

Additionally we will examine the decision making process by consumers of financial products and services. To deal with increased uncertainty, due to the financial crisis, consumers could try to find out either more themselves (Weinstein, 1989) or gather advice from third parties. So, additional indicators for changes in attitudes are the amount of time spent in looking for information and the consultation of professional or lay – family/friends - parties. The choice of these indicators is backed up by research on advice seeking. This research shows that expert contributions lead to more accurate decision making (Yaniv, 2004; Bonaccio & Dalal, 2006). The effect is the largest if multiple uncorrelated opinions are combined (Yaniv, 2004). However consumers do not only ask for advice to improve their decisions, but also out of social reasons – to accept help -, and to share responsibility (Harvey & Fischer, 1997). The willingness to share responsibility is found to be increasingly important when the risk associated with the decision is high (Harvey & Fischer, 1997). So, based upon this research it can be expected that the amount of information gained by the consumer itself or through asking advice will increase. This research does not specify which of both of the information sources is more consulted, that is, professional or lay advisors. Harvey & Fischer (1997) concluded that lay-consumers see themselves as capable of making reasonably good judgments. However, they perceive good judgment to be so cognitively demanding that they normally decide to place heavy reliance on their advisors' views. Only when judgments are particularly important do they decide to carry out the additional mental work needed to avoid this reliance. This suggests that novices should place less reliance on advisors and be less influenced by advisors' level of expertise when judgments are important. So, we expect that the amount of information they gather will increase. However it cannot be said on beforehand whether consumers will gather more information themselves or trust more upon professional as well as non professional advisors.

A final indicator that matters is personal characteristics. The indicator that will be used here is the level of education. The expectation is that higher-educated consumers are better able to relate macro events to micro circumstances, even if they did not experience the event firsthand. Hence, this group behaves more in accordance with rational or bounded rational behavior. The importance of education can also be found in the literature on advice seeking and advice accepting (Yaniv, 2004; Bailey, Kumar, & Ng, 2011; Bonaccio & Dalal, 2006; Glaser & Weber, 2005). Yaniv (2004) found that more knowledgeable individuals improved

their decision based upon advice, that is, their accuracy increased, but it was not optimal yet. This is also due to the fact that higher educated people on the one hand look for more advice, but on the other hand also stick more to their own opinions. Heath & Tversky (1991) refer to this as the competence hypothesis, that is, people prefer betting on their own judgments over an equal-probable chance event when they consider themselves knowledgeable, but not otherwise (Heath & Tversky, 1991). So, although it is not clear whether or not higher educated individuals will follow up the advice, an increase in information gathering and advice seeking can be expected.

2.3 Hypotheses

The statistical hypothesis to be tested is that the financial crisis leaves the attitudes of consumers unaffected, that is, they become neither more, nor less prudent. Related to the focus on personal finances, advice and products, this hypothesis is related to eight, research based, statements in the AFM survey (Zijlstra, 2012; Nipo, 2004). These are:

- Consumers will neither gather more, nor less information;
- Consumers will neither spend more, nor less time on acquiring a financial product or service;
- Consumers will neither trust more, nor less upon the professional advisor;
- Consumers will neither ask for more, nor for less lay advice;
- Consumers will neither prefer products with less risk, nor with more risk;
- Consumers will neither heighten, nor lower their level of aspiration when looking for products and services (the aspiration level is linked to striving for the best product);
- Consumers will be neither more willing, nor less willing to share responsibilities with providers of financial products.
- Consumers will be neither more willing, nor less willing to share responsibilities with the government.

For these statistical hypotheses we will consider the difference between recent buyers of financial products and services and a representative benchmark group of earlier financial decision makers; additionally we will examine, for both groups, whether or not the level of education has a significant influence upon the outcome. Explanations as to why the hypothesis is rejected or not can, according to the literature, be guided by the firsthand or indirect experience, or by the framing of the situation or the benefits.

3. Data and Methodology

3.1 Data

Since 2006 an independent market research firm commissioned by the AFM has conducted online surveys on members of a consumer panel on financial products and services. These panel sessions are scheduled in the first and the third quarter of the year. The questionnaire covers the following topics, that is, mortgages, pensions, investments, consumer credit, reputation AFM, and consumer attitudes. The focus of this paper is on the data gathered in the section on consumer attitudes, where the data cover 2007 to and including 2013. While other questions have been changed during the years, the questions on attitudes remained unchanged during this period. Four clusters that address attitudes can be distinguished: gathering information (1), decision making (2), products (3), and responsibility (4). All the questions are directly related to the decision making process. They concern the consumer as a decision maker and how they inform themselves (1), who they involve in their own process of decision making (2), what kind of products consumers prefer (3) and with whom consumers' responsibility for the decision is shared (4).

Respondents are distinguished in two groups: the buyers, who have acquired recently a financial product like a mortgage (and in some years consumer credit) and the representative benchmark group, a group representative for the Netherlands. The latter group already owns a financial product or service, and has made the relevant decision in an earlier stage. To make the dataset more representative the data of the representative group are weighted by weighting factors based on age, education, region, and so on. Because these weighting factors are missing for the buyers, these are not weighted. Table 1 provides a summary of how the respondents are divided over buyers and the representative group, and education.

Quarter	Total respondents	Buyers				Representative benchmark group			
		Total	Educated			Total	Educated		
			Low (%)	Middle (%)	High (%)		Low (%)	Middle (%)	High (%)
2007Q1	1474	941	6	29	65	533	10	27	63
2007Q3	1348	775	12	35	52	573	21	32	47
2008Q1	1224	600	13	31	56	624	18	27	56
2008Q3	1723	867	19	36	44	856	30	39	30
2009Q1	1308	802	18	43	39	506	36	40	25
2009Q3	1341	890	23	44	34	451	36	39	25
2010Q1	1341	887	19	41	40	454	35	39	26

2010Q3	1605	1195	20	41	39	410	36	30	34
2011Q1	1607	1148	20	40	40	459	36	31	34
2011Q3	1276	816	18	43	39	460	37	29	34
2012Q1	1260	846	17	41	42	414	35	40	25
2012Q3	1068	755	16	39	45	313	34	40	26
2013Q1	1316	952	16	40	44	364	35	42	24
2013Q3	1587	1018	17	37	46	569	34	43	24

Table 1: The number of respondents, separated into buyers and a representative benchmark group and their levels of education

3.2 Methodology

In our study we use 8 statements, 2 for each cluster. The answers are sorted in order of prudence. How the variables are recoded can be seen in Table 2.

Cluster	Variable	Less prudent	More prudent
1	Amount of information	1 (Limited information)	7 (Much information)
1	Amount of time spent on decision	1 (Little time)	7 (A lot of time)
2	Trust in professional advisor	1 (Much trust)	7 (Less trust)
2	Asking for lay advice	1 (Less advice)	7 (More advice)
3	Level of aspiration	1 (Acceptable product)	7 (Best product)
3	Preference for products with risk	1 (More risk)	7 (Less risk)
4	Share responsibility with providers	1 (Responsibility of consumer)	3 (Share)
4	Share responsibility with government	1 (Responsibility of consumer)	3 (Share)

Table 2: The used variables (statements) and how they are recoded

First general increases and decreases in the answers are analyzed, separately for the buyers and the representative group. For each variable, the averages of the answers across the quarters in the years are regressed on a constant and a trend. Next, we regress these averages on current and two quarters lagged GDP growth (the forecasts of the CPB) and on the average response of two quarters ago. Furthermore, we investigate if higher and lower educated respondents show differences in prudent behavior. This is done separately for the buyers and the representative group. Because we make use of discrete variables, this is done by a *Pearson Chi-Square* test. Only the most extreme answers are used. For each variable the minimum answers are aggregated, for cluster (1), (2) and (3) these are the values 1 and 2. For cluster (4) this concerns the value 1. Also the maximum answers are aggregated, for cluster (1), (2) and (3) these are the values 6 and 7. For cluster (4) this is the answer 3. The answers that are not in the minimum or maximum category are not used in this analysis. Also respondents that have a middle level of education are left out of the sample in this analysis. Under the statistical null hypothesis, there is no significant relation between education and prudent behavior, for each question. The total amount of respondents that give minimum and maximum answers is

assumed as given. As expected under the null hypothesis, in the group that answers less prudent (minimum answers) and the group that answers more prudent (maximum answers) the percentages of high and low education levels are the same. If there is a positive relationship between more prudent behavior and a higher level of education, the group that is high educated and answering more prudent, is (significant) larger than was expected under the null hypothesis. The opposite is true for a negative relationship.

4. Results

We present all the results in this section. First we look at the links between answers to statements with trends and GDP, and next, we focus on the level of education.

4.1 Cluster 1 statements: gathering information

The statements in Cluster 1 involve gathering information. When looking at the trends in the data, see Table 3, we see that both groups of consumers are less prudent when it comes to ‘amount of information’, as the trend parameter is significant for both groups. Regarding ‘amount of time spent on decision’, the trend for recent closers heads towards more prudence and the trend for the representative group of earlier financial decision makers heads towards less prudence, although neither of these trends is significant. If we relate the average answers to GDP growth we find that recent closers are in both cases increasingly prudent when GDP goes down, so in worse economic times more time is spent on acquiring a financial product. However, these correlations are not significant either.

Independent variables	Dependent variable							
	Amount of information				Amount of time spent on decision			
	Buyers		Representative group		Buyers		Representative group	
Intercept	4.90 (0.000)	0.81 (0.457)	5.00 (0.000)	2.07 (0.184)	4.84 (0.000)	1.11 (0.407)	4.84 (0.000)	6.24 (0.002)
Trend	-0.05 (0.000)		-0.03 (0.002)		-0.02 (0.020)		-0.01 (0.578)	
GDP growth		-0.01 (0.720)		-0.00 (0.893)		-0.02 (0.330)		0.01 (0.761)
Autoregressive term		0.82 (0.006)		0.56 (0.095)		0.76 (0.021)		-0.30 (0.344)
Lag of GDP growth		0.02 (0.460)		0.01 (0.675)		0.03 (0.141)		0.01 (0.702)
R ²	0.740	0.626	0.593	0.336	0.389	0.522	0.027	0.141

Table 3: Regression results for the Cluster 1 statements: trends and relation with GDP growth. P-values are given in parentheses. ; highlighted means significant at a 5% level

Table 4 shows that before the crisis (that is 2007) higher educated recent buyers were less prudent than lower educated recent buyers both for the ‘amount of information’ and the ‘amount of time spent on decision’. For the representative benchmark group there is no significant difference between higher and lower educated participants before the crisis, both for information gathering and time spent. In the heyday of the crisis higher educated people are slightly more prudent. However, in the aftermath of the crisis we find that within the representative group higher educated people are more prudent, again for both amount of information and time spent. Within the group of recent buyers the significant differences towards a more prudent attitude for higher educated people are to be found in the third quarter of 2011 and the third quarter of 2013. In almost all other quarters, higher educated closers seem to be more prudent, although the differences are not statistically significant. So, it seems that higher educated people in the representative group have learned their lessons from the crisis. However it is questionable if or to what extent they really will act in a more prudent way.

Quarter	Amount of information		Amount of time spent on decision	
	Buyers	Representative group	Buyers	Representative group
2007Q1	- (0.06)	- (0.390)	- (0.044)	+ (0.223)
2007Q3	+ (0.228)	+ (0.478)	+ (0.595)	+ (0.860)
2008Q1	+ (0.453)	+ (0.328)	+ (0.271)	- (0.598)
2008Q3	+ (0.211)	+ (0.006)	- (0.947)	+ (0.059)
2009Q1	+ (0.486)	+ (0.578)	- (0.177)	- (0.283)
2009Q3	+ (0.124)	+ (0.720)	- (0.692)	+ (0.235)
2010Q1	+ (0.372)	+ (0.083)	+ (0.603)	+ (0.031)
2010Q3	+ (0.171)	+ (0.470)	+ (0.073)	+ (0.348)
2011Q1	- (0.553)	+ (0.198)	- (0.799)	+ (0.252)
2011Q3	+ (0.058)	+ (0.171)	+ (0.238)	+ (0.888)
2012Q1	+ (0.348)	+ (0.587)	+ (0.241)	+ (0.142)
2012Q3	- (0.971)	+ (0.079)	- (0.145)	+ (0.077)
2013Q1	+ (0.845)	+ (0.209)	+ (0.540)	+ (0.074)
2013Q3	+ (0.026)	+ (0.022)	+ (0.232)	+ (0.110)

Table 4: Relation between statements and education for the cluster 1 statements; + = high educated people are more prudent, - = high educated people are less prudent; two sided p-values are given in parentheses, highlighted = + and significant at one-sided 5% level, hatched = - and significant at one-sided 5% level

4.2 Cluster 2 statements: decision making

The Cluster 2 statements involve decision making. Table 5 illustrates that recent buyers and the members of the representative group become less prudent when it comes to trusting professional advisors, that is, they trust professional advisors more easily. The trend for the representative group is significant. When it comes to the consultation of friends and family for both groups, recent closers are less prudent while the representative group is more prudent. However, this trend is insignificant. Both averages across the years are not significantly related to GDP, neither for buyers nor for the representative group. So, the macroeconomic situation does not seem to be of influence to the attitude of both groups towards their professional and lay advisors.

Independent variables	Dependent variable							
	Trust in professional advisor				Asking lay advice			
	Buyers		Representative group		Buyers		Representative group	
Intercept	4.45 (0.000)	5.88 (0.004)	4.75 (0.000)	2.19 (0.132)	3.73 (0.000)	4.04 (0.009)	3.90 (0.000)	3.85 (0.031)
Trend	-0.00 (0.461)		-0.01 (0.018)		-0.01 (0.243)		0.01 (0.355)	
GDP growth		0.00 (0.802)		-0.01 (0.580)		-0.02 (0.421)		0.01 (0.614)
Autoregressive term		-0.33 (0.361)		0.53 (0.095)		-0.11 (0.756)		0.02 (0.951)
Lag of GDP growth		-0.01 (0.626)		0.01 (0.469)		0.02 (0.446)		-0.02 (0.317)
R ²	0.047	0.120	0.398	0.303	0.114	0.105	0.073	0.129

Table 5: Regression results for the Cluster 2 statements: trends and relation with GDP growth. P-values are given in parentheses. ; highlighted means significant at a 5% level

Table 6 illustrates that higher educated consumers have a more prudent attitude compared to lower educated consumers when it comes to trust in professional advisors, although this is only significant for closers in the third quartile of 2013. Next to that, we find that higher educated consumers are more prudent when it comes to the involvement of friends and family. The higher educated recent buyers are more prudent during the crisis, whereas within the representative group there is hardly any difference during the crisis. Next to that, higher educated buyers involve more friends and family members in decision making after the crisis, while the representative group was significantly more prudent before and in the beginning of the crisis. During the crisis there is no significant difference within the representative group across the levels of education.

Quarter	Trust in professional advisor		Asking lay advice	
	Closers	Representative group	Closers	Representative group
2007Q1	- (0.549)	- (0.631)	+ (0.125)	+ (0.005)
2007Q3	+ (0.559)	- (0.153)	+ (0.235)	+ (0.419)
2008Q1	+ (0.004)	-/+ (0.999)	+ (0.413)	/// (0.054)
2008Q3	- (0.845)	+ (0.076)	+ (0.014)	+ (0.968)
2009Q1	- (0.484)	- (0.913)	+ (0.001)	- (0.480)
2009Q3	+ (0.767)	+ (0.493)	+ (0.043)	+ (0.911)
2010Q1	+ (0.060)	+ (0.404)	+ (0.003)	+ (0.125)
2010Q3	+ (0.350)	+ (0.958)	- (0.630)	+ (0.950)
2011Q1	+ (0.373)	+ (0.041)	+ (0.318)	+ (0.087)
2011Q3	+ (0.869)	- (0.911)	+ (0.049)	+ (0.669)
2012Q1	+ (0.587)	+ (0.111)	+ (0.004)	- (0.241)
2012Q3	+ (0.694)	-/+ (0.999)	+ (0.207)	- (0.588)
2013Q1	+ (0.167)	+ (0.407)	+ (0.926)	+ (0.907)
2013Q3	+ (0.030)	+ (0.171)	+ (0.069)	+ (0.179)

Table 6: Relation between statements and education for the cluster 2 statements; + = high educated people are more prudent, - = high educated people are less prudent; two sided p-values are given in parentheses, highlighted = + and significant at one-sided 5% level, hatched = - and significant at one-sided 5% level

4.3 Cluster 3 statements: product preferences

This cluster of statements concerns the preferences for products. Table 7 suggests that recent buyers become less prudent whereas the representative group becomes increasingly prudent when it comes to looking for the best product. However, only the trend for the representative group is significant. Additionally, both groups are less prudent when it comes to risk taking. For the buyers this trend is significant, and for the representative group it is almost significant at a 5% level ($p=0,062$). If projected GDP growth goes down, recent buyers and the representative group will increasingly look for the best product, but again, the effects are not significant. Prudency towards product choice seems to be hardly dependent on the macroeconomic situation.

Independent variables	Dependent variable							
	Level of aspiration				Preference products with risk			
	Buyers		Representative group		Buyers		Representative group	
Intercept	4.49 (0.000)	2.98 (0.086)	4.37 (0.000)	5.08 (0.007)	5.20 (0.000)	-0.08 (0.924)	5.11 (0.000)	3.72 (0.047)
Trend	-0.01 (0.250)		0.03 (0.008)		-0.04 (0.030)		-0.01 (0.062)	
GDP growth		-0.02 (0.237)		-0.03 (0.303)		-0.01 (0.613)		0.00 (0.866)
Autoregressive term		0.32 (0.376)		-0.10 (0.754)		1.01 (0.000)		0.26 (0.443)
Lag of GDP growth		0.02 (0.290)		-0.01 (0.723)		0.03 (0.142)		0.00 (0.999)
R ²	0.110	0.250	0.473	0.218	0.346	0.811	0.270	0.077

Table 7: Regression results for the Cluster 3 statements: trends and relation with GDP growth. P-values are given in parentheses. Highlighted means significant at a 5% level.

Table 8 reflects that we find that higher educated buyers are more prudent when it comes to looking for the best product. This shows before, from 2007 Q3 onwards, and at the beginning of the financial crisis. However, towards the end of the crisis the differences in prudency between different levels of education are reduced. Higher educated consumers in the representative group show a different pattern, almost with a mirror image. They have a peak in prudency towards the end and after the crisis. Regarding risk taking the differences are very small. Higher educated buyers take occasionally more risk as well as higher educated people from the representative group.

Quarter	Level of aspiration		Preference products with risk	
	Buyers	Representative group	Buyers	Representative group
2007Q1	0.042	+ (0.453)	- (0.259)	+ (0.699)
2007Q3	+ (0.019)	- (0.723)	- (0.506)	0.063
2008Q1	+ (0.030)	+ (0.618)	+ (0.785)	+ (0.062)
2008Q3	+ (0.009)	+ (0.001)	0.026	+ (0.605)
2009Q1	+ (0.022)	+ (0.247)	- (0.295)	+ (0.497)
2009Q3	+ (0.002)	+ (0.095)	- (0.402)	+ (0.904)
2010Q1	+ (0.049)	+ (0.004)	+ (0.120)	+ (0.363)
2010Q3	+ (0.194)	+ (0.083)	- (0.326)	+ (0.063)
2011Q1	+ (0.722)	+ (0.004)	+ (0.516)	+ (0.024)
2011Q3	+ (0.231)	+ (0.166)	- (0.380)	- (0.642)
2012Q1	+ (0.156)	+ (0.063)	- (0.336)	+ (0.903)
2012Q3	+ (0.674)	+ (0.014)	- (0.309)	- (0.421)
2013Q1	+ (0.153)	+ (0.372)	0.036	+ (0.801)
2013Q3	+ (0.070)	+ (0.025)	+ (0.703)	+ (0.689)

Table 8: Relation between statements and education for the cluster 3 statements; + = high educated people are more prudent, - = high educated people are less prudent; two sided p-values are given in parentheses, highlighted = + and significant at one-sided 5% level, hatched = - and significant at one-sided 5% level

4.4 Cluster 4 statements: sharing responsibility

Cluster 4 concerns sharing of responsibility. Based upon previous research we should find that sharing responsibility is related to decisions that represent higher risks. From this we deduce that an increased willingness to share responsibility is related to an increasingly prudent attitude.

Table 9 tells us that trends in the averages of the statements concerning sharing responsibility with the provider are neither positive nor negative. There is also no difference when we relate sharing of responsibility with the provider to GDP growth. We find that recent buyers become increasingly reluctant to share responsibility with governments. The correlation between GDP and sharing of responsibility with the government is not significant.

Independent variables	Dependent variable							
	Share responsibility with providers				Share responsibility with government			
	Closers		Representative group		Closers		Representative group	
Intercept	2.81 (0.000)	3.47 (0.003)	2.83 (0.000)	2.61 (0.011)	2.75 (0.000)	3.60 (0.071)	2.76 (0.000)	1.97 (0.327)
Trend	-0.00 (0.557)		-0.00 (0.081)		-0.01 (0.048)		0.00 (0.580)	
GDP growth		-0.00 (0.666)		-0.00 (0.972)		-0.00 (0.401)		0.00 (0.763)
Autoregressive term		-0.24 (0.448)		0.07 (0.826)		-0.34 (0.464)		0.29 (0.653)
Lag of GDP growth		0.01 (0.255)		-0.00 (0.563)		-0.00 (0.822)		0.00 (0.477)
R ²	0.030	0.180	0.239	0.070	0.571	0.631	0.057	0.413

Table 9: Regression results for the Cluster 4 statements: trends and relation with GDP growth. P-values are given in parentheses. Highlighted means significant at a 5% level.

We find significant differences when it comes to level of education, see Table 10. Higher educated people have the opinion that responsibility should be shared between them and the provider of financial products and services. Higher educated buyers agree with this from 2007 until 2011 Q1, and in 2013 Q3. Within the representative group higher educated people also favor a shared responsibility after the crisis. The differences between higher and lower educated closers are less outspoken when it comes to sharing responsibility with governments. However, in the representative group higher educated people are much more in favor of sharing responsibility. Due to a lack of data we cannot comment on this aspect of attitude after the crisis.

Quarter	Share responsibility with providers		Share responsibility with government	
	Buyers	Representative group	Buyers	Representative group
2007Q1	+ (0.005)	+ (0.033)	+ (0.329)	+ (0.029)
2007Q3	+ (0.000)	+ (0.048)		
2008Q1	+ (0.015)	+ (0.001)	+ (0.163)	+ (0.166)
2008Q3	+ (0.020)	+ (0.000)	+ (0.036)	+ (0.068)
2009Q1	+ (0.003)	+ (0.027)	- (0.247)	+ (0.735)
2009Q3	+ (0.023)	+ (0.199)	+ (0.446)	+ (0.052)
2010Q1	+ (0.005)	+ (0.020)	+ (0.672)	+ (0.038)
2010Q3	+ (0.005)	+ (0.152)	+ (0.065)	+ (0.816)
2011Q1	+ (0.002)	+ (0.034)	+ (0.890)	+ (0.049)
2011Q3	+ (0.230)	+ (0.207)		
2012Q1	- (0.669)	+ (0.378)		
2012Q3	+ (0.401)	+ (0.001)		
2013Q1	+ (0.782)	+ (0.010)		
2013Q3	+ (0.053)	+ (0.062)		

Table 10: Relation between statements and education for the cluster 4 statements; + = high educated people are more prudent, - = high educated people are less prudent; two sided p-values are given in parentheses, highlighted = + and significant at one-sided 5% level, hatched = - and significant at one-sided 5% level

4.5 Overall results

When looking at the overall results, we find recent buyers of financial products and services nor the representative group to act significantly more prudent. On the contrary, six out of the seven significant trend patterns head towards less prudence. Only when it comes to the level of aspiration the representative group shows a significant tendency towards more prudence. Next to that, a majority of the trends does not show a significant change, both for recent buyers and the representative group. So, consumers hardly changed their attitudes in the focal period, and if they did, it was not towards more prudence. Consequently, nine out of sixteen times the null hypothesis regarding trends can not be rejected. Furthermore, the effects of changes in GDP forecasts on attitudes are non-existent. Sixteen out of sixteen times the null hypothesis is not rejected (see Table 11 for an overview).

		Trend		Relation with GDP growth	
		Buyers	Representative group	Buyers	Representative group
Cluster 1	Information	-	-	-	-
	Time	-	-	-	+
Cluster 2	Professional	-	-	+	-
	Lay	-	+	-	+
Cluster 3	Aspiration	-	+	-	-
	Risk	-	-	-	+
Cluster 4	Providers	-	-	-	-
	Government	-	+	-	+

Table 11: Summary of the results: Significance (at a 5% level) of trends and GDP growth in the regressions.

The most significant differences can be found when taking the levels of education into account. We find that higher educated people act more prudent than the less educated. A significant relationship is found for 32 out of 112 cases for recent buyers, and in 49 out of 112 cases for the representative group. Only in a very limited number of cases higher educated people act less prudent, 4 out of 112 for the buyers and 2 out of 112 for the representative group. We find that higher educated buyers are in a substantial number of cases more prudent when it comes to asking lay advice, that is, when they involve their friends and family in decision making, level of aspiration, and sharing responsibility with providers. The representative group shows a similar pattern for the aspiration level and providers. However, as the representative group assumes in more cases more prudence, the question arises whether consumers only think they will be more prudent or that they will be indeed be more prudent when the decision is at stake (see Table 12 for an overview).

Quarter	Cluster 1				Cluster 2				Cluster 3				Cluster 4			
	Information		Time		Pro- fessional		Lay		Aspiration		Risk		Providers		Government	
	B	R	B	R	B	R	B	R	B	R	B	R	B	R	B	R
2007Q1	///		///					+	///				+	+		+
2007Q3									+			///	+	+		
2008Q1					+			///	+			+	+	+		
2008Q3		+		+		+	+		+	+	///		+	+	+	+
2009Q1							+		+				+	+		
2009Q3							+		+	+			+			+
2010Q1		+		+	+		+		+	+			+	+		+
2010Q3			+							+		+	+		+	
2011Q1						+		+		+		+	+	+		+
2011Q3	+						+									
2012Q1							+			+						
2012Q3		+		+						+				+		
2013Q1				+							///			+		
2013Q3	+	+			+		+		+	+			+	+		

Table 12: Summary of the results (at a one-sided 5% level): Relations with education; B = recent closers, R = representative group; + = high educated people are more prudent, - = high educated people are less prudent

5. Discussion and conclusion

Our results do not seem to support the Impersonal Impact Hypothesis. This hypothesis suggests that consumers who are more involved with the circumstances, because they have to decide within the circumstances, would be more sensitive to them, but we find that the differences between buyers and the representative group is small. Macroeconomic factors like publicly available GDP growth forecasts also have no impact. Another conclusion is that, in general, buyers as well as the representative group do not seem to be alarmed by the crisis. There is no general trend towards more prudent behaviour. Looking at the trends it is ambiguous whether or not consumers indeed are more prudent than they were in 2007. If any sign of more or less prudence is found, it concerns the link with the education level. However, this prudence is concentrated before and during the crisis. In the aftermath of the crisis it is mostly the representative group that is more prudent, and not the recent buyers.

A rejection or not of the Impersonal Impact Hypothesis does however not explain why the crisis seems to have only a minimal impact, if any at all. An explanation could be framing, that is, the ‘concreteness principle’. The question in this case is if individual decision makers did connect their personal decision at a micro level with phenomena at a macro level. This

could be linked to the argument that if consumers are blinded by the benefits of prospects, that they do lessen their critical attitude, and in this case their level of prudence.

What we were able to confirm is that the level of education does matter. Higher educated people are more prudent in many cases and over time. So they link macro events in a different way to micro events.

The overall conclusion of our study is that individual consumers should not be automatically counted upon to adjust behaviour after a financial crisis. The most convincing example of this is that regardless of all the critique that has been given on financial professionals, that the professional advisors are increasingly trusted. Also higher educated people are only slightly more critical towards their own professional advisors in a limited number of cases. So, if a more prudent attitude is wanted, other measures should be taken. Framing could play a role in these, as Prospect Theory has convincingly shown. Framing should be such that the benefits to be gained from financial products and services are less ambiguous. The financial crisis allows for such a frame, but consumers do not come up with it themselves.