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**Do women prefer pink?**  
**The effect of a gender stereotypical stock portfolio on investing decisions<sup>♦</sup>**

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**Abstract**

We investigate whether lack of familiarity with the companies in the stock market index may contribute to a gender gap in stock market participation and risk taking. We consider the Netherlands because recent reforms have reduced the generosity of mandatory pension and social security arrangements and created the need for many employees to decide on how to allocate (pension) savings. Moreover, the gender gap in pensions in the Netherlands is above that of the OECD average. We construct a “pink” portfolio with stocks that are supposed to be more familiar to women (based on ads in widely read women magazines) and a “blue” one with stocks from the market index (AEX). We then ask members of the CentERpanel how they would allocate a certain amount of pension wealth between government bonds and a stock portfolio, whereby half of respondents, randomly selected, are given the pink portfolio and half the blue one as an alternative to bonds. Based on a set of limited dependent variable models, we find that familiarity is correlated to decision time for women, but it affects risk-taking only for women over 60. We do find a strong response order effect on risk taking, which moreover is larger for women than for men, and interpret the latter as reflecting a gender gap in confidence.

JEL Codes D14, G11, M30

Keywords: gender differences, portfolio choice, familiarity

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## 1. Introduction

Most policy debates on the gender gap in economics focus on the gap in employment and pay, which persists even across most developed countries, despite increased labor market participation by women. Behavioral science research stresses unconscious bias as one of the causes, and provides solutions to reduce its effects (Bohnet et al, 2013). The gender gap in the labor market results in itself in a pension gender gap, and the OECD has called for reducing the gender gap by creating financial inclusion of women, a plea supported by the G20 Ministers of Finance and Central Bank Governors G20 leaders (OECD, 2013; G20, 2013).

Gender gaps have been consistently documented when it comes to financial behavior, for example the allocation of assets in retirement plans (Sunden and Surette, 1998), the choice between DB and DC pension schemes, and the allocation of wealth to stocks after controlling for risk tolerance (e.g. Van Rooij et al, 2007), financial literacy (e.g. Lusardi and Mitchell, 2008) and self-assessed and measured risk attitudes (e.g. Eckel and Grossman 2002, Van Rooij *et al* 2007). The latter two issues are connected with the gender gap in stock market participation, which is usually explained by lower financial literacy and risk tolerance of women compared to men (e.g. Schubert *et al.* 1999, Croson and Gneezy 2009, Dohmen *et al.*, 2011).

Explaining the gap is important in a world in which financial risk is shifted toward individuals, worldwide women control over wealth is increasing and socio-demographic changes imply that women (need to) rely more on themselves financially. It is generally assumed that a reduction in the gap should result from a change in women's characteristics and financial behavior towards increasing participation in financial markets and risk taking. However, research in finance as well as other disciplines (notably psychology and behavioral economics) suggests that the gap in literacy and risk tolerance may be only a partial explanation (e.g. Fellner and Maciejovsky, 2007).

Against this backdrop, this paper aims to explore a possible additional explanation for the gender gap in stock market participation, i.e. whether familiarity with the companies traded in the stock market may contribute to explain it. We are inspired by the familiarity-breeds-investment explanation of the investor home bias (Huberman, 2001), which is based on a model by (Merton, 1987). To this end, we take the case of the Netherlands and set up a new appropriately designed survey question to submit to CentERpanel members. First, we construct a "pink" portfolio with stocks that are supposed to be more familiar to women (based on ads in widely read women magazines) and a "blue" one with stocks from the stock market index (AEX). We then ask members of the CentERpanel how they would allocate a certain amount of pension wealth between government bonds and a stock portfolio, whereby, as an alternative to bonds, half of respondents are given a portfolio of stocks that should be more familiar to women (addressed as "pink" portfolio) and half a more standard portfolio made of market index stocks (addressed as "blue" portfolio). We further analyze framework effects, by changing the order of bonds a stock in the question.

Our analyses are based on OLS and a set of limited dependent variable models that account for the different gender of the respondents and the different portfolios assigned (difference

in difference approach). We test three main hypotheses: (i) that familiarity with the stock portfolio increases women's participation in the stock market and risk taking, (ii) that familiarity with the stock portfolio influences decision time, and (iii) that the ordering of the choice between bonds and stock in the question affects the answer (framework effect). Accounting for the standard demographic and economic controls, regression analyses support the following conclusions. Familiarity affects the choice between bonds and stocks favoring the latter only for older women (over 60). Regression analyses do *not* support a statistical association between the lower decision time for women and the assignment of a pink portfolio, which emerges from the descriptive evidence. By contrast, we find a strong framing effect both for men and women when the ordering between bonds and stocks is changed.

The paper is structured as follows. In the next Section we provide an overview of empirical findings on gender differences in life cycle saving and investing as well as explanations traditionally given for these gaps. Section 3 focuses on familiarity applied to investor behavior. After illustrating, in Section 4, the conceptual framework underlying our empirical evaluation, in Section 5 we describe our methodology, the data, and we present summary statistics. Section 6 provides some descriptive findings as well as a regression analysis on familiarity and stock investing. Last Section concludes.

## **2. The gender gap in finance**

A gender gap in finance has been consistently documented when it comes to financial literacy (e.g. Lusardi and Mitchell, 2008), risk attitudes (e.g. Eckel and Grossman, 2002) the choice between DB and DC pension schemes (e.g. Van Rooij et al, 2007) and the allocation of assets in retirement plans (Sunden and Surette, 1998). Analysis of the interaction between gender and marital status in the allocation of assets in retirement savings plans using the Survey of Consumer Finances 1992-1995 in the US finds that single women take less risk (Sunden and Surette 1998). (Bertocchi *et al.*, 2011), using more recent data from the Bank of Italy Survey on Household Income and Wealth, arrive at a similar conclusion, although they find that the effect differs according to whether or not married women participate in the labor market. (Barber and Odean, 2001) use gender as a proxy for overconfidence and find that men trade more excessively than women, with the difference being even larger when couples are excluded from the sample.

Traditional explanations for these findings rest on a lower degree of financial literacy and/or a higher risk aversion of women as compared to men (e.g. Schubert *et al.*, 1999, Lusardi and Mitchell, 2008, Croson and Gneezy, 2009, Dohmen *et al.*, 2011). Sometimes this explanation is accompanied by pleas for financial education of women, the underlying assumption being that the gap should be reduced, and a reduction of the gap should come from a change in the behavior of women.

However, research in finance as well as psychology and behavioral economics suggests that gender gaps in literacy and risk attitudes may be only a partial explanation of the gap in investment decisions (e.g. Fellner and Maciejovsky, 2007). One possible explanation is a gender gap in confidence, since most women who answer "don't know" to financial literacy questions give the correct answers if the "don't know" option is not available, reducing (though not eliminating) the gender gap in literacy (Bucher-Koenen *et al*, 2012). Moreover,

stereotype threat may play a role. If reminded of their gender, females have worse math scores and negotiation outcomes than their male peers (Kray *et al.*, 2002), just as white males in sports perform worse after having been reminded that they are white (Stone *et al.*, 1999).<sup>1</sup> Furthermore, context plays a role: girls are more likely to choose risky outcomes when assigned to all-girl groups (Booth and Nolan, 2012), and women's financial choices are more context-specific and sensitive to social clues than men's (Croson and Gneezy, 2009). Women exhibit lower risk tolerance than men in investing decisions, but not in gambling decisions, and they take more risk in *social* decision making (Weber *et al.* 2002, Harris and Jenkins 2006). The authors suggest that decision making with risk may reflect not only risk tolerance, but also confidence in the ability to manage certain risks, in line with (Barber and Odean, 2001). Another potential explanation of gender differences in risky decisions may be that women process information differently than men, with the result, *inter alia*, that they tend to be more cautious in decision making (Meyers-Levy, 1989).

Manifold are the implications of such gender differences. For example, despite their assumed lower propensity to take risk, women have less access to credit, be it business loans or mortgages (Hertz, 2011) and are, after controlling for relevant background characteristics, charged higher interest rates for business credit (Alesina *et al.*, 2013). Among possible explanations, anxiety is found to result in worse negotiation outcomes especially when the belief in one's own ability is low (Wood Brooks and Schweizer, 2011).

### **3. Familiarity as explanation for investor biases**

The investor home country bias - the empirical finding that investors hold significantly more of their wealth in home stocks than portfolio theory would predict - has been labeled one of the major puzzles in economics (French and Poterba, 1991; Tesar and Werner, 1995). The bias has not disappeared with developments like in ICT and the removal of institutional barriers cross border capital controls. Even before market imperfections disappeared, (Merton, 1987) constructed a model showing that it is not necessary to assume market imperfections to explain the empirical regularity that investors invest only in a subset of all assets available. Merton showed that if investors only invest in assets they know about (in the sense of being aware of their existence), and if different investors know about different assets, each investor will hold only a subset of all securities available, even if markets are perfect. While not meant to explain the home bias, the model can and has been used as a reference point. Merton optimization problem captures his assumption that an investor will not invest in a security that he is unaware of. In the familiarity interpretation it reflects the assumption that the investor will not invest in assets that he is unfamiliar with.

Recent studies into the investor home bias have shown that the bias also exists at the regional and industry level. (Huberman, 2001) finds that investors in the U.S. Regional Bell Operating Companies (RBOCs) prefer to invest in their local RBOC than in RBOC's servicing

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<sup>1</sup> Also, in more egalitarian societies, the gender gap in math scores disappears (Guiso *et al.*, 2008).

other regions. (Doskeland and Hide, 2011) find that even after correcting for employer bias, employees tend to invest a large fraction of their retirement savings in the industry they work for. The fact that employees tend to invest their pension savings in the company they work for can also be seen as a home (i.e. geographical proximity) bias. The bias has not disappeared even after the Enron case underscored that allocating pension savings to employer stock can hardly be considered optimal from the point of diversification (Laibson, 2005; Choi et al, 2005). The investor home bias is not limited to retail investors. (Strong and Xu, 1991) find that fund managers from continental Europe, Japan, the UK and the US hold more optimistic expectations about their home equity market.

After imperfect information and institutional frictions could be ruled out as an explanation for the bias – which is why in the past the bias was regarded as a “puzzle” - researchers have tried to come up with alternative explanations based on social psychology. (Huberman, 2001) argues that the investor home bias may be due to the fact that geographical proximity induces familiarity: investors are more aware of, and hence more familiar with, companies that are close to “home”, even if they have equal access to information of all companies that trade in the stock market. Therefore, (Huberman, 2001) argues that “people invest in the familiar while often ignoring the principles of portfolio theory”. His reasoning is that people tend to have positive feelings about the familiar, and less positive or even negative feelings towards the unknown. Well known fairly innocuous examples are the preferences for the local soccer team, and the voting behavior in the Eurovision Song Contest: voting for one’s own country is impossible, but people vote for their neighbouring country, an effect which is shown to be significant in a multivariate analysis (Dogru, 2012). (Ginsburgh and Noury, 2004) conclude that underlying this neighbour effect (i.e. geographical proximity) is cultural and linguistic proximity. As to the role of language, investors hold more stocks of companies whose ticker (name) begins with early alphabet letter than later ones, which hints to familiarity with abc (over xyz) or a default effect (Itzkovitz *et al* (2014). (Fuchs-Schuendeln and Haliassos, 2014) hypothesize that lack of familiarity with capitalist types of financial products (“product familiarity”) would result in more cautious behavior, post-unification, by former inhabitants of Eastern Germany than by their peers from former Western Germany. Familiarity is also used by (Heath and Tversky, 1991), who explain why people “prefer to bet on their own judgment (as compared to a chance lottery) in a context where they consider themselves knowledgeable or competent... our feeling of competence is enhanced by general knowledge, familiarity, and experience...”.

Theoretical underpinnings for the effect of proximity on decision making in a context of risk and return can be found in social psychology. According to social psychologists, humans have two systems of information processing and judgment: system 1, which is automatic, unconscious, narrative, intuitive, and system 2, which is analytical, conscious and verbal (Slovic *et al*, 2005; see also Kahneman, 2011). Within system 1, affect plays a role, especially when risk and return are involved. Affect (feeling) is defined as an instinctive emotional response as opposed to cognition (thought), which is a conscious, intellectual act. The *affect heuristic* is a first and fast response mechanism (Finucane et al, 2000). It is a mental shortcut, with perceptions and expectations being influenced, unconsciously, by feelings. Within system 2, judgment and decisions are based on reasoning.

The affect heuristic plays an important role in decision problems involving risk and return, as positive affect decreases perceived risk, while negative affect increases it (Zajonc 1968, 1980). Moreover, affect also influences return expectations: positive (negative) affect leads to a higher (lower) expected return (Alhakami and Slovic 1994). This makes the affect heuristic especially interesting in the context of investor decision making, as in finance higher perceived risk and expected return should go hand in hand, and vice versa, whereas through the affect heuristic perceived risk and expected return move in *opposite* directions. As things familiar tend to create positive affect, this would explain the effect of familiarity on investor judgment and decision-making. According to the John Hancock Financial Services Defined Contribution Plan Survey (2002), participants on average believe that employer stock is less risky than an equity mutual fund. The two routes to judgment and decision-making can be illustrated as follows:

### [GRAPH 1]

The investor home bias is a puzzle if analyzed from the perspective of System-2: if risk and return are identical, why would investors disproportionately choose home country stock, regional stock, industry stock, employer stock? However, using the perspective of System-1, it is less of a puzzle, because things close to home are more familiar, hence create positive affect, influencing perceived risk (-) and return (+).

Summing up, the investor home bias has been explained by the affect heuristic (system 1) where geographical closeness creates positive feelings thanks to familiarity impacting through the affect heuristic on risk-return perceptions and, through this channel, on investment decisions. Along similar lines one may argue that psychological closeness other than through geographical proximity may influence investment attitudes and decisions. This is why this paper takes into account the possibility that a company's activities and products may or may not create positive affect. If this differs for subsets of investors, this may lead to subsets of investors investing less, or in different companies, than other subsets. In this paper we study two subsets that may on average differ in their psychological proximity to companies' activities and products: men and women. This is not to say that we believe that men and women have innate differences in their affinity with products and activities; rather, differences in both attitudes and behavior may be the result of e.g. gender stereotyping.

If affect influences risk estimates and return expectations, how would the gender dimension come in? First, a company may feel psychologically closer because it produces goods that investors identify with. As men and women have different consumption patterns, this channel might lead to different investor decisions depending on whether the investor is a man or a woman. Empirical evidence indeed shows that investors tend to buy stocks from companies whose products they buy as consumer, and also that they are less likely to sell them (Keloharju *et al*, 2012). Second, even if the investor does not actually buy a company's products and services, the company may feel psychologically close because it caters to the gender he identifies with. In the third place, affect may be influenced by the degree to which the investor identifies with the type of activities undertaken by a company.

## 4. Conceptual framework



The hypothesis we want to test in this paper is whether gender differences in familiarity with the world of finance may contribute to a gender gap in stock market investing, in terms of participation and risk taking. We use time to decide as a proxy for participation, as procrastination often leads to the ‘decision’ not to take action (O’Donoghue and Rabin, 1999). In our set-up, respondents do not have the option to delay deciding forever, hence decision time is the best measure we have for procrastination. Familiarity through psychological (instead of geographical) proximity with the world of finance may take on various forms. The focus in this paper is on ‘brand’ familiarity, by which we mean familiarity with both a companies’ products and its activities, and where familiarity, as explained in the previous section, is not knowledge about the existence of a brand, but positive affect.

When investigating the hypothesis that brand familiarity may explain part of gender gap in stock investing, several elements play a role. In fact, there may be a different level of familiarity between men and women with respect to different brands, but also a gender difference in the degree of sensitivity to familiarity. Moreover, gender differences in stock market behavior might reflect differences in the types of risk that men and women want to hedge through by means of portfolio choices (e.g. consumption in retirement). If the genders should differ on average in their preferences for types of consumption goods, this would rationally have to lead to being attracted to different portfolios, even if conventional risk return trade-offs are identical. In that case buying stocks of brands you prefer as consumption good is a way of hedging a consumption services risk (Merton 1975, 1977). In this paper we do not explicitly deal with this issue, but the consumer services model interpretation may be an alternative to the familiarity explanation of gender differences in investing preferences.

In the Netherlands, employees traditionally saved for retirement through a mandatory second pillar. In combination with social security, the aim of the system is to provide retirees with a pension income that is 70% of mid-wage before, and 90% after taxes, plus indexation linked to prices and wages. They did not need and in fact cannot make any choices regarding savings rate, pension fund or investment profile. Hence there has never been a need for the majority of people in the Netherlands to think about investing for retirement, let alone making decisions. However, this is changing for a variety of reasons. First, the retirement age has gone up to 67, which forces employees who want to retire at the age of 65, as planned, to set more money aside. Second, asset market risk has been transferred to employees (no guaranteed income). Third, the mandatory premium has been lowered as of January 2015, implying that employees have more room for (and perhaps more need to) save in the third pillar. Fourth, partner arrangements have become less generous, generating a need for spouses to think about saving and investing for retirement. Also, an increasing number of people start their own business, either because they have to (if they cannot find or keep a job) or because they want to (because they find it easier then to combine it with taking care of children and the elderly). Many of those are women. Last but not least, as of January a cap has been put on the income over which employees save for retirement, the maximum being 100.000 euro. This forces employees with an income of 100k+ to think about whether and how to save and invest in the third pillar. Summing up, in the past there was no need to think about retirement planning, now there is, and in the future this will become more important. Note also that the gender gap in pensions in the Netherlands is large in international comparison: with 41% it is far above the OECD average of 28%, and the

Netherlands comes third, after Germany and Luxembourg, in the ranking according to the pension gender gap size (D'Addio, 2015).

In order to test a potential gender gap in familiarity and its effect on risk taking, we take the Netherlands and ask survey respondents to allocate hypothetical savings to a risky and a safe asset. For the risky asset, we construct two different stock baskets. One is based on the Amsterdam Exchange Index (AEX) and it consist of the 25 most traded companies at the Amsterdam Stock Exchange. Many of these companies could be ranked as typically “masculine” (steel, beer, oil and gas, Oil equipment, semiconductors, heavy construction, chemicals and real estate, chemicals), while the remainder can be seen as fairly neutral (e.g. coffee, consumer electronics, delivery services, publishing, business training, food, banking and insurance, airlines). In what follows we will call a portfolio based on these companies “blue”, in contrast to a “pink” portfolio, which we construct using companies advertising in women magazines. We should stress that the denomination “pink” and “blue” is only introduced in the paper to make it more intuitive for the reader. Such terms are not used in the Questionnaire.

We have considered various ways to construct a portfolio that might create more positive affect among women, but not among men, than the conventional stock market index at the Amsterdam Exchange. One way to do so would be to take spending by women. However, we have decided against that for the following reason. If we were to find that women invest more in companies whose products they buy more, it would be difficult if not impossible to conclude whether this would be an effect of familiarity (“system 1”, the affect heuristic) or the outcome of an analytical process, where women decide they should invest in the products they buy for hedging reasons (notably, relative price changes; see Merton 1977, 1979). Moreover, with women doing most of the household shopping, they also buy products that are consumed by men, which could imply a familiarity effect among men. We have therefore decided to measure the effect of familiarity by constructing a pink portfolio based on advertisements in women’s magazines. This actually amounts to assuming that women’s magazines are read more by women than by men, and hence that women are more exposed to these advertisements than men. It does not require that all women read women’s magazines. In fact, not all women do and some women may regard it as offensive if they are being regarded as interested in magazines, which focus on apparel, fashion, beauty, home making and human interest (or gossip, if you like).<sup>2</sup> In fact, companies advertising in women’s magazines may do so because they offer products familiar to the world of women, more than to that of men. Hence taking this as an objective familiarity measure does not require that women read these magazines in order to be familiar with the products and activities of the companies concerned. Be that as it may, in the Netherlands the market for women’s magazines is much larger than that of men’s magazines, both in number of different types of magazines and in sales (Table 1). Note that Table 1 merely gives figures on Dutch magazines, whereas in the Netherlands foreign magazines abound, something which we have accounted for in the construction of the pink portfolio. It should also be pointed out

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<sup>2</sup> In fact, fashion is often seen as low-brow, while architecture is regarded as high-brow even though both are applied art (Andreozzi e Bianchi, 2007; Bianchi, 2002).

that over 90% of the Dutch are well versed in English (written and spoken), and that – hence - knowledge of English is not limited to an elite (Edwards, 2014). According to linguists, it can be regarded as a second language rather than a foreign language. Explanations include the fact that the Netherlands as a small country depends a lot on foreign trade, and that from a young age children get used to hearing English through the media because television series and movies are not, like in many other countries (Germany, France, Italy, Spain) dubbed, but subtitled. Also, in large companies in the Netherlands, English is the official language, even if the company is Dutch (for example at ING bank and ABN Amro bank).

### [TABLE 1]

Summing up, our choice for using advertisements in women’s magazines in constructing the pink portfolio was made because our aim was not to construct a portfolio that is the most familiar to women (optimal in terms of familiarity), but a portfolio that can be assumed to be more familiar to women than to men, and to be more familiar to women than the Amsterdam Exchanges stock market index (AEX). This is because our focus is not on how a portfolio should be constructed to attract investment by women, but on whether lack of familiarity contributes to a gender gap in retail investor decisions.<sup>3</sup> For this reason we also chose to construct the “blue” portfolio not through advertisements in men’s magazines, but based on stocks most traded. Finally, we would like to point out that many magazines to date have both a print and a website (or even app) version, including its advertisements. This implies that they can also reach younger generations.

## 5. Methodology and data

Our data have been collected through an internet survey in September 2013 among participants of the CentERpanel run by CentERdata at Tilburg University. CentERdata is a survey research institute that is specialized in data collection and internet surveys. The CentERpanel consists of about 2000 households representative of the Dutch-speaking population in the Netherlands. Within the household, all household members are invited to participate. Panel members fill out short questionnaires via the internet on a weekly basis. Annually, panel members provide information on individual income, household wealth, health, employment, pensions, savings attitudes, and savings behavior for the DNB Household Survey (DHS), providing researchers with a rich set of background information on the respondents. The availability of a computer or internet connection is not a prerequisite of the selection procedure, which is done by a combination of recruiting randomly selected households over the phone and by house visits. After having agreed to participate, panel members receive explanation on survey administration, which is conducted via the internet<sup>4</sup>. If necessary, either a computer with internet access or alternative equipment such as a set top box for communication through the television is

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<sup>3</sup> In this connection, it should be stressed that we do not mean the pink portfolio as a recommendation to women.

<sup>4</sup> Data collected with internet surveys display higher validity and less social desirability response bias than those collected via telephone interviewing (Chang and Krosnick, 2009).

provided to respondents. The panel has been used for numerous studies on household and individual behavior and attitudes, including pension attitudes (see for instance Van Rooij *et al*, 2007, and Prast *et al*, 2013) and financial literacy and retirement planning in the Netherlands (see Alessie *et al*, 2011). For more information on the panel see (Teppa and Vis, 2012).

In order to confront the survey respondents with two portfolios that might differ in familiarity to men and women, we first constructed what we call a “blue” and a “pink” basket of stocks. The blue portfolio consisted of a selection of the large companies most traded at the Amsterdam Exchanges (AEX).

The pink portfolio was constructed as follows. We collected copies of the most popular women magazines in Italy, France, the Netherlands, the UK and the US over the period January 2011 – July 2013, taking one copy of each magazine for every season of the year. We then made an inventory of the advertisements in these magazines, and selected those of companies traded in the stock market. Of the resulting 65 companies, 24 turn out to be listed on the New York Stock Exchange, eleven on Euronext (located in Amsterdam), seven on the exchange of Frankfurt, nine at the London Stock Exchange, two on the OMX (Scandinavia and Baltic States Exchange), seven on the SCA, four at Borsa Italiana, and one on the BMad (Madrid Stock Exchange). More details are provided in Appendix I.

As far as industries covered, they are mostly apparel, followed by cosmetics and hygiene. Two thirds of the companies that are stock listed and advertised in the magazines belong to these industries. Moreover, we find home/family related products and services (food, pet food, Disney, home furnishing), ICT/social media, electronics, cars, and one financial. Among the 65 companies, we qualify 14 as luxury. It came as no surprise that the advertisements in women magazines are about retail products and services. This is one difference with the AEX index, which contains both raw materials/business to business, and retail producers.

Given the limited diversity of industries between the pink selection and the AEX consisting of only 25 companies, we decided to limit the number of companies in both stock baskets to 15 in order to make the decision not too burdensome for respondents. To this end we removed company according to two main criteria: products that we regarded as potentially not familiar to women of all ages (e.g. ICT, social media), and products that may be regarded as either gender neutral or more male oriented (e.g. cars).<sup>5</sup> Final selection was made so as to mirror the original industry composition: home (food, pet food, home decoration, furnishing, home electronics), hygiene, apparel and cosmetics, where some companies may be both (e.g. Dior). We took care to include both luxury and non-luxury brands and we added Ikea to reflect the industry “home”.<sup>6</sup>

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<sup>5</sup> As underscored by the use of women in car advertisements and the non-existence of a Pirelli (car-type) calendar targeted at women.

<sup>6</sup> We did so because Ikea, although not stock-listed, turned out to advertise in all but two Italian women magazines, while Debenhams and Beter Bed may not be familiar to most women.

For the blue portfolio we selected 15 companies from the Amsterdam Exchanges Index of large companies most traded: eight raw materials/heavy industry (steel, chemicals, oil, and semiconductors), two financials, three food/non-food retail products, one electronics, and one Airline company.

None of the companies were included in both the blue and the pink basket. And while the pink and blue basket contain companies producing goods or services that are used by both genders – e.g. Burberry, Dior, Ralph Lauren and Ikea in the pink portfolio, and DE, KLM, Philips and ING in the blue one - we believe that the degree of femininity and masculinity of the respective baskets differs considerably.

The stock baskets are also fairly similar in terms of diversification, although this is not necessary given that the question submitted to the panel members described identical risk/return trade-offs. It should also be stressed that the pink portfolio contained not a single Dutch company, while the majority of the companies in the blue portfolio are Dutch<sup>7</sup>. The resulting pink and blue portfolios are illustrated in Table 2.

### [TABLE 2]

Appendix II reports the original question in English translation. Panel members were then asked to allocate a hypothetical amount of 100,000 euro pension savings of pension savings over a risk free asset and a basket of stocks, whereby the pink stock basket was randomly assigned to half of the respondents, and the blue one to the other half. Hence respondents could not choose between different stock baskets. The risk return trade-offs of the two cases were described, also with a numerical example, as being the same.

Moreover, in submitting the questionnaire we have been careful to take into account the possibility for the allocation decision to be influenced by the framing of the question, notably the response order (stock basket first vs bonds first). (Van Rooij *et al.*, 2011) find that the answer on financial literacy question depends on how the words stock and bonds were used in the question. Moreover, response order effects have been well documented in psychological and survey research, and they are found to be more likely for abstract questions (Dilman, 2001), to which our decision problem definitely belongs. Both primacy and recency effects have been found in the literature. The primacy (recency) effect occurs if the first (last) option is more likely to be chosen, whatever it is (see eg Krosnick et al, 1996). The primacy effect has been explained by satisficing (Simon, 1956; Schwartz et al, 2002), tends to be more pronounced among women, and sometimes men exhibit a recency effect (Brunel and Nelson, 2003). Second, framing/ordering effects have been found when it comes to the domain of financial decisions involving risk. (Van Rooij *et al.*, 2011), for example, find that a slight variation in the order of alternatives in a financial literacy questions has a large and significant effect on what people respond. Their interpretation is

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<sup>7</sup> Shell being partly British, KLM/Air France partly French, and Corio being originally Dutch (Hoogovens) but taken over several years ago by Tata Steel from India.

that some respondents tend to guess the answer – even though this does not explain in itself why guessing would lead to a response order effect. A possible alternative explanation for the primacy effect is that the first alternative, whatever it is, may be regarded as the default and interpreted as the choice recommended by experts or made by most people (Bodie and Prast, 2012). It has also been shown that default effects are larger if decisions are perceived as more difficult, and if cognitive capacity is low. Finally, the fact that we find a larger effect among women than among men is in line with findings in other domains that decision making by women is more context dependent, especially when women feel less secure (Croson and Gneezy, 2009).

Within both the pink and the blue condition we therefore randomly assigned half of respondents to the Frame A, which presents the Bonds alternative first, and the other half to Frame B, which presents the Stocks alternative first.<sup>8</sup>

Finally, the time it took an individual to complete the questionnaire was also registered. Here it should be pointed out that most respondents answered the questionnaire in one session, but there are some who started answering, did not complete the survey in one session, but returned to it later (usually the next day). Responding time is measured taking the time elapsed between starting the questionnaire and finishing it, hence for those answering in two separate sessions actual decision time is overstated (even though it could be that respondents have taken time to reflect on and gather information relevant to the decision problem). We will turn to this later. Our analysis does not include, obviously, respondents who opened the link but never submitted an answer (either because they immediately chose not to answer, or because after having started the survey they delayed finishing it until the submission deadline had passed).

### **5.1 Sample summary statistics**

The question was submitted in the first week of September 2013 to respondents aged 18+ who are not retired (totaling 2138), and it was completely filled out by a total of 1319 respondents (Table 3).

#### **[TABLE 3]**

The response rate was 61.7%, which is very low if compared to the usual level in the CentERpanel of around 80%. This is due to the exclusion of pensioners, whose response rate is usually above average, and the number of people opening and closing the link without answering the question was much higher than normal. Inspection of Table 4 reveals a major gender gap among the panel members who, after seeing the question, decided not to answer

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<sup>8</sup> Note that participants were, as usual with CentERpanel, asked about the perceived difficulty of the task, and about clarity, thought-provoking nature, interest, and enjoyability of the question. Participants answer by picking a score from 1 to 5, on a Likert scale, 1 for being the least and 5 representing the most. The respondents were also allowed to provide comments, whereby the answer was coded as 1 if comments were given, and 2 otherwise.

it: 69.1 % is female, 30.9 % male. As the question did not allow for ‘don t know’ as an answer, this non-response may be interpreted as don’t know/not for me in line with other evidence on financial questionnaires showing more women than men tend to say don’t know even if they know the answer.

#### [TABLE 4]

Finally, we focus on the time measured between respondents started and finished the questionnaire. Average decision time differed considerably across the pink and blue condition and across genders. These differences are statistically significant<sup>9</sup>, and could be imputed to gender differences in familiarity with (some of the) companies in the pink vs blue portfolio. Figures 1 provides the distribution of decision time for the two conditions and men and women separately. Overall women appear to take quicker decisions in the pink condition.<sup>10</sup>

#### [FIGURE 1]

### 6. Wealth allocation decisions

In this section we first provide some descriptive analyses of the answers obtained which highlight some relevant issue, then we analyze by means of regression analysis of the data the association between familiarity in portfolio choices and household demographic and economic characteristics.

#### 6.1 Descriptive and aggregate findings

We first look at differences in portfolio allocation across gender only. Figure 2 reports the distribution of the percentages allocated to the stock portfolio by gender. For both men and women the distribution shows a peak at a fifty-fifty choice. This is in line with evidence of a 1/n heuristic used by employees in the US when allocating their pension savings among the different investment opportunities offered by the employer (Huberman and Jiang, 2006). Two are the main possible interpretation of this empirical evidence: the fifty-fifty choice is a way of saying “don’t know” (which was not an answer category in our survey) or respondents see this as the obvious way to apply the “not all eggs in one basket” rule, or as close as they can get to the default. Overall, it is clear that a larger fraction of women than man chooses fifty-fifty, but further analysis shows that this difference is not significant.

#### [FIGURE 2]

Table 5 provides the percentage of respondents who allocate at least part of the hypothetical pension savings to the stock basket, differentiating between gender and between condition

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<sup>9</sup> Data available upon request.

<sup>10</sup> We should stress again that, since decision time is measured as time between starting the survey and finishing it, it may include the time between various answering sessions (e.g. in different days).

(pink or blue). As Table 6 shows, an overwhelming majority of respondents allocate some or all of the hypothetical pension savings to the stock basket. More respondents in the blue than in the pink condition allocate some or all savings to the stock portfolio and this holds true for men and women (color gap). More men than women allocate some wealth to stocks, and this holds true for the pink and the blue condition, although the gender gap is higher in the blue condition.<sup>11</sup>

#### [TABLE 5]

Table 6 gives the average amount of pension savings allocated to stocks. It shows that on average respondents allocate around 50% of savings to stocks. This holds for both genders and across conditions.<sup>12</sup>

#### [TABLE 6]

Figure 3 shows the percentage allocated to stocks according to age, for men and women separately (not distinguishing between portfolio color). We see that young respondents of both genders on average allocate the most to the stock basket. The left panel in Figure 3 suggests that women in the 25-35 and 45-55 age range invest less in stocks than other women, whereas for men the opposite is true: men in the 35-45 and over 65 age groups take fewer risks. The right panel in Figure 3 shows that women and men differ substantially in their portfolio allocation decision in their twenties and after retirement-age.

#### [FIGURE 3]

Finally, we focus on the effect of the response ordering. Within both decision conditions (pink and blue), respondents were randomly allocated to a question where the first line was the amount to allocate to bonds, with the remainder going to stocks, or first stocks, and the remainder going to bonds. Note that respondents had to fill both amounts, i.e. once the amount to bonds (stocks) was filled, the amount to stocks (bonds) was not automatically calculated and they were they forced to fill in the first line first. We find a significant framing (or response ordering) effect: respondents allocate more of the hypothetical savings to the investment opportunity that is presented first and the effect is larger for women (Table 7).

#### [TABLE 7]

As seen above, many respondents choose to allocate their hypothetical savings fifty-fifty over bonds and stocks. If this is the result of a 1/n heuristic or not-choosing, the response order should not have an impact. Table 8 shows the response ordering effect for respondents who did not choose fifty-fifty, where it should be taken into account that this subset contains

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<sup>11</sup> The differences between genders and across conditions are not significant. The t-values are in parentheses.

<sup>12</sup> We have dropped the observations whose individual income was negative.



fewer men than women (see Figure 2 above). As it is possible to see, the response ordering effect is still significant among both men and women.

### [TABLE 8]

## 6.2 Regression analysis of the allocation decision

We now turn to multivariate regression analysis of the allocation decision. In order to do so we merge the datasets containing the portfolio allocation information with the datasets containing the relevant socio-economic information, drawn from the 2012 DNB Household Survey wave, published in March 2013.<sup>13</sup> The whole sample consists of 4670 observations. Among these, the questionnaire was administered to 1440 individuals, of which 1330 answered the questions<sup>14</sup>.

First of all, we may be worried about sample selection because of the attrition rate. However, by estimating a two-stage Heckman model for the Difference in Difference (DiD) and triple difference (DiDiD) specifications using different sets of controls, we find that in the second stage the coefficient of the Mill's ratio is not statistically different from zero<sup>15</sup>. Therefore, we believe that we can omit non-respondents without affecting the validity of our results.

We then regress the total amount allocated to the stock basket, normalized to one. As the allocated quota can neither be lower than zero nor exceed 100%, we follow the literature on asset allocation and use a two-limit Tobit model, with lower (0) and upper(1) censoring (e.g. Hochguertel et al., 1997, Poterba and Samwick, 1997). For the sake of comparison, we also estimate the same model using OLS.

We estimate a DiD model (women and pink portfolio) as well as a DiDiD (over 60, women and pink) model. Among possible determinants of the asset allocation, our crucial variable is the pink dummy, which is set equal to one if the respondent was administered a pink portfolio (assigned randomly, as explained above). The ex-ante expectation is that, if women on average feel more familiar with the pink basket (for example because it consists of brands that they are more exposed to or feel more confident about than the blue AEX ones), this would be reflected in a significant positive effect of the interaction among female and pink dummies. Other standard socio-demographic and economic variables are used as controls, as specified in the list of variables in Appendix III. As we have seen in Section 2 above, the gender gap in stock market participation is often assumed to be due to a gender gap in risk attitude and in financial literacy and expertise. We thus want to control for these factors to see whether gender attitudes differ once preferences and knowledge are taken into account. To this end, we include both a measure of financial expertise and of risk tolerance as explanatory variables. Since the DHS contains various questions that can be used as a measure of

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<sup>13</sup> [http://cdata3.uvt.nl/dhs/files/SpaarOnderzoekCodebook\\_2012\\_en\\_1.2.pdf](http://cdata3.uvt.nl/dhs/files/SpaarOnderzoekCodebook_2012_en_1.2.pdf)

<sup>14</sup> In the following multivariate analysis we have dropped the observations whose individual income was negative. After that, the sample consists of 1415 observations, of which 1307 respondents.

<sup>15</sup> The related tables are included in the Appendix IV. We would like to thank an anonymous referee report for pointing out the sample selection issue and the DiD specifications.

risk attitude, we build a variable of risk attitude by using the answers to three questions on risk, as specified in Appendix III (see variable Index risk). Since the type household matters (see e.g. Bertocchi *et al*, 2014), we also consider whether the respondent lives with a partner or not.

Results are reported in Table 9. As for controls, results are robust across all specifications (columns 1-4): richer individuals invest a higher share in stocks, while more educated individuals tend to invest less in shares even if we include a measurement of risk aversion in our specification. Consistently with the behavioral explanation described above, ordering the bond and stock options differently does make a difference. In other words, we included a dummy equal to one when respondents were asked how much money they would have allocated to bonds (rather than stocks) out of 100,000€. Mentioning bonds rather than stocks first, dramatically change the results by making people more inclined to invest in the first mentioned option. Working does not affect portfolio allocation.

By contrast, the coefficient of the interaction term between female and pink is not statistically different from zero, so we have to exclude a significant average treatment effect for the whole female population. Nevertheless, as it is clear from the DiDiD estimations (columns 3 and 4), offering a pink portfolio significantly affects the choice between bonds and stocks for women older than 60. The magnitude of the effect is also substantial: according to the OLS estimation, offering a pink portfolio rather than a blue one to women older than 60 increases on average the proportion invested in shares by about 14 percentage points.

In order to allow for additional heterogeneity, we also run two separate sets of regressions for the male and the female subsamples so as to take into account the possibility of gender differences in the coefficients between the two groups (Table 10). Indeed, we find a positive income effect only among women. Moreover, in line with the descriptive statistics and results presented in Table 9, the framing effect is significant for both groups, but the magnitude is higher for women. Finally, consistently with the previous regressions, the coefficient of the pink and age interaction is significant only for females.

In sum, from the results we can infer that women over 60 invest more in risky assets when offered a pink portfolio rather than a blue one. This result holds for all our specifications. We see various explanations for this finding. First, it could be that women over 60 are more likely to read the magazines we used for constructing the pink basket. However, we should point out that at least for some of the magazines (Vogue UK, Vogue US) we know the average age of readers, which is 37, hence even lower than the average age in our sample. Alternatively, it could be that women over 60 are more sensitive to familiarity than younger women irrespective of whether they read women's magazines or not, just because being older these women have over time been more exposed to these brands that have been around for long. Finally, the pink brands could be less familiar or appealing to younger women because they are too traditional or luxury. Note that we have deliberately chosen to use ads, and not sales, in order to prevent an income/wealth bias. We do not find the same effect for men over 60, which is in line with our hypothesis that women have a lower psychological proximity to the companies traded in the stock exchange.

**[TABLE 9]**

**[TABLE 10]**

In order to perform some robustness checks on our results we run, for male and female samples as well as for the whole sample, a set of Probit analysis on having less than 30% (prudential portfolio) and more than 70% (aggressive portfolio) in shares, which represents the probability of taking up more risk. We also use an additional indicator of investing fifty-fifty in shares (agnostic benchmark portfolio). Table 11 reports results of a DiDiD for the whole sample, while Table 12 reports results for male and female separately.

The result that older women are more interested in pink portfolio holds in the regression with men and women separated: the coefficient of  $\text{pink*over60}$  is significant only for the specification estimated using the sample of women who invested more than 70% in stocks. Obviously, this cannot be explained by conventional risk return considerations, as in that case women over 60 in the blue condition would also allocate more to stocks. We see two alternatives. The first is that to older women the pink stocks are more “familiar” (as explained above) than the blue stocks, or that older women are more sensitive to familiarity. An alternative explanation, resulting from the consumer services model of asset choice, is that women over 60 prefer pink stocks because they are a hedge against relative price fluctuations of consumer goods they particularly prefer or cannot do without.

As for men, the Probit analysis confirms that signs are often opposite from those for women, but coefficients are almost never significant. One exception is the urban dummy variable for men, indicating that belonging to an urban area decreases the probability of investing prudentially (less than 30% in stocks). The same does not hold for women, as the urban area of residence does not have any explanatory power. This result could be interpreted as reflecting familiarity in the sense that men in urban areas may be more exposed to the financial market and to stock listed companies e.g. through work, whereas the women in our sample, if they work, tend to have jobs in the not-for-profit sector<sup>16</sup>. As for high education, the effect is significant only for women, whereby more educated women have lower chances of investing 70% or over in risky asset.

**[TABLE 11]**

**[TABLE 12]**

### **6.3 Time-to-decide on pension savings allocation**

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<sup>16</sup> Note that the financial sector in the Netherlands is very large relative to GDP (assets more than 400% of GDP), and that banks and insurance companies are all located in (and hence offer employment in) the largest cities (DNB, 2015), and that the percentage of men working in the financial industry is much and significantly larger than that of women.

In Section 5, we showed that average time elapsed differs between the pink and the blue condition, a difference entirely due to the fact that in the pink condition women decide much quicker than in the blue condition.

For a more thorough analysis, we study time-to-decide in a multivariate context, adding several other explanatories. First of all, as in the previous section, we may be worried about sample selection because of the attrition rate. However, by estimating again a two-stage Heckman model for the DiD and DiDiD specifications, we find that in the second stage the coefficient of the Mill's ratio is not statistically different from zero<sup>17</sup>. This is true both using the whole sample and excluding outliers, i.e. individuals who took more than one hour to make a decision. Therefore, we believe that also in this case we can omit non-respondents without affecting the validity of our results.

Similarly to Section 6.2, we have estimated a DiD and DiDiD using the same regressors as before while in this case the dependent variable is time to make a decision expressed in seconds (Table 13). After dropping the outliers, as expected, having children significantly reduces the duration of the experiment: it is likely that these individuals are time constraint since they have to take care of their offspring. Furthermore, financially literate individuals also take less time to complete the task, probably because they are more prepared and confident. Nevertheless, the regressors of interest, i.e. the gender, pink and age dummies together with their interaction terms, are all statistically not different from zero. The results do not change substantially when we look at male and female separately (Table 14). We can notice that having children and being financially literate have a significant impact on decision times only for women. Moreover, even if the time taken to answer the question drops sharply for women if a pink option is offered to them, this is no longer true once outliers are omitted.

From these results, we can conclude that, while it is true that there is a correlation, that is women seem to be more familiar with the pink option and therefore decide quickly when such option is available, the multivariate analysis excludes a causal nexus between the two variables.

**[TABLE 13]**

**[TABLE 14]**

## **7. Conclusions and further research**

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<sup>17</sup> The related tables are included in the Appendix IV.

The purpose of this paper is to contribute to the understanding of the gender gap in investor behavior by taking a behavioral perspective and, specifically, resting on the concept of familiarity (Merton 1987, Huberman, 2001) and the affect heuristic of dual processing theory (Zajonc, 1989; Slovic, 1987, Slovic et al 2002, 2004, Kahneman 2011.) We have used a very simple measure of familiarity: stocks whose companies advertise in women magazines were assumed to be more familiar to women than to men and more familiar to women than stocks in the Euronext Amsterdam Stock market index of most traded large companies. If this would induce women to invest more in stocks, it could imply that the gender gap in stock market participation would be at least partly due to psychological distance to the products and activities of companies in the AEX.

The most robust evidence we find on familiarity is that older women are sensitive to the pink vs blue stock basket (causal relation), that women are much more sensitive to the response ordering and that in general they spend much more time than men on deciding when in the blue condition, but not in the pink condition, which reflects lower confidence when confronted with a blue than with a pink portfolio. This result disappears if respondents who took more than an hour to decide (and hence almost certainly did not answer the question in one session) are omitted.

Hence, based on the analysis in this paper, we should reject our hypothesis – gender gap in financial risk taking would be smaller if the companies most traded in the stock market would be those advertising in women’s magazines– except for women over 60. This may be interpreted as implying that familiarity does not play a role, or that the companies advertising in women’s magazines are not regarded as more familiar than those in the AEX. The fact that women need less time to decide in the pink condition could however be interpreted as support for the hypothesis that women participate less in the stock market because of lack of familiarity with the companies traded.

The results of this paper have to be seen as a first attempt to explore and test an explanation for the gender gap in stock market participation based on the concept of familiarity which has already been applied successfully to explain various investor home biases. It therefore departs from the traditional ones referring to risk-taking or financial literacy. As the gender gap in risk taking in an environment involving money remains a puzzle (Van Geen, 2014) further research on the role of familiarity in explaining women’s reluctance to invest in stocks is needed. As for familiarity, alternative measures may be used: for example, instead of companies’ advertisements in women magazines, one could rest on the consumer services asset model (Merton 1975, 1977) and measure familiarity according to the frequency with which women buy the consumption goods and services from companies. As for the survey question design, since an exceptionally high number of CentER panel members (mostly women) chose not to respond after having seen the question, it may be interesting to explore whether this is due to not allowing for a “don’t know” answer (Bucker Koenen *et al.*, 2012). Further, our result on the response ordering may indicate that context, including language, is especially important when it comes to life cycle saving and investing communication to women. We leave these issues for future research.

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## **Appendix I - Women magazines' selection**

We selected the most popular women's magazines edited in USA, UK, France, Netherlands and Italy from 2010 through the summer of 2013. For each magazine we took one copy per season. We take an international mix of magazines rather than a mere Dutch one for several reasons. First, the Dutch are well known for the large number of international magazines they read and that are found in bookshops. Second, with Internet people watch and read magazines online, and those may be Dutch as well as international. We did not base our selection merely on number of sales for the same reason, and because women, at least in the Netherlands, have a tendency to leave through several magazines before deciding to buy one of them.

### **[TABLE A1]**

Based on these magazine copies, we made a list of those companies that advertised at least once in these magazines and were listed in a stock exchange or traced down to a listed parent, i.e. to a company whose stocks are traded on the exchange, for a total of 65. The non-listed companies and their small sub-firms were excluded from the sample, as there is no actual possibility to purchase their stocks. This resulted in the following list of advertising companies:

### **[TABLE A2]**

## Appendix II - Questionnaire (English translation)

Pension savings allocation question.

Imagine you have 100.00 euros available to put aside for retirement. You need to allocate it over government bonds with an interest rate of 4 percent, and a basket of stocks which is expected to yield a return of 8 percent. You cannot touch the money until retirement. You do not invest in individual stock but in a basket of 15 different stocks, which reduces the risk without reducing the return, as bad outcomes of one firm may be compensated for by good outcomes of another. Upon retirement you will receive with certainty the money that you put in the government bonds plus accumulated interest. Hence it is similar to a savings account with a fixed interest rate. The money that you put in the stock basket is expected to increase in value eight percent each year. However, this is not sure. It is possible that it grows with more than eight percent each year, but also with less.

A numerical example.

If you put the whole amount in government bonds, it will be worth 148.000 in ten years. If you put everything in stocks, it is expected to be worth 215.000 in ten years. However, it can also be more, for example 280.000, or less, for example 130.000.

The basket of stocks consists of

### [TABLE A3]

How much would you put in government bonds and how much in the basket of stocks?

Question framing

Framing a

How would you allocate the money?

Bonds ....euro

Stocks ....euro

Framing b

How would you allocate the money?

Stocks ....euro

Bonds ....euro

About the question

Did you find it difficult to answer the question?  
Did you find the question clear?  
Did you think the question was thought-provoking?  
Did you find the topic interesting?  
Did you find it enjoyable to answer the question?

#### Comments

Do you have any comments about this question?

### APPENDIX III - Variables used in the regressions: descriptions and summary statistics

VARIABLE	Description
CenterPanel DATA Source: <a href="http://www.centerdata.nl">www.centerdata.nl</a>	
DEPENDENT	Amount allocated to the stock basket, normalised to one.
Over60	Binary variable assuming value 1 for respondents aged over 60, 0 otherwise.
Children	Binary variable assuming value 1 for respondents have children, 0 otherwise.
Net household income	Log of current household income.
Urban	Binary variable assuming value 1 for respondents resident in an urban area, 0 otherwise.
Partner present	Binary variable assuming value 1 for respondents living with a partner, 0 otherwise.
High education	Binary variable assuming value 1 for respondents with education at college level or above, 0 for education at secondary school level or below.
Having stocks	Binary variable assuming value 1 for respondents already owning stocks, 0 otherwise.

Index risk

Index of risk is a built up variable, as the sum of three risk aversion measures. Risk (1) aversion is a dummy taking the value of one if the respondent gives values bigger than 5 out of ten, in agreeing to this sentence given in the questionnaire: "I think it is more important to have safe investments and guaranteed returns". Risk (2) is a variable equal to one if the respondent's answer is above or equal to 4 to the following question: "I would never consider investments in shares because I find this too risky". Risk (3) has been built up in the same way with the following statement: "I want to be certain that my investments are safe".

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<b>Work</b>	Binary variable assuming value 1 if the respondent works, 0 otherwise.
<b>Bonds first</b>	Dummy equal to one when respondents were given bonds as the first listed alternative (rather than stocks).
<b>Fin literacy</b>	Dummy equal to one if respondent's answer she is very knowledgeable or knowledgeable to the following question: How knowledgeable do you consider yourself with respect to financial matters?

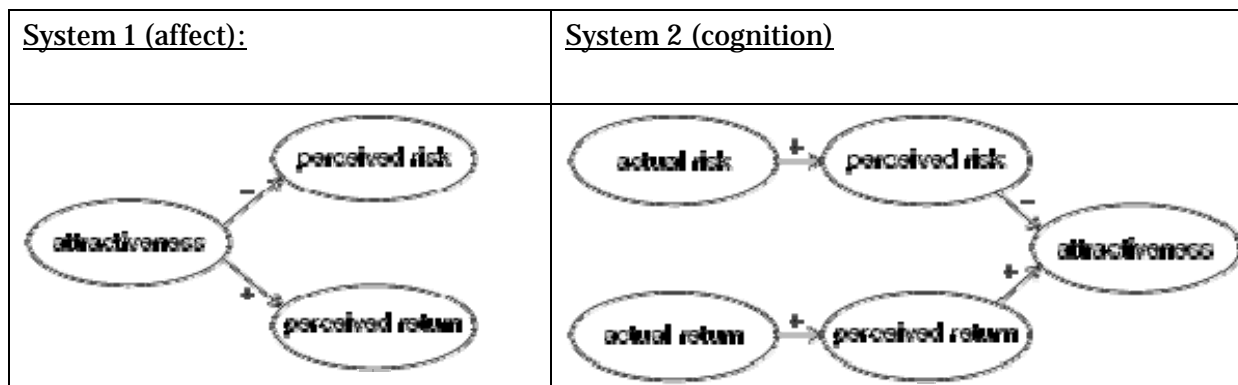
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## Summary statistics

**[TABLE A4]**



**APPENDIX IV - Heckman selection model estimates****[TABLE A5]****[TABLE A6]****[TABLE A7]**

**Graph 1**

**Table 1. Top Ten Types of Magazines in the Netherlands (sales in mln euros), 2012**

1.	Women's magazines	305.2
2.	Radio and television guides	202.0
3.	Lifestyle	105.5
4.	Opinion	55.7
5.	Home and garden	49.2
6.	Youth and teens	47.6
7.	Sports	46.9
8.	Popular science	28.2
9.	Automobiles	23.7
10.	Recreation	21.9

Source: *www.mediafacts.nl (2013)*

Table 2. Composition of the pink and blue stock basket (alphabetical order)

Pink		Blue	
<i>Company</i>	<i>Sector</i>	<i>Company</i>	<i>Sector</i>
1 Burberry	Apparel L	1 Ahold	Food
2 Dior	Apparel/cosmetics L	2 AIR FRANCE –KLM	Airline
3 Douglas	Cosmetics	3 AKZO NOBEL	Chemicals
4 Esprit	Apparel	4 ARCELORMITTAL	Steel
5. Estee Lauder	Cosmetics	5 ASML HOLDING	Semiconductors
6. IFF	Cosmetics	6 CORIO	Steel
7.Ikea	Home	7 DE Master Blenders	Food
8. LÓreal	Cosmetics	8 DSM	Chemicals
9. Prada	Apparel L	9 FUGRO	Oil equipment
10. Ralph Lauren	Apparel L	10 ING	Financial
11.Revlon	Cosmetics	11 Philips	Electronics
12. Shiseido	Cosmetics L	12 SBM OFFSHORE	Oil equipment
13. Svenska Cellulosa	Hygiene	13 Shell	Oil
14 Tiffany & Co	Jewellery L	14 UNIBAIL Rodamco	Real estate investment
15.Zara	Apparel	15 Unilever	Food, hygiene

**Table 3. Summary Statistics, general**

<b>Number of household members</b>	<b>2138</b>	<b>(100%)</b>
<b>Nonresponse</b>	<b>808</b>	<b>(37.80%)</b>
<b>Response incomplete</b>	<b>11</b>	<b>(0.50%)</b>
<b>Response complete</b>	<b>1319</b>	<b>(61.70%)</b>

*Source: authors based on CentERpanel data*

Table 4. Characteristics of panel members choosing not to respond and to respond

	Non-responders (obs. 110)	Responders (obs. 1330)
Gender composition	69%F 31%M	53% F 47%M
Average Age	47	49
% higher educated	38	44

*Source: authors based on CentERpanel data*

Figures 1. Distribution of time in minutes elapsed between start and completion of survey by gender and condition

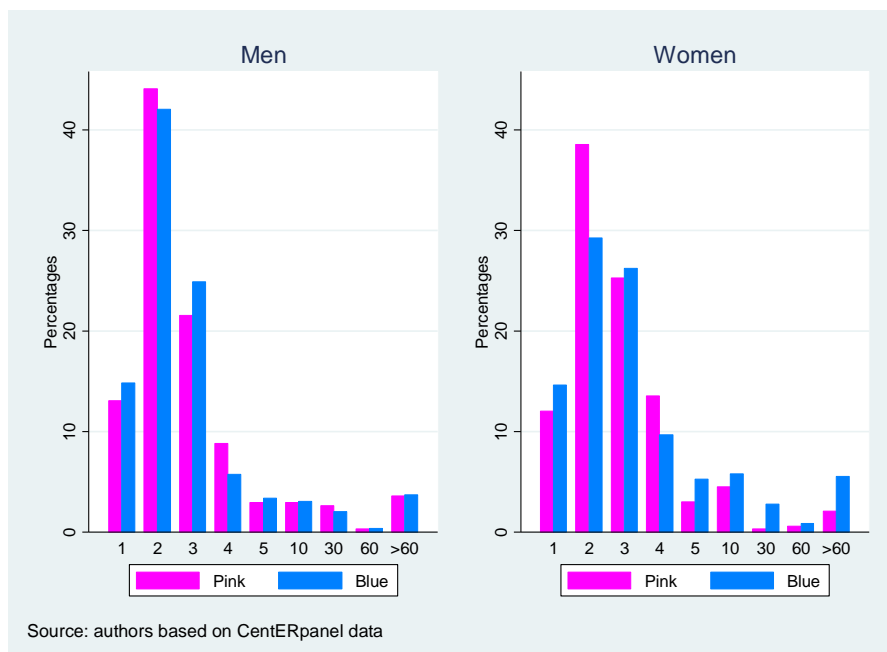
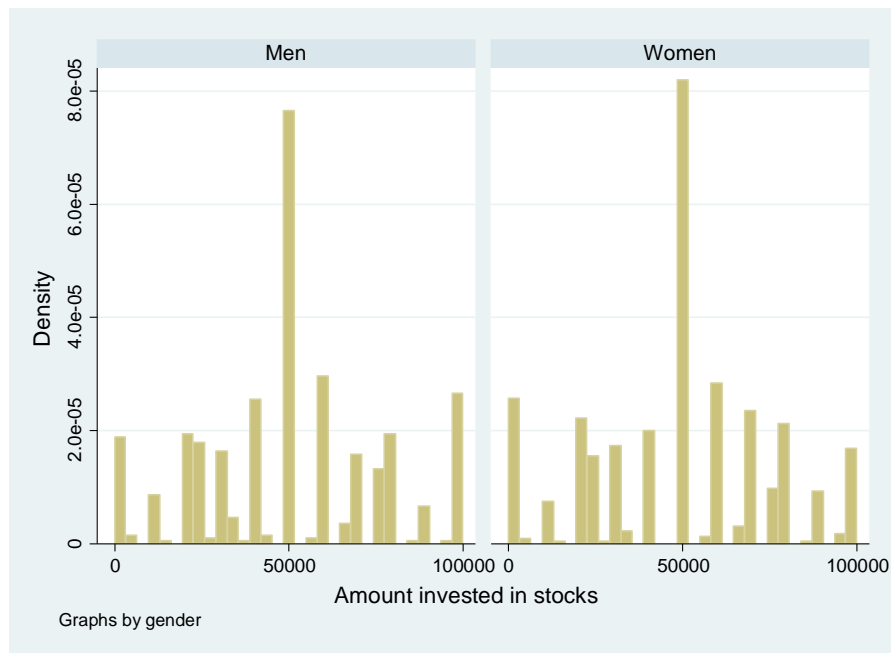


Figure 2. Distribution of percentage allocated to stock basket according to gender (pink and blue taken together)





**Table 5. Respondents allocating part or all of money to stock basket (%)**

	Blue	Pink	Color Gap (B-P)
Men	95.7%	92.9%	2.8 (1.48)
Women	92.6%	91%	1.6 (0.79)
Gender gap (M-W)	3.1 (1.64)	1.9 (0.86)	

*Source: authors based on CentERpanel data*

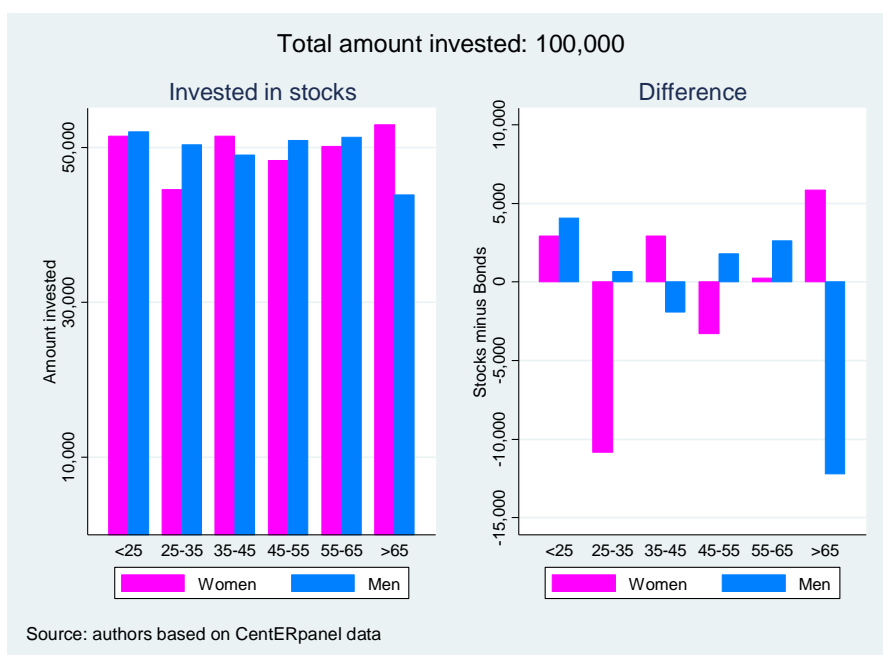
*Note: t-values in parentheses*

Table 6. Average amount allocated to stocks, by portfolio color and gender

	Blue	Pink	Colour Gap (P-B)
Men	49,926	50,842	916
Women	49,229	48,918	-311
Gender gap (M-W)	697	1,924	

*Source: authors based on CentERpanel data*

Figure 3. Percentage allocated to stocks according to age category



**Table 7. Response ordering effect: Amount allocated to stocks**

	Men	Women
Stock basket first	56,670	60,851
Bonds first	43,662	36,866
Primacy effect (in €)	13,008*	23,985*

*Source: authors based on CentER data panel outcomes*

Table 8. Response ordering effect for those not choosing fifty-fifty: Amount allocated to stocks

	Men	Women
Stock basket first	58,763	64,047
Bonds first	41,482	31,151
Primacy effect (in €)	17,281*	32,896*

*Source: authors based on CentER data panel outcomes*

**Table 9. DiD and DiDiD for proportion invested in shares - Only respondent**

	(1)	(2)	(3)	(4)
	OLS - DID	Tobit - DID	OLS - DIDiD	Tobit - DIDiD
Female	0.0051 (0.0231)	-0.0001 (0.0263)	0.0171 (0.0266)	0.0136 (0.0301)
Pink	0.0165 (0.0249)	0.0169 (0.0286)	0.0233 (0.0279)	0.0244 (0.0319)
Female*Pink	-0.0182 (0.0330)	-0.0198 (0.0379)	-0.0490 (0.0374)	-0.0555 (0.0430)
Over60			0.0302 (0.0418)	0.0313 (0.0470)
Female*Over60			-0.0507 (0.0514)	-0.0577 (0.0586)
Pink*Over60			-0.0366 (0.0622)	-0.0405 (0.0726)
Female*Pink*Over60			0.1426* (0.0802)	0.1636* (0.0922)
Having children	0.0116 (0.0207)	0.0130 (0.0237)	0.0182 (0.0213)	0.0199 (0.0243)
Net income	0.0567** (0.0227)	0.0611** (0.0264)	0.0559** (0.0227)	0.0602** (0.0264)
Urban	0.0089 (0.0179)	0.0075 (0.0205)	0.0107 (0.0181)	0.0095 (0.0206)
Partner present	-0.0326 (0.0250)	-0.0321 (0.0290)	-0.0346 (0.0252)	-0.0343 (0.0292)
High education	-0.0539*** (0.0183)	-0.0595*** (0.0212)	-0.0531*** (0.0185)	-0.0588*** (0.0215)
Having stocks	0.0068 (0.0241)	0.0062 (0.0272)	0.0060 (0.0242)	0.0053 (0.0272)
Bonds first	-0.1882*** (0.0174)	-0.2089*** (0.0201)	-0.1866*** (0.0174)	-0.2070*** (0.0200)
Work	-0.0074 (0.0205)	-0.0077 (0.0235)	-0.0033 (0.0216)	-0.0036 (0.0247)
Financial literacy	-0.0189 (0.0206)	-0.0206 (0.0239)	-0.0182 (0.0207)	-0.0198 (0.0240)
Index risk	-0.0149 (0.0093)	-0.0169 (0.0106)	-0.0134 (0.0095)	-0.0153 (0.0108)
Constant	0.2243 (0.1685)	0.2116 (0.1954)	0.2159 (0.1696)	0.2030 (0.1961)
Sigma		0.2796*** (0.0100)		0.2788*** (0.0100)
Observations	888	888	888	888
AdjR^2	0.1324		0.1331	
PseudoR^2		0.1929		0.1998
Prob>F	0.0000	0.0000	0.0000	0.0000

Standard errors in parentheses. Standard Errors Clustered at Household Level \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 10. Tobit for proportion invested in shares - Female and Male separated**

	(1)	(2)	(3)	(4)
	Female	Male	Female	Male
Pink	-0.0279 (0.0255)	0.0206 (0.0276)	-0.0314 (0.0291)	0.0223 (0.0321)
Over60	-0.0225 (0.0396)	0.0320 (0.0431)	-0.0262 (0.0399)	0.0432 (0.0491)
Pink60ov	0.1466*** (0.0566)	-0.0824 (0.0699)	0.1119* (0.0584)	-0.0387 (0.0760)
Having children			0.0155 (0.0312)	0.0290 (0.0377)
Net income			0.0649** (0.0317)	0.0406 (0.0460)
Urban			-0.0130 (0.0264)	0.0389 (0.0321)
Partner present			-0.0266 (0.0361)	-0.0380 (0.0536)
High education			-0.0631** (0.0287)	-0.0595* (0.0336)
Having stocks			0.0128 (0.0365)	0.0002 (0.0375)
Bonds first			-0.2478*** (0.0253)	-0.1597*** (0.0290)
Work			-0.0100 (0.0291)	0.0271 (0.0399)
Financial literacy			-0.0394 (0.0325)	0.0064 (0.0344)
Index risk			-0.0115 (0.0150)	-0.0201 (0.0163)
Constant	0.4934*** (0.0170)	0.4976*** (0.0190)	0.2056 (0.2353)	0.2980 (0.3213)
Sigma	0.2998*** (0.0104)	0.3041*** (0.0120)	0.2592*** (0.0116)	0.2954*** (0.0144)
Observations	699	607	452	436
PseudoR <sup>2</sup>	0.0151	0.0030	0.3491	0.1108
Prob>F	0.0211	0.6855	0.0000	0.0001

Standard errors in parentheses

Standard Errors Clustered at Household Level

Only respondent considered

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 11 - Probit for proportion invested in shares below or equal 30%, above 70% and equal to 50% - DiDiD**

	(1) 30	(2) 70	(3) 50
Female (d)	-0.0167 (0.0440)	-0.0135 (0.0412)	0.0329 (0.0453)
Pink (d)	0.0053 (0.0433)	0.0313 (0.0399)	-0.0530 (0.0477)
Female*Pink (d)	0.0150 (0.0605)	-0.0412 (0.0538)	0.0012 (0.0678)
Over60 (d)	-0.0500 (0.0702)	-0.0058 (0.0671)	0.0396 (0.0784)
Female*Over60 (d)	0.0305 (0.1039)	-0.0759 (0.0706)	-0.0363 (0.0917)
Pink*Over60 (d)	0.0061 (0.1102)	-0.0298 (0.0927)	-0.0202 (0.1094)
Female*Pink*Over60 (d)	-0.0613 (0.1163)	0.2835 (0.2071)	-0.0137 (0.1446)
Having children (d)	0.0054 (0.0337)	0.0359 (0.0350)	-0.0432 (0.0333)
Net income	-0.0708** (0.0355)	0.0656* (0.0349)	-0.0470 (0.0370)
Urban (d)	-0.0278 (0.0287)	0.0230 (0.0294)	-0.0223 (0.0308)
Partner present (d)	0.0001 (0.0385)	-0.0640 (0.0430)	0.0719* (0.0375)
High education (d)	0.0346 (0.0311)	-0.0689** (0.0280)	0.0076 (0.0334)
Having stocks (d)	-0.0690* (0.0380)	-0.0249 (0.0389)	0.0837* (0.0482)
Bonds first (d)	0.1891*** (0.0273)	-0.2158*** (0.0257)	0.0302 (0.0304)
Work (d)	0.0013 (0.0342)	-0.0176 (0.0340)	0.0064 (0.0381)
Financial literacy (d)	0.0348 (0.0333)	-0.0016 (0.0323)	-0.0124 (0.0336)
Index risk	0.0260* (0.0150)	-0.0194 (0.0139)	0.0058 (0.0160)
Observations	888	888	888
PseudoR <sup>2</sup>	0.0718	0.1020	0.0151
Prob>F	0.0000	0.0000	0.5288

Marginal effects; Standard errors in parentheses

Standard Errors Clustered at Household Level

Only respondent considered

Marginal effects reported

(d) for discrete change of dummy variable from 0 to 1

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$



**Table 12 - Probit for proportion invested in shares below or equal 30%, above 70% and equal to 50% - Female and Male separated**

	(1)	(2)	(3)	(4)	(5)	(6)
	Female30	Male30	Female70	Male70	Female50	Male50
Pink (d)	0.0101 (0.0421)	0.0030 (0.0427)	-0.0244 (0.0372)	0.0283 (0.0423)	-0.0433 (0.0480)	-0.0419 (0.0467)
Over60 (d)	-0.0239 (0.0602)	-0.0737 (0.0667)	-0.0842* (0.0482)	-0.0040 (0.0733)	-0.0166 (0.0685)	0.0691 (0.0816)
Pink60ov (d)	-0.0361 (0.0859)	0.0181 (0.1132)	0.2536* (0.1337)	-0.0247 (0.1005)	-0.0509 (0.0927)	-0.0488 (0.0989)
Having children (d)	0.0405 (0.0490)	-0.0360 (0.0443)	0.0531 (0.0425)	0.0135 (0.0496)	-0.1243*** (0.0452)	0.0400 (0.0511)
Net income	-0.0855* (0.0500)	-0.0335 (0.0531)	0.0856** (0.0434)	0.0401 (0.0545)	-0.0289 (0.0553)	-0.0585 (0.0535)
Urban (d)	0.0198 (0.0407)	-0.0878** (0.0392)	0.0247 (0.0354)	0.0206 (0.0427)	-0.0306 (0.0441)	-0.0112 (0.0450)
Partner present (d)	-0.0101 (0.0540)	0.0030 (0.0563)	-0.0960* (0.0537)	-0.0255 (0.0682)	0.0811 (0.0543)	0.0447 (0.0565)
High education (d)	0.0277 (0.0431)	0.0592 (0.0449)	-0.0846** (0.0356)	-0.0492 (0.0417)	-0.0288 (0.0464)	0.0413 (0.0480)
Having stocks (d)	-0.0758 (0.0522)	-0.0857* (0.0476)	-0.0463 (0.0485)	-0.0324 (0.0516)	0.0230 (0.0741)	0.1464** (0.0647)
Work (d)	-0.0105 (0.0438)	-0.0174 (0.0540)	-0.0429 (0.0410)	0.0331 (0.0486)	0.0206 (0.0508)	-0.0176 (0.0579)
Bonds first (d)	0.2492*** (0.0378)	0.1224*** (0.0393)	-0.2369*** (0.0335)	-0.1826*** (0.0370)	0.0409 (0.0434)	0.0135 (0.0420)
Financial literacy (d)	0.1008* (0.0519)	-0.0390 (0.0428)	0.0156 (0.0436)	-0.0190 (0.0440)	0.0038 (0.0529)	-0.0281 (0.0453)
Index risk	0.0334 (0.0209)	0.0200 (0.0197)	0.0083 (0.0203)	-0.0476** (0.0194)	-0.0234 (0.0226)	0.0354 (0.0219)
Observations	452	436	452	436	452	436
PseudoR <sup>2</sup>	0.1243	0.0514	0.1591	0.0695	0.0253	0.0250
Prob>F	0.0000	0.0440	0.0000	0.0007	0.4059	0.5196

Marginal effects; Standard errors in parentheses

Standard Errors Clustered at Household Level

Only respondent considered

Marginal effects reported

(d) for discrete change of dummy variable from 0 to 1

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 13 - DiD and DiDiD for decision time - OLS**

	(1)	(2)	(3)	(4)
	DID	DID No outliers	DIDID	DIDID No outliers
Female	3026.7 (3416.1)	29.9 (20.4)	3396.5 (3640.5)	26.4 (23.4)
Pink	-1622.0 (2537.1)	11.4 (17.4)	-3543.3 (2299.5)	11.2 (19.8)
Female*Pink	-6130.9 (3930.6)	-44.1 (28.0)	-3875.5 (4368.3)	-42.5 (31.7)
Over60			2599.1 (6584.8)	2.4 (17.9)
Female*Over60			-417.2 (9544.7)	18.4 (41.8)
Pink*Over60			14492.9 (10148.6)	4.1 (26.3)
Female*Pink*Over60			-15619.5 (11898.6)	-7.0 (49.6)
Having children	55.4 (2329.1)	-29.9** (11.9)	1231.7 (2309.0)	-27.2** (12.6)
Net income	-2329.3 (2512.2)	-13.9 (16.1)	-1701.5 (2490.1)	-14.1 (15.9)
Urban	284.8 (2281.7)	13.4 (12.9)	706.7 (2309.2)	13.8 (12.8)
Partner present	3004.9 (2413.1)	-53.1*** (18.2)	2398.2 (2464.1)	-52.7*** (18.2)
High education	-1101.7 (2028.2)	16.0 (18.4)	-1320.7 (2055.9)	16.9 (17.5)
Having stocks	-1828.7 (2271.1)	-9.7 (18.2)	-2309.4 (2173.8)	-10.1 (18.3)
Bonds first	-1656.3 (2064.9)	10.2 (14.0)	-1636.4 (2001.5)	10.1 (13.8)
Work	321.8 (2814.6)	-36.4* (19.9)	1147.3 (2850.2)	-32.4 (21.4)
Financial literacy	-608.8 (1973.5)	-25.8** (11.6)	-609.7 (1938.1)	-25.6** (11.8)
Index risk	1345.4* (779.7)	-5.8 (9.2)	1005.7 (786.6)	-5.6 (9.5)
Constant	20255.2 (19149.0)	329.0*** (123.7)	14807.3 (18710.0)	324.8*** (125.4)
Observations	882	848	882	848
AdjR <sup>2</sup>	-0.0004	0.0400	0.0050	0.0361
Prob>F	0.3121	0.0001	0.2323	0.0000

Standard errors in parentheses. Standard Errors Clustered at Household Level

Only respondent considered

Individuals who took more than one hour to decide have been dropped in the No outliers columns

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 14 - OLS for decision time- Female and Male separated**

	(1)	(2)	(3)	(4)	(5)	(6)
	Female	Male	Female	Male	Female No outliers	Male No outliers
Pink	-5343.9*	-1630.8	-7897.7**	-3050.9	-27.6	13.4
	(3065.8)	(2025.6)	(3970.9)	(2113.2)	(24.1)	(20.1)
Over60	389.1	2789.5	2080.1	3973.2	21.5	7.6
	(5132.3)	(6028.2)	(6299.4)	(6366.8)	(42.2)	(20.1)
Pink60ov	-2371.9	12414.2	-5.3	13324.8	-7.0	-7.9
	(5535.1)	(9348.8)	(6937.9)	(10215.2)	(38.9)	(24.6)
Having children			-698.1	3594.2	-51.3***	-6.8
			(3558.1)	(2930.9)	(15.4)	(24.4)
Net income			-2219.3	-1578.2	-12.6	-16.3
			(4009.2)	(2936.8)	(20.7)	(26.5)
Urban			3216.7	-1594.0	29.8	0.4
			(3423.6)	(3288.9)	(22.6)	(15.6)
Partner present			4007.8	500.4	-55.3*	-47.7*
			(3611.0)	(3243.3)	(28.6)	(25.3)
High education			-4029.4	935.7	20.6	10.3
			(3252.5)	(2624.4)	(25.4)	(23.2)
Having stocks			-6570.4***	-348.2	-20.7	4.2
			(2138.5)	(3630.7)	(22.6)	(26.4)
Work			4161.7	-2327.6	-16.4	-56.4
			(4526.8)	(3587.9)	(27.3)	(35.0)
Bonds first			-2571.9	-774.4	-4.2	23.1
			(3005.9)	(2784.5)	(21.2)	(15.3)
Financial literacy			-3487.5	515.8	-35.5*	-17.4
			(3156.5)	(2690.2)	(20.1)	(13.9)
Index risk			2221.6*	5.2	-13.3	1.4
			(1160.6)	(1075.8)	(16.9)	(9.8)
Constant	8776.7***	3993.7**	18681.8	17822.8	356.3**	333.9
	(2515.5)	(1596.3)	(29111.0)	(23342.7)	(158.8)	(206.9)
Observations	694	603	448	434	430	418
PseudoR <sup>2</sup>	0.0023	0.0134	0.0039	0.0046	0.0339	0.0248
Prob>F	0.0276	0.1576	0.5633	0.5307	0.0004	0.0137

Standard errors in parentheses

Standard Errors Clustered at Household Level

Only respondent considered

Individuals who took more than one hour to decide have been dropped in the No outliers columns

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table A1**

Magazines	UK	USA	Italy	Netherlands
1	Elle	Elle	Anna	Libelle
2	Vogue	Vogue	Amica	Flair
3	Good Housekeeping	Good Housekeeping US	Donna Moderna	Viva
4	Cosmopolitan	Glamour	Gioia	Linda

**Table A2**

No.	Company	Stock Exchange	Product/industry	Heard of?
1	Apple	NYSE	ict	Y
2	Diamond Pet Food	NYSE	home/family	N
3	Expedia	NYSE	travel/socialmedia	Y
4	Facebook	NYSE	ICT/socialmedia	Y
5	Fossil	NYSE	apparel	Y
6	Kraft Foods	NYSE	home/family	Y
7	Steve Madden	NYSE	apparel	N
8	Johnson and Johnson	NYSE	hygiene	Y
9	Colgate-Palmolive	NYSE	hygiene	Y
10	Disney	NYSE	home/family	Y
11	Estee Lauder	NYSE	cosmetics L	Y
12	General Motors	NYSE	automobile	Y
13	Heinz	NYSE	home/family	Y
14	KKR	NYSE	financial	N
15	Kimberly Clark	NYSE	hygiene	N
16	Coca Cola	NYSE	home/family	Y
17	L.Brands	NYSE	apparel	N
18	Nike	NYSE	apparel/sports	Y
19	Procter and Gamble	NYSE	cosmetics/hygiene	Y
20	Philips	NYSE	electronics	Y
21	Revlon	NYSE	cosmetics	Y
22	Ralph Lauren	NYSE	apparel L	Y
23	Tiffany & Co	NYSE	apparel L	Y
24	IFF	NYSE	cosmetics	Y
25	Louis Vuitton	Euronext	apparel L	Y
26	PPR Group (Kering)	Euronext	apparel	N
27	Beter Bed	Euronext	home/family	Y
28	Danone	Euronext	home/family	Y
29	Dior	Euronext	apparel/cosmetics L	Y
30	Omega Pharma	Euronext	care/hygiene	N
31	Hermes	Euronext	apparel L	Y
32	SEB SA	Euronext L	electronics	N
33	Van de Velde	Euronext	apparel	N
34	Nestle	Euronext	home/family	Y
35	L'Oreal	Euronext	cosmetics	Y
36	Adidas	FWB	apparel/sports	Y
37	Beiersdorf	FWB	hygiene	N
38	BMW	FWB	automobiles L	Y
39	Douglas	FWB	cosmetics	Y
40	Henkel	FWB	hygiene	N
41	Porsche	FWB	automobiles L	Y
42	L'Occitane	FWB	hygiene	Y
43	Associated British Foods	LSE	home/family	N
44	ASOS	LSE	apparel	Y

45	Burberry	LSE	apparel	Y
46	Britvic	LSE	home/family	N
47	Debenhams	LSE	apparel/home	Y
48	LG Electronics	LSE	electronics	Y
49	Marks and Spencer	LSE	apparel/food	Y
50	Mulberry Group	LSE	apparel L	Y
51	Reckitt Benckiser	LSE	hygiene	Y
52	H&M	OMX	apparel	Y
53	Sanoma	OMX	magazines	Y
54	Svenska Cellulosa	SCA	hygiene	Y
55	PRADA	SCA	apparel L	Y
56	Hutchinson Whampoa	SCA	miscall BtB	N
57	Esprit	SCA	apparel	Y
58	Richemont	SCA	apparel L	N
59	Shiseido	SCA	cosmetics L	Y
60	Wolford	SCA	apparel L	Y
61	Benetton	Borsa Italiana	apparel	Y
62	Luxottica	Borsa Italiana	apparel	Y
63	YOOX	Borsa Italiana	apparel/social media	Y
64	TOD'S	Borsa Italiana	apparel L	Y
65	Inditex	BMAD	apparel	N

**Table A3**

<i>if pink portfolio</i>	<i>if blue portfolio</i>
1 Estee Lauder	1 Ahold
2 Dior	2 AIR FRANCE –KLM
3 Ralph Lauren	3 AKZO NOBEL
4 Tiffany & Co	4 ARCELORMITTAL
5 L' Oreal	5 ASML HOLDING
6 Zara	6 CORIO
7 Revlon	7 DE Master Blenders
8 Shiseido	8 RODAMCO DSM
9 Burberry	9 FUGRO
10 Ikea	10 ING
11 Douglas	11 Philips
12 Svenska Cellulosa	12 SBM OFFSHORE
13 Esprit	13 Shell
14 International Flavors and Fragrances	14 UNIBAIL
15 Prada	15 Unilever

**Table A4**

Variables	Obs	Mean	Std. Dev.	Min	Max
Proportion invested in shares	1306	0.496903	0.265306	0	1
Female	1306	0.535222	0.498949	0	1
Pink	1306	0.490812	0.500107	0	1
Over-60	1306	0.154671	0.361729	0	1
Female*Over60	1306	0.094181	0.292192	0	1
Pink*Over60	1306	0.066616	0.249451	0	1
Female*Pink	1306	0.254977	0.436015	0	1
Female*Pink*Over60	1306	0.039816	0.195602	0	1
Having children	1306	0.315467	0.46488	0	1
Household Net income (log)	1290	7.878528	0.510989	3.912023	10.71531
Urban	1306	0.420368	0.493807	0	1
Partner present	1306	0.769525	0.421298	0	1
High education	1306	0.447167	0.497391	0	1
Having stocks	1306	0.355283	0.478782	0	1
Work	1007	0.692155	0.461832	0	1
Bonds first	1306	0.486983	0.500022	0	1
Financial literacy	896	0.284598	0.451475	0	1
Index risk	896	2.129464	0.993263	0	3

*Note: Observation on Work, financial literacy, and index differ from main total sample as they were merged from a different dataset.*



**Table A5. DiD and DiDiD for proportion invested in shares**

	(1)	(2)	(3)	(4)
	DiD	DiD	DiDiD	DiDiD
Female	-0.0391 (0.0805)	0.0254 (0.0528)	-0.0224 (0.0587)	0.0399 (0.0618)
Pink	0.0228 (0.0390)	0.0232 (0.0340)	0.0359 (0.0302)	0.0279 (0.0411)
Female*Pink	-0.0187 (0.0583)	-0.0108 (0.0458)	-0.0500 (0.0440)	-0.0389 (0.0608)
Over60			0.0286 (0.0571)	0.0237 (0.0694)
Female*Over60			-0.0335 (0.0723)	-0.0420 (0.0887)
Pink*Over60			-0.0964 (0.0942)	-0.0149 (0.1077)
Female*Pink*Over60			0.1895* (0.1113)	0.1308 (0.1315)
Having children	-0.0020 (0.0327)	0.0149 (0.0256)	0.0047 (0.0245)	0.0231 (0.0320)
Net income	0.0273 (0.0581)	0.0413 (0.0426)	0.0187 (0.0406)	0.0376 (0.0496)
Urban	0.0113 (0.0289)	0.0064 (0.0232)	0.0103 (0.0207)	0.0082 (0.0272)
Partner present	0.0209 (0.0557)	-0.0512 (0.0485)	0.0152 (0.0406)	-0.0568 (0.0568)
High education	-0.0092 (0.0396)	-0.0606** (0.0274)	-0.0114 (0.0286)	-0.0615* (0.0327)
Having stocks	-0.0338 (0.0618)	0.0286 (0.0568)	-0.0237 (0.0439)	0.0320 (0.0662)
Bonds first	-0.1804*** (0.0307)	-0.1872*** (0.0216)	-0.1815*** (0.0220)	-0.1851*** (0.0256)
Work		-0.0043 (0.0268)		0.0016 (0.0337)
Financial literacy		-0.0180 (0.0250)		-0.0167 (0.0298)
Index risk		-0.0131 (0.0117)		-0.0114 (0.0139)
Constant	0.3088 (0.5633)	0.3756 (0.3801)	0.3872 (0.3940)	0.3950 (0.4400)
<b>First stage</b>				
Female	-0.3652** (0.1498)	-0.3597* (0.2148)	-0.3684** (0.1626)	-0.3379 (0.2375)
Pink	-0.0258 (0.1701)	-0.1376 (0.2292)	0.0237 (0.1844)	-0.0762 (0.2522)

Female*Pink	0.1198 (0.2135)	-0.0383 (0.2851)	0.0884 (0.2329)	-0.0804 (0.3212)
Over60			0.0555 (0.3605)	0.1325 (0.4740)
Female*Over60			-0.0026 (0.4221)	-0.1544 (0.5417)
Pink*Over60			-0.3578 (0.4846)	-0.3525 (0.6060)
Female*Pink*Over60			0.2563 (0.5921)	0.2624 (0.7200)
Having children	-0.0706 (0.1157)	-0.0482 (0.1604)	-0.0754 (0.1206)	-0.0620 (0.1677)
Net income	0.2351** (0.0925)	0.2391** (0.1133)	0.2308** (0.0922)	0.2396** (0.1138)
Urban	0.0461 (0.1084)	0.0398 (0.1435)	0.0415 (0.1088)	0.0333 (0.1443)
Partner present	0.1882 (0.1295)	0.2518 (0.1577)	0.1981 (0.1303)	0.2562 (0.1588)
High education	0.1528 (0.1089)	0.1103 (0.1500)	0.1558 (0.1098)	0.1157 (0.1510)
Having stocks	-0.2691** (0.1057)	-0.3179* (0.1910)	-0.2729** (0.1068)	-0.3201* (0.1909)
Bonds first	0.0793 (0.1026)	-0.0135 (0.1364)	0.0802 (0.1028)	-0.0156 (0.1367)
Work		-0.0520 (0.1552)		-0.0696 (0.1639)
Financial literacy		0.0036 (0.1603)		-0.0027 (0.1608)
Index risk		-0.0236 (0.0714)		-0.0221 (0.0717)
Constant	-0.3236 (0.6969)	-0.0671 (0.8800)	-0.3011 (0.6952)	-0.0765 (0.8811)
Mill's ratio	0.4818 (0.8548)	-0.3246 (0.6832)	0.3487 (0.5965)	-0.3839 (0.7818)
Observations	1395	943	1395	943
CensoredObs	105	55	105	55
Prob>F	0.0000	0.0000	0.0000	0.0000

Standard errors in parentheses

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table A6. DiD and DiDiD for decision time**

	(1)	(2)	(3)	(4)
	DiD	DiD	DiDiD	DiDiD
Female	-737.656 (10314.803)	5252.906 (5787.919)	404.176 (8652.841)	5956.692 (6930.846)
Pink	-443.286 (4972.305)	-894.950 (3674.786)	-1139.792 (4428.738)	-3049.052 (4544.480)
Female*Pink	-3715.146 (7475.809)	-5346.739 (4951.291)	-2613.394 (6484.026)	-2774.687 (6717.312)
Over60			3860.741 (8354.472)	1863.703 (7660.159)
Female*Over60			-1838.972 (10574.530)	510.049 (9775.048)
Pink*Over60			8181.288 (13784.985)	16892.008 (11894.644)
Female*Pink*Over60			-12398.320 (16250.800)	-16908.141 (14501.522)
Having children	-130.201 (4190.075)	418.272 (2775.224)	672.387 (3589.173)	1775.319 (3545.534)
Net income	-227.198 (7449.808)	-3991.705 (4620.583)	-476.642 (5979.862)	-3716.570 (5496.131)
Urban	3486.571 (3691.171)	28.224 (2503.343)	3542.908 (3039.692)	453.625 (3009.620)
Partner present	6444.254 (6991.391)	1032.945 (5217.679)	5643.208 (5860.214)	-15.453 (6239.026)
High education	1623.233 (5133.532)	-1860.925 (3004.384)	1287.070 (4262.767)	-2278.001 (3656.516)
Having stocks	-3710.884 (7854.983)	499.452 (6124.142)	-2858.702 (6407.456)	532.320 (7291.891)
Bonds first	-692.011 (3928.261)	-1554.466 (2331.805)	-908.761 (3242.498)	-1486.247 (2826.996)
Work		662.226 (2910.020)		1699.399 (3732.594)
Financial literacy		-484.315 (2720.123)		-403.376 (3309.586)
Index risk		1524.898 (1265.741)		1215.141 (1533.901)
Constant	-6016.516 (72174.891)	36571.114 (41279.907)	-3249.297 (58013.014)	34547.127 (48834.729)
<b>First stage</b>				
Female	-0.366** (0.150)	-0.363* (0.215)	-0.370** (0.163)	-0.342 (0.238)
Pink	-0.025	-0.137	0.025	-0.075

	(0.170)	(0.229)	(0.185)	(0.252)
Female*Pink	0.123	-0.037	0.092	-0.078
	(0.214)	(0.285)	(0.233)	(0.321)
Over60			0.061	0.135
			(0.361)	(0.474)
Female*Over60			-0.002	-0.153
			(0.422)	(0.542)
Pink*Over60			-0.359	-0.354
			(0.485)	(0.606)
Female*Pink*Over60			0.253	0.262
			(0.592)	(0.720)
Having children	-0.072	-0.049	-0.076	-0.063
	(0.116)	(0.161)	(0.121)	(0.168)
Net income	0.236**	0.239**	0.231**	0.239**
	(0.093)	(0.113)	(0.092)	(0.114)
Urban	0.046	0.037	0.041	0.031
	(0.109)	(0.144)	(0.109)	(0.145)
Partner present	0.183	0.248	0.193	0.252
	(0.130)	(0.158)	(0.130)	(0.159)
High education	0.157	0.114	0.160	0.120
	(0.109)	(0.150)	(0.110)	(0.151)
Having stocks	-0.268**	-0.314*	-0.271**	-0.317*
	(0.106)	(0.191)	(0.107)	(0.191)
Bonds first	0.080	-0.013	0.081	-0.015
	(0.103)	(0.137)	(0.103)	(0.137)
Work		-0.054		-0.071
		(0.155)		(0.164)
Financial literacy		-0.001		-0.007
		(0.161)		(0.161)
Index risk		-0.022		-0.020
		(0.072)		(0.072)
Constant	-0.332	-0.064	-0.309	-0.074
	(0.699)	(0.881)	(0.697)	(0.882)
Mill's ratio	61251.679	-34990.655	50929.718	-42290.753
	(108882.560)	(74327.974)	(87328.950)	(86917.458)
Observations	1386	937	1386	937
CensoredObs	105	55	105	55
Prob>F	0.9724	0.6915	0.9209	0.8139

Standard errors in parentheses

Duration expressed in seconds

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table A7. DiD and DiDiD for decision time – No Outliers**

	(1)	(2)	(3)	(4)
	DiD	DiD	DiDiD	DiDiD
Female	78.654 (77.559)	65.149 (92.388)	77.935 (81.129)	62.294 (96.789)
Pink	7.896 (36.923)	21.997 (56.058)	5.677 (41.685)	16.634 (61.130)
Female*Pink	-47.845 (56.432)	-34.312 (74.570)	-45.704 (61.228)	-29.000 (90.372)
Over60			12.948 (78.863)	-6.397 (104.641)
Female*Over60			15.391 (100.799)	33.328 (136.474)
Pink*Over60			29.437 (140.040)	45.923 (176.435)
Female*Pink*Over60			-28.894 (160.831)	-33.062 (207.395)
Having children	-21.708 (30.764)	-25.405 (41.912)	-16.584 (33.699)	-20.091 (48.024)
Net income	-52.963 (56.350)	-39.790 (72.684)	-53.833 (56.971)	-42.248 (76.682)
Urban	2.809 (26.991)	10.049 (38.191)	3.609 (28.216)	11.271 (40.868)
Partner present	-55.057 (50.529)	-82.365 (79.566)	-56.378 (53.261)	-84.528 (83.989)
High education	-23.277 (38.738)	3.776 (47.113)	-22.102 (40.178)	3.220 (50.820)
Having stocks	40.436 (57.402)	24.416 (92.441)	44.215 (59.192)	26.907 (97.117)
Bonds first	-9.199 (30.317)	10.563 (35.658)	-9.931 (31.575)	10.992 (38.478)
Work		-31.206 (44.944)		-24.111 (51.898)
Financial literacy		-24.499 (41.578)		-23.058 (45.094)
Index risk		-2.981 (19.400)		-2.779 (20.863)
Constant	657.846 (544.583)	583.791 (653.419)	662.738 (549.425)	599.472 (682.017)
<b>First stage</b>				
Female	-0.373** (0.151)	-0.371* (0.217)	-0.375** (0.164)	-0.349 (0.240)
Pink	-0.023 (0.171)	-0.132 (0.231)	0.032 (0.186)	-0.062 (0.253)

Female*Pink	0.130 (0.215)	-0.021 (0.287)	0.094 (0.235)	-0.071 (0.323)
Over60			0.048 (0.364)	0.119 (0.477)
Female*Over60			-0.010 (0.427)	-0.160 (0.547)
Pink*Over60			-0.422 (0.494)	-0.419 (0.615)
Female*Pink*Over60			0.312 (0.602)	0.321 (0.730)
Having children	-0.068 (0.117)	-0.039 (0.161)	-0.077 (0.121)	-0.059 (0.169)
Net income	0.245*** (0.094)	0.243** (0.114)	0.241*** (0.093)	0.244** (0.115)
Urban	0.036 (0.109)	0.031 (0.145)	0.030 (0.110)	0.022 (0.146)
Partner present	0.173 (0.131)	0.237 (0.159)	0.182 (0.132)	0.241 (0.160)
High education	0.163 (0.110)	0.119 (0.151)	0.165 (0.111)	0.125 (0.152)
Having stocks	-0.265** (0.107)	-0.300 (0.192)	-0.271** (0.108)	-0.302 (0.192)
Bonds first	0.091 (0.103)	-0.003 (0.137)	0.093 (0.104)	-0.005 (0.138)
Work		-0.054 (0.157)		-0.078 (0.166)
Financial literacy		0.003 (0.161)		-0.005 (0.162)
Index risk		-0.023 (0.072)		-0.020 (0.072)
Constant	-0.424 (0.706)	-0.118 (0.887)	-0.395 (0.703)	-0.124 (0.887)
Mill's ratio	-448.137 (785.422)	-527.241 (1147.812)	-472.280 (789.647)	-567.726 (1181.021)
Observations	1339	903	1339	903
CensoredObs	105	55	105	55
Prob>F	0.8976	0.9431	0.9852	0.9963

Standard errors in parentheses

Duration expressed in seconds

Individuals who took more than one hour to decide have been dropped

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$